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California State Library

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Date received

No. 27049

EXTRACT

*From an Act prescribing Rules for the Government of the State Library,
passed March 8th, 1861.*

SECTION 11. The Librarian shall cause to be kept a register of all books issued and returned; and all books taken by the members of the Legislature, or its officers, shall be returned at the close of the session. If any person injure or fail to return any book taken from the Library, he shall forfeit and pay to the Librarian, for the benefit of the Library, three times the value thereof; and before the Controller shall issue his warrant in favor of any member or officer of the Legislature, or of this State, for his per diem, allowance, or salary, he shall be satisfied that such member or officer has returned all books taken out of the Library by him, and has settled all accounts for injuring such books or otherwise.

SEC. 13. Books may be taken from the Library by the members of the Legislature and its officers during the session of the same, and at any time by the Governor and the officers of the Executive Department of this State who are required to keep their offices at the seat of government, the Justices of the Supreme Court, the Attorney-General and the Trustees of the Library.

Mining and Scientific Press Patent Circular.

To Inventors

ON THE

Pacific Coast.

Messrs. DEWEY & CO.

Take occasion to call your attention to the following rules, regulations and suggestions relative to the obtaining of LETTERS PATENT of the United States:

Established in 1860.

Our business has been long and successfully practiced, and we are thoroughly responsible for the confidence and valuable trusts placed in our charge. Our advice can always be relied upon as correct.

The principal portion of the patent business of this coast has been done, and is still being done, through our agency. We are familiar with and have full records of all former cases, and can more correctly judge of the value and patentability of inventions discovered here, than any other agents.

Steps Necessary to Procure a Patent.

The first thing required is a model, if your invention can be represented by one. It is not only immediately necessary in preparing the papers, but the law demands that the inventor shall, in all cases, furnish a model, which must not exceed twelve inches in any of its dimensions. A model of less size will answer when more convenient. It should be neatly made, of hard wood or metal, or both, and varnished or painted; the name of the inventor and the name of the article should be engraved or painted on it in a permanent manner.

When the invention consists of an improvement on some known machine, a full working model of the whole will not be necessary. It should be sufficiently perfect, however, to show, with clearness, the nature and operation of the invention, and the relation of the new to the old parts of the machine.

As soon as the model is ready, it should be carefully boxed and shipped by express, or otherwise, to our address, namely: DEWEY & CO., Mining and Scientific Press, San Francisco. Prepay expenses and send express receipt to us by mail.

A full description must also be sent with the model, embodying all the ideas and claims of the inventor respecting the improvement, describing the various parts and their operation.

Simultaneously with the model, the inventor should send us the first instalment of the Government fee, fifteen dollars. The money may be forwarded either by express with the model, or by registered letter, post office order, or by draft on San Francisco, payable to our order. Always send a letter with the model, and with the remittance, stating the name and address of the sender. On receipt of the model and Government first fee of \$15 in currency, the case is duly registered on our books, and the application proceeded with as fast as possible. When the documents are ready we send them to the inventor by mail, for his examination, signature and acknowledgment before a Notary Public or Justice of the Peace, with a letter of instruction, etc. Our fee for preparing the case is then due and will be called for. The case will then be presented to the Patent Office, and as soon as the patent is ordered to be issued the Government last fee of \$20 in currency will be required. The law states that every patent shall be dated as of a day not later than six months after the time at which it was passed and allowed, and notice thereof sent to the applicant or his agent. And if the final fee for such patent be not paid within the said six months, the patent shall be withheld, and at the expiration of two years the invention therein described shall become public property as against the applicant thereof.

When the invention consists of a new article of manufacture, a medicine, or a new composition, samples of the separate ingredients, sufficient to make the experiment, (unless they are of common and well known character), and also of the manufactured article itself must be furnished, with full description of the entire preparation.

For Processes, frequently no model or drawings are necessary. In such case the applicant has only to send us an exact description, and what it is desirable to claim.

For Designs no models are necessary. Duplicate drawings are required, and the specifications and other papers should be made up with care and accuracy. In some instances two photographs, with the negatives, answer well instead of drawings.

Inventors who do business with us will be notified of the state of their application in the Patent Office, when it is possible for us to do so. We do not require the personal attendance of the inventor, unless the invention is one of great complication, usually the business can be well done by correspondence.

The usual time required to secure a patent, when the case is conducted at our agency, is from one to two months. We sometimes get them through in two weeks. In rare cases, however, owing to delay on the part of Government officials, the period is sometimes extended for months. We make a special point to advance our cases as rapidly as possible, and have been successful in obtaining patents for this coast more surely and speedily than any other agency in the United States.

Letters Patent and Who Can Obtain them.

A patent is an open letter, embodying all the language of an inventor or his agent, contained in

Mechanical Movements from Dewey & Co's Pamphlet Circular.

PLATE I.

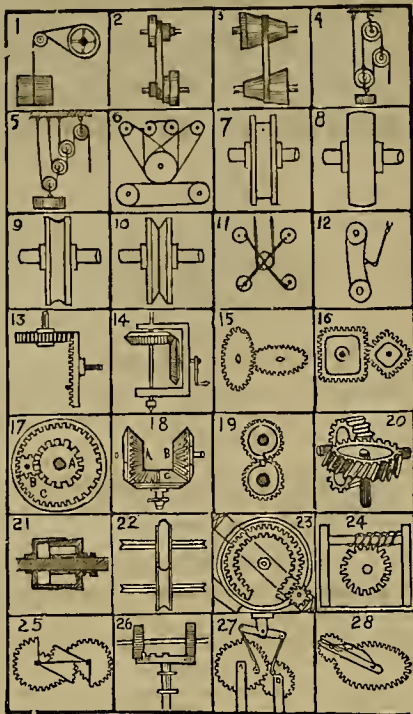
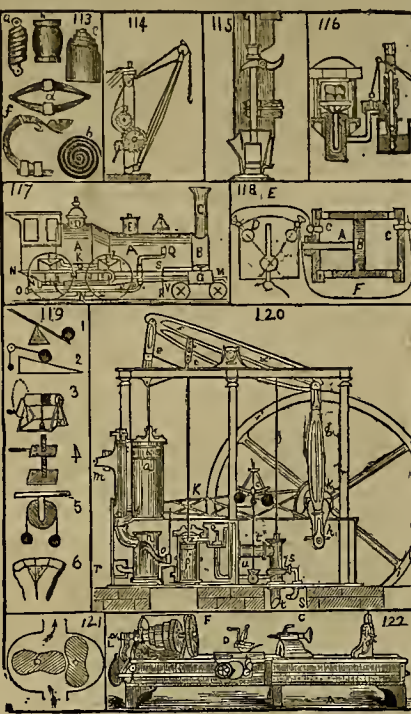


PLATE V.



The explanations of the above and many other illustrations is contained in our Free Circular, which will be sent free on receipt of postage stamp.

the specification, without alteration, and is granted to citizens of the United States, or Foreigners, male or females, (including minors), and is signed by the Secretary of the Interior and the Commissioner of Patents, with the seal of the Patent Office affixed. Its jurisdiction is for the whole United States, for the term of seventeen years. Citizens of Canada and Nova Scotia have to pay a fee of \$500 for patents in the U. S., owing to discriminations made against Americans.

What Claims can be Patented?

A knowledge of Ancient and Modern Mechanics and familiarity with American and Foreign patent issues and rejections, enables us to determine in a measure in all cases what can be patented, and how much can be claimed as new and novel, and be covered by Letters Patent. This is one of the most difficult questions encountered by both old and new inventors—one in which an experienced counsel is of great service.

A majority of the Patents issued during the past eight years to Pacific Coast inventors have been secured through our Agency; consequently we can more readily and correctly advise new applicants than any other agent.

Important Advantages.

Some of the advantages to be obtained by patronizing us may be enumerated as follows:

Inventors on this coast having their applications for patents made out through our agency, can sign their papers at once, and thus secure their rights much sooner than by trusting the same to distant agencies, situated at New York or Washington.

Many inventions on this coast are for objects and purposes but little understood by parties at Washington or other parts of the East. Our mining machinery, processes and operations are best understood by those familiar with their use. A personal verbal explanation is oftentimes of important service, and enables us to be more successful than agents generally.

Remittances of money made by individual inventors to the Government sometimes miscarry, and it has frequently happened that applicants have not only lost their money, but their inventions also, from this cause and consequent delay. We hold ourselves responsible for all fees entrusted to our agency.

By an able and faithful representative of our firm in Washington, our clients' applications are guarded against indifference examination, unfair treatment in any contingency, and hazardous delays.

Patents for inventors on this coast are actually secured cheaper through our agency than any other, however flattering may be the inducements offered at the commencement by others.

Extensive practice gives us great facilities, securing regularity in the transaction of our business, which extends to EVERY COUNTRY IN THE WORLD where patent laws exist.

We assist in bringing valuable inventions to the general notice of the public throughout the Pacific Coast by illustration or description in the columns of the MINING AND SCIENTIFIC PRESS.

Confidential Advice.

Those who have made inventions and desire to consult with us respecting the same, are cordially invited to do so. We shall be happy to see them in person at our office, or to advise them by mail. In all cases they may expect from us an honest opinion. For these consultations, opinion and advice we make no charge. A pen-and-ink sketch and description of the invention should be sent to-

gether with a stamp for return postage. Write plain, do not use pencil or pale ink; be brief.

Remember all business committed to our care, and all consultations, are kept by us secret and strictly confidential. Our permanent business interests demand, as it were, a sacred compliance with our obligations as solicitors, and in reference to our strict fidelity in this respect we refer to one and all of the thousands of inventors and patentees on this coast who have patronized us.

Expense of Applying for Patent.

The Government fee, on filing an application for a patent in the United States, is fifteen dollars; and if the patent is allowed, twenty dollars additional is required. If rejected, the first fee of fifteen dollars is all that is demanded.

To the foregoing official fees must be added fees for preparing the various documents and expense of drawings. Our charge for preparing the documents for a case, presenting it to the Government, and attending to all business connected with it, is \$25 and upward. For cases demanding extra work and attention, only a reasonable fee in accordance with the services required, to do full justice to the case, will be charged.

Following is the list of Government fees, payable in currency:

On every caveat.....	\$10
On every application for a patent, for seventeen years.....	15
On every application for a design, for 3 years and 6 mos.....	10
On every application for a design, for seven years.....	15
On every application for a design, for fourteen years.....	30
On issuing each original patent.....	20
On filing a disclaimer.....	10
On every application for a re-issue.....	30
On every additional patent granted on a re-issue.....	30
On the grant of every extension.....	50
On every application for an extension.....	50
On the grant of every extension.....	50
On appeal to the Examiners-in-Chief.....	10
On appeal to the Commissioner from Examiners-in-Chief.....	20
On every appeal to the Judges of Circuit Court, D. C.....	25

By Telegraph.

In cases of immediate importance we can have their progress reported by telegraph, so that applicants know immediately the result of the examination and decision of the Patent Office. We also make examinations by telegraph regarding the patentability of inventions; examine patent assignments on record at Washington; obtain copies of patents or claims, and also derive other information desired instantly from the Patent Office.

Reasons for Success.

We would especially call the attention of the inventive public to the fact that our Patent Agency is taking out a larger number of Patents than any other agency west of the Mississippi River. We do our work promptly and thoroughly, and refer to our standing amongst inventors as an evidence of our success in our special department. Our work is all done inside of our office, by COMPETENT and RELIABLE PERSONS, who have been for years interested and associated with us. We therefore are not compelled (like many agencies) to trust valuable and important inventions promiscuously to outsiders, to have part of the case prepared, but inventors can depend that, from the time their cases are first placed in our office, they are kept with proper secrecy until full rights are secured in the Patent Office in Washington. This is an important point in the proper prosecution of Patent business. It is a notorious fact that some prominent agencies trust a considerable portion of their cases to apprentices and amateurs. A deficiency or want of attention to the small affairs of any kind of business will often prove as harmful as a flagrant violation of the most important rules which govern and control it.

To Eastern Inventors.

Our close proximity to British Columbia, Mexico, Central and South American States, Australia and the Islands, enables us to obtain Letters Patent for you with much less delay and expense than they can be secured through any other agency in the United States.

Melbourne, in Australia, is a city of larger proportions than San Francisco, besides the adjacent colonies are of great commercial and mineral importance. Inventions of all kinds, but especially those relating to the saving of gold and silver, if secured in Australia, will often prove of great value. We have competent agents there, and can promise that the business will be attended to with fidelity and dispatch.

Self-Evident Facts.

Having had large experience, and gratifying success with the great variety of cases emanating on this coast, we feel confident of our abilities to assist inventors in patenting their inventions, saving them from vexatious delays, and from receiving worthless papers by reason of imperfect preparation of their claims before being sent to the Patent Office.

In early days but little preparation was needed, or but ordinary skill required to obtain a patent; but now, by reason of the multiplicity of inventions, and the numerous Acts of Congress, found necessary to protect the inventor while the patent lasts, and to do justice to the people after it expires, the utmost care and skill are requisite in managing cases and obtaining a patent that will be of real value to the Patentee, and stand the test of passing through the legal ordeal of an infringement suit.

The general practice of the Patent Office regarding the examination or issue of Letters Patent for inventions has not been materially changed for many years, yet there have been amendments added to the laws of 1861, 1863, and 1866, and which it is necessary for all parties managing an application to be conversant with. Old inventors invariably advise the employment of none but agents of responsibility and experience. As agents with such qualifications, we solicit honest patronage.

Interferences.

INTERFERING APPLICATIONS are conducted with spirit and ability on the most favorable terms, by DEWEY & CO. It sometimes happens that an applicant finds his invention has been patented by another, but more recent discoverer. In such cases the prior discoverer can obtain full right to the invention if he can produce tangible evidence of priority.

When patentees are threatened with interference they should consult able and responsible agents before they either allow themselves to be backed down from their rights, or trespass upon the rights of others. We will always counsel and advise in such cases upon the most reasonable terms—often saving clients heavy damages and exorbitant fees.

Advancing Cases.

If any case placed in our hands meets with rejection, we do not wait to write and inform the inventor of this fact, (as is the case with most agents,) but our representative at Washington proceeds at once to examine the stated objections, and if it be not a just and unavoidable decision, the claims of the inventor will be persistently urged before the Examiner, and if possible the decision reversed.

Inventors on the Pacific Coast, located at great distance from the Patent Office, of all others, should be careful to avoid inexperienced, dishonest, or otherwise unreliable and irresponsible agents.

Inventors having models in our possession must send written orders when they desire any particular friend to see them.

DEWEY & CO., Publishers,

And Proprietors Mining and Scientific Press

414 CLAY STREET.

Subscribe for the

Mining and Scientific Press.

PUBLISHED EVERY SATURDAY.

At No. 414 Clay Street, San Francisco.

If you are an Inventor, Patentee, Miner, Farmer, Manufacturer, Mechanic, or a progressive Student or Artisan in any Industrial or Professional Calling in the Pacific States or Territories, you are doing yourself irreparable injustice, if not already a subscriber and reader of the MINING AND SCIENTIFIC PRESS.

It contains hints and information enough to repay the subscription price many times in a single month.

Its columns are filled with instructive reading in plain, comprehensible and attractive form to minds of ordinary intelligence.

It contains 16 pages and 64 columns of the size of Harper's Weekly, and is the best printed and most valuable paper on the western half of the continent. All claims of patents issued to inventors on this coast are reported. Illustrations of new machinery are given each week. Descriptions of new inventions and discoveries, throughout the world, are given, with fresh and comprehensive information of scientific developments and mechanical and industrial progress, which cannot be obtained from books, or readily found gathered in so convenient a form elsewhere. Subscribe now, and you will not regret it. Price \$5 per annum.

DEWEY & CO.,

U. S. and Foreign Patent Agents.

TURN OVER

Mining and Scientific Press Circular, 1869.



DEWEY & CO.

American and Foreign

Patent Agents.

No. 414 Clay Street,
SAN FRANCISCO.

Patents Obtained Promptly.
Caveats Filed Expeditiously.
Patent Reissues Taken Out.
Assignments Made and Recorded in Legal Form.
Copies of Patents and Assignments Procured.
Examinations of Patents made here and at Washington.
Examinations made of Assignments Recorded in Washington.
Rejected Cases taken up and Patents Obtained.
Interferences Prosecuted.
Opinions Rendered regarding the Validity of Patents and Assignments.
Every Legitimate Branch of Patent Agency Business promptly and thoroughly conducted.

DEWEY & CO.,

Mining and Scientific Press,
San Francisco.

Circulars Free.

Assignments.

We make out assignments in the most substantial legal and improved forms, record the same in the Patent Office at Washington, and return the papers to the assignee, at a total cost of \$5.

Assignments of extra length or of a special character, will be made out and recorded on the most favorable terms.

Assignments already made will be examined and opinions rendered regarding their validity, and the assignments recorded, when desired, for a moderate fee.

Unsuccessful Applicants.

Inventors who have rejected cases, prepared either by themselves, or for them by other agents, and desire to ascertain their prospects of success by further efforts, are invited to avail themselves of our unsurpassed facilities in securing favorable results. We have been successful in securing Letters Patent in many such cases. Our terms are very moderate.

Our long experience as editors and publishers M. & S. P. guarantees our familiarity with most of the subjects of patents on this coast, and insures inventors a more ready understanding of their cases than they can secure from any other quarter.

It is not the duty of any government official in or out of the Patent Office to prepare patent papers, or make models. These must be provided by the applicant or his attorney, according to law, otherwise his claim will not be considered.

Our Office.

The office of the MINING AND SCIENTIFIC PRESS is located in the second story at No. 414 Clay street, north side, just below Sansome. Here we have spacious accommodations, with our patent rooms, editorial room counting room, and newspaper printing office—all conveniently arranged and connected, and our facilities for dispatching business correctly and economically, better than ever before. Don't forget the number—414 Clay street, below Sansome.

Home Counsel.

We are frequently consulted by persons who have rejected cases which they sent months previous through distant agencies—(hastily paying their first and last government fees, expressage, and extraordinary charges of agents)—when we could have shown in the start precisely similar drawings and descriptions in the Patent Office Reports in our office, thus saving such applicants their useless expenditure of money and their long suspense.

We invite the acquaintance of all parties connected with inventions and patent right business, believing that the mutual conference of legitimate business and professional men is mutual gain. Parties in doubt in regard to their rights as assignees of patents, or purchasers of patented articles, can often receive free advice of importance to them, from a short call at our office.

In Our Library

We have the only complete set of U. S. Patent Office Reports (from 1844) on this coast; a full record of all patents issued since 1790; Record of

British patents from 1801, and full files of scientific papers containing illustrations and list of U. S. Patent Claims; Illustrated Mechanical, Philosophical, and Law Books and Reports, of the very highest authority, forming the only extensive library of patent works west of the Rocky Mountains. We offer patentees and inventors the free use of these books at our office. The files of the MINING AND SCIENTIFIC PRESS contain the claims of the Pacific Coast Patents, and many illustrated descriptions of the same. We have also in our office full copies of a large majority of the patent cases emanating on the Pacific Coast.

Copies of Patents.

Full copies of U. S. Patents will be furnished in the shortest time possible, at favorable rates.

Copies of the claims of U. S. Patents will be furnished without delay, from the reports in our office, at trifling expense. State the name of patentee and assignee, and date and No. of the patent, if possible.

Copies of Patents in foreign countries expeditiously furnished at moderate rates.

EXTENSIONS.—U. S. Patents issued prior to 1861, are subject to extension for seven years, provided some ostensible reason can be shown the Government for so doing. Patentees who have, from circumstances beyond their control, been deprived of the full benefit of their patents for any considerable time, are usually successful in obtaining an extension of the same, when presented through our agency.

INFLUENCE AT WASHINGTON.—No inventor can possibly have better facilities or more influence (through friends or agents, at Washington or elsewhere), to secure their patents sooner or more surely, than ourselves. Our influence at Washington is unrivalled, so far as success for applications from the Pacific States and Territories are concerned.

Illustrate your Inventions.

One of the best means—and the cheapest, too—for eliciting attention to a new invention, is that of illustrating and describing it in the columns of the MINING AND SCIENTIFIC PRESS. To do this in the case of a meritorious improvement (and none other will be accepted), will cost our clients no more than the price of a first-class engraving.

Superior Engraving Done.

We have superior draughtsmen employed in our office, and take special pains in furnishing engravings and electrotypes of superior merit, of all kinds, at fair rates, and tender our patrons the benefit of our practice and experience, by advice and assistance, in getting up their circulars, advertisements, etc.

With a poor representation we desire to have nothing to do, as it would be calculated to injure both the inventor and ourselves.

Too many ingenious inventors lose the product of their genius and labor by not bringing their improvements conspicuously or plainly enough before the public—the general reading public.

Dangers of Delay.

Situated so remote from the seat of Government, delays are even more dangerous to the inventors of the Pacific coast than to applicants in the Eastern States. Valuable patents may be lost by the extra time consumed in transmitting specifications from Eastern agencies back to this coast for the signature of the inventor, or by reason of return for amendment when addressed directly by the inventor to the Government.

More valuable patent rights have been sold on the Pacific Coast by reason of the information given of them by illustrations in the MINING AND SCIENTIFIC PRESS, than through any other source. The cost of such illustrations is little in comparison with the satisfaction gained.

DEWEY & CO.,

Publishers and Patent Agents, No. 414 Clay street below Sansome, San Francisco.

Advertising and Subscription

Rates for the Mining and Scientific Press.

Subscriptions in Advance:—One year, \$5; Six months, \$3; Single copies 12¢; Monthly, \$5 per annum; QUARTERLY SERIES (stiff paper binding) \$5 yearly.

Lowest Rates for Advertising:

We shall adhere to the following rates:—(valuable in gold coin) for advertising in the MINING AND SCIENTIFIC PRESS from this date:
One column, one year.....\$400 00
Half column, one year.....200 00
One column, six months.....200 00
Half column, six months.....100 00
One column, three months (13 weeks).....100 00
Half column, three months.....50 00
Per line (smallest type) one year.....3 00
Per line (30 lines or more) one year.....2 40
Per line, three months.....1 00
Per line (30 lines or more) three months.....50 00
Per line, one month (4 weeks).....50 00
Per line (10 lines or more) one month.....40 00
Per line, one week.....25 00
Per line (10 lines or more) one week.....25 00

Particular attention will be given to preparing engravings, inserting advertisements in conspicuous, novel and attractive form; we will otherwise assist advertisers in getting up their notices, when desired.

All advertisements in the Press appear in both the MONTHLY and QUARTERLY SERIES of the MINING AND SCIENTIFIC PRESS, which (by special arrangement) are placed for FREE READING in the principal hotels, steam-boat and steamship saloons, depots, and public reading rooms and libraries in San Francisco, and the Pacific States. Many volumes are also bound, thus affording permanent advertising.

The Press now receives the largest and best advertising patronage of ANY WEEKLY PAPER west of the Rocky Mountains. In regard to the value of advertising in our journal, we refer with pleasure to those who can speak from experience—our advertisers. Better references, or more reliable names, cannot be found in the advertising columns of any newspaper in the world. **DEWEY & CO.,**
Publishers and Patent Agents,
No. 414 Clay st., San Francisco, May 1, 1869.

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ILLUSTRATED

MECHANICAL MOVEMENTS.



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THIS IS A CHEAP BOOK,

Notwithstanding most Scientific and Mechanical works are costly.

No Inventor or Patentee should be without it.

It is interesting to all classes of Mechanics, Farmers, and others, who have more or less to do with constructing machinery. It is

Valuable and Handy for Every Day Use

In every Mill, Factory, Foundry, Machine and Workshop. Sent to any part of the United States, for

\$1, POSTAGE PAID.

A liberal discount to the trade and country newsdealers. **DEWEY & CO.,**
Publishers and Patent Agents, Mining and Scientific Press Office, San Francisco.

Contents of Our Illustrated Patent Circular.

SENT FREE ON APPLICATION.

Advancing Cases; Advantages, Important; Assignments, Forms, Cost, etc.; Caveats—of what they consist, Form of, Cost, how filed effectively; Cost of Obtaining Patents; Confidential Advice; Copies of Patents Assignments, etc.; Copyrights; Dangers of Delay; Designs, Patents for Inventions and Illustrations; Engine, Condensing-Beam—Illustrated; Extension of Patents; Foreign Patents—all Countries; Foreign Inventors; Hints to Inventors; Government Fees, List of; Home Counsel; How to Obtain Patents—Steps Necessary; Hydrostatic Press—Illustrated; Interferences; Influence at Washington; Laws (U. S.) and Decisions Relating to Patents; Lathes, Engines—Illustrated; Letters Patent—of what they consist; Library, Reports, Law Books; Locomotive Engine—Illustrated; Medicines or Compounds, Patent for; Mechanical Movements—Illustrated; Mining and Scientific Press Office; Processes, Patents for; Record of Pacific Coast Patents; Reissues; Rejections—Cause and Remedy; Reports of Patent Office; Rights and Privileges of Inventors and Patents; Saving of Time; Self-evident Facts; Selling Patent Rights; Springs, Various Kinds—Illustrated; Stamp Battery, Quartz—Illustrated; Telegraph, Patent Business by; Unsuccessful Applicants; Who can Obtain Letters Patents; What Claims can be Patented; Worthless Patents, Candid Reasoning.

THIS pamphlet sent free on receipt of postage.

DEWEY & CO.,

U. S. and Foreign Patent Agents, 414 Clay street

THE large majority of United States and Foreign Patents granted to inventors on the Pacific coast during the past few years, have been obtained through the agency of DEWEY & Co., publishers of the MINING AND SCIENTIFIC PRESS. Established in 1860, we have an extensive patent library, with full record of cases on this coast, and can give the best and most reliable advice as to the patentability of new inventions.

ENGRAVING ON WOOD

DESIGNING AND ENGRAVING on wood and for electrotypes cuts of every description, done by superior artists at the office of the MINING AND SCIENTIFIC PRESS. Fine Cuts made for Book and Newspaper Illustrations, and for Fancy Labels for printing in various colors; Monograms, Seals, etc. Prompt execution and reasonable prices.

DEWEY & CO.,
No. 414 Clay street, S. F.

ELECTROTYPING ENGRAVINGS, CUTS, ETC.—Our Job Printing Office is abundantly supplied with elegant engravings, or name-cards and other embellishments to suit the various branches of industry in this State.



Volunteer Compliments.

From an endless series of appreciative testimonials and frank acknowledgements, we give the following:

"TIDAL WAVE" OFFICE, SILVER CITY, }
LEAVE, FEBRUARY, July 27th, 1869. }

MESSRS. DEWEY & Co.—GENTLEMEN:—Allow me to express my high appreciation of the ability and business management of the Mining and Scientific Press Patent Agency, and to say that our business relations have been marked with the utmost promptitude upon your part and with entire satisfaction upon mine.
Yours, etc.,
J. S. BUTLER.

SAN FRANCISCO, May 5, 1869.—MESSRS. DEWEY & Co. Gentlemen:—Allow me to express to you many thanks for services rendered me in procuring my patent, which has just come to hand. I would also say that your work has been faithfully done, and your advice and representations have in all cases been honest and truthful.
Respectfully,
GEO. INWOOD.

SUBSUN CITY, Cal., June 26, 1869.
MESSRS. DEWEY & Co.—This is the third time you have presented me with Letters Patent within twelve months. Gentlemen, you have done all I have asked of you—you have been honest; you are men that an inventor can rely upon for doing business with him, and he need not fear of being swindled or wronged in any way. I would give you business to do in your various departments in preference to any one else. Many thanks to you for your success. You have obtained valuable patents for me, and I appreciate your kindness, your honesty, ability and success. Yours, }
RICHARD KNOTT.

PORTLAND, Oregon, May 2, 1869.
MESSRS. DEWEY & Co.—Gentlemen:—Receive my kindest thanks for your attention in the matter of bringing my application for a Patent to a successful issue.
THOMAS MANN

GRASS VALLEY, Dec. 2, 1868.—MESSRS. DEWEY & Co.:—Having received the patent for Symons & Co's Tossing and Refining Concentrator, through your Agency, we return our sincere thanks to you for your untiring success. Yours, respectfully,
SYMONS & HARRIS.

LEXINGTON, April 3, 1869.
DEAR SIR:—The Letters Patent have just come to hand. For the prompt and business-like manner with which you have put the matter through, please accept my thanks.
GEO. W. TEASDALE.
To DEWEY & Co., Publishers M. & S. Press.

STOCKTON, April 8th, 1869.
MESSRS. DEWEY & Co.:—Your favor of the 6th inst., accompanying patent for improvement in horse shoes, is received. I beg you will accept the earnest assurance of my gratitude for your kind assistance and valuable services. Very truly yours,
W. R. WATSON.

SOMERSVILLE, CAL., August 25th, 1869.
MESSRS. DEWEY & Co.—Dear Sirs: Allow me to return you my thanks for the very able manner in which you have conducted the business entrusted to your care. You will please forward the document (British Patent) by Bamber's Express to this place. Yours, respectfully,
GEO. HAWKINS.

MARYSVILLE, CAL., August 18th, 1869.
MESSRS. DEWEY & Co.—GENTLEMEN:—Enclosed and \$20 (currency) for last fees on patent for gang plow. I am very much surprised, after opinions received from Mann & Co. I am, respectfully, yours,
F. A. H.
The original of the above letter (and many others with similar reference to other agencies) can be seen at this office, in cases for which we have secured patents for inventors who had been denied patents, or who had paid for being told that they could not obtain patents. Inventors on the Pacific coast are fast learning to patronize first-class home agents, who better understand their cases and will give more thorough attention to every invention entrusted to their keeping.

JAMESTOWN, CAL., July 6th, 1869.
MESSRS. DEWEY & Co.—GENTLEMEN:—The Patent for our Oil Washer and Concentrator was duly received by express. We return you our thanks for the promptness and successful manner which have attended your efforts in our behalf. Yours,
WM. G. HESLER.

THE RIGHT STAMP!—One of our wide-awake California inventors (who has already received two patents through this office) evinces the true winning spirit in the following note:

SAN JOSE, Cal., June 22, 1869.
MESSRS. DEWEY & Co.:—A few days ago I received your letter apprising me of the rejection of my case, etc. Well, under the circumstances, I will just say, "Let 'er rip!" and I will remember the indefatigable Zack Taylor's advice to his soldiers—"Pick your fire and try it again." I will have to try and get even on something else. I am satisfied you have done your duty as agents. Yours,
J. F. C.

We have had frequent occasion to have business relations with the patent agency connected with this establishment, and have had nothing left to desire in regard to fidelity, promptness and courtesy, soon arranged everything for us to our complete satisfaction. Having had frequent delays at Washington while in that city, we have been surprised at the promptitude with which some of our friends obtained their patents through the agency of Messrs. Dewey & Co.—S. F. Spiritual Light.

NEVADA CITY, Nov. 3d, 1868.
MESSRS. DEWEY & Co.—Gentlemen:—Your favor of the 30th ult., is just received, informing me of the successful prosecution of my application for a patent on my "Hot Mining Shovel." Please accept my sincere thanks for the speedy and successful manner in which you have conducted the case, and believe me, as ever,
Very truly yours,
LEE D. CRAIG.

SAN FRANCISCO, April 19, 1869.
MESSRS. DEWEY & Co., Patent Agents.—Gentlemen:—Allow me herewith to tender you my sincere thanks for the efficient assistance you have rendered me in securing my patent, and other papers, as well as the promptness and energy displayed by you in our business transactions. Very respectfully yours,
O. E. JAYCOX.

MARYLAND, Cal., June 26, 1869.
DEWEY & Co., Patent Solicitors.—Gentlemen:—In acknowledging the receipt of my Letters Patent, allow me to express my thanks for the skillful and trustworthy manner in which you have conducted my business before the Department at Washington. I am perfectly satisfied with the high degree of ability and integrity displayed in the management of my case, and I know of no similar agency in which I could place corresponding trust. Yours truly,
J. M. JOHNSON.

DEWEY & CO.,

Publishers Mining and Scientific Press, 414 Clay street, San Francisco.

TURN OVER.

SCIENTIFIC PRESS.

AN ILLUSTRATED JOURNAL OF SCIENTIFIC AND INDUSTRIAL PROGRESS,
Mining, Farming and Mechanic Arts.

BY DEWEY & CO.,
Patent Solicitors.

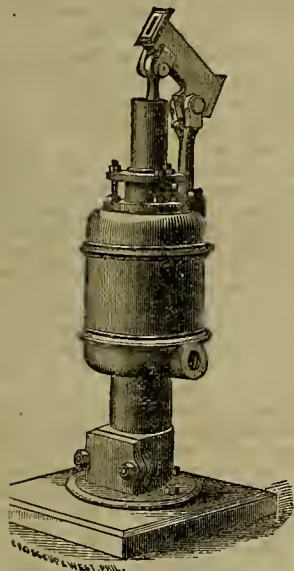
San Francisco, Saturday, July 2, 1870.

VOLUME XXI.
Number 1.

DOUBLE SHEET—24 PAGES.

Deep Well and Mine Pumps.

A neat device for raising water from a considerable depth, and in a continuous stream, is the one here illustrated. This pump consists of a barrel, surmounted by an air-chamber. To the top of this chamber is secured, by means of an air-tight flange, a dip pipe, which is long enough to reach below the working surface of the water in the pump when in operation. Through a gland in its top works a plunger a little smaller in diameter than the bore of the pump, and to the lower end is attached a bucket fitting the larger bore of the har-



rel. The suction opening is at the bottom of the pump and the discharge on the side of the air-chamber near its lower edge.

On the up-stroke, then, the pump raises the water the same as a single-acting pump; but on the down-stroke the plunger displaces a quantity of water equal to its bulk, forcing it up, and thus keeping the flow constant.

These pumps have the reputation of being well constructed, of working smoothly and of giving general satisfaction. Any further information desired may be obtained by addressing W. M. Henderson, Superintendent Philadelphia Hydraulic Works, Evelina and Levant streets, Philadelphia.

DETAILED accounts of the late fire at Panama show a fearful loss of property and of life. There being no engines or apparatus for extinguishing the fire, until that of the railroad company was brought to the place, the flames had undisputed sway until a large part of the city was laid in ashes.

OLIVE LOGAN has at last reached the Pacific Coast. This week she delivered two lectures in this city, unfortunately the only two she is to give. Her manner is very prepossessing and her lectures interesting in a high degree.

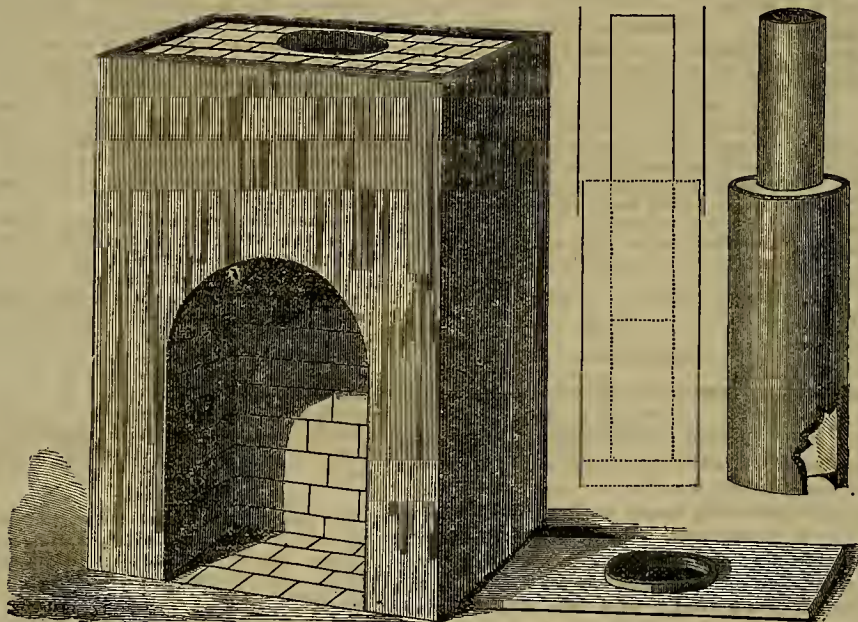
Earthquake-Proof Chimney.

Having gotten up a reputation for earthquakes here in our State, we are now enjoying the fruits thereof. All the Eastern States look on us as standing on the brink of an abyss which is about to yawn at every moment, and our own people are inventing devices which they fondly label as "earthquake-proof;" although these may in reality be more useful in other respects than in merely withstanding the shocks of Mother Earth.

Among the devices thus labelled is the one we here illustrate. Without doubt it

two pipes, one inside of the other, with the annular space between them filled with cement, plaster of paris, asbestos, or other non-conducting material. This flue is secured to the cover, which is fastened to the lower part of the chimney by rivets or other proper means. The illustration shows the device with one fire-place and one flue. But it can easily be constructed for two fire-places, opening into adjoining rooms on opposite sides of the chimney.

The chimney may be placed directly on the floor, if necessary, and any suitable fire-proof fire-place can be constructed in the recess in the lower portion. Heating-



MANN'S PATENT EARTHQUAKE-PROOF CHIMNEY.

obviates the liability of brick chimneys to occasionally topple over; but as we do not live in constant apprehension of the earth's rising or opening and throwing over chimneys on our heads; as we, indeed, fear these shocks less than those of the winds, which have been committing such devastation at the East of late; and as, finally, our chief apprehensions of danger from our chimneys are rather on the score of fire, than on any other ground, we should prefer to call this a fire-proof, or even a wind-proof, rather than an earthquake-proof, device. The reader can adopt either term he chooses, or all these, if he will.

The chimney is constructed entirely of metal. The lower portion, made of cast, sheet or boiler iron, with a proper opening for a fire place (which may be built of brick), is of any suitable shape and is intended to rest upon any foundation or upon the floor, if desired, as the whole weight of the chimney will not exceed six or seven hundred pounds. The left-hand figure shows the general appearance of this lower portion. On the right is the chimney-flue, shown in section also, in the middle figure, and below this, is the cover for the lower portion.

The flue is cylindrical and consists of

drums may be connected with it at any point, and thus the heat is utilized for warming rooms to a very great extent. It is so light that it is quite applicable when a fire-place is needed only in the upper story or stories of a building. The exposed part of the iron can be painted so as to represent brick-work, or ornamented as desired.

Besides this possibility of a cheap and easily-constructed chimney which can be placed in any room, are to be added its fire-proof qualities. As the pipes are made breaking joints, there is no danger of fire should the chimney be racked. This is a point of no small importance.

Benjamin F. Mann of Oakland holds a patent for this invention, which was secured him through the SCIENTIFIC PRESS PATENT AGENCY. To him apply for further information.

THE DENVER RAILROAD.—The completion of this road is an epoch in the history of Colorado. This and the projected road to Georgetown will greatly aid the mining enterprises of this go-ahead Territory.

New York and Brooklyn send on word that they are having little experiences in the way of earthquakes.

Journalistic Etiquette.

When we see, going the rounds of the press, a selected article which we have taken some pains to disentangle from its original mass of long-winded verbiage and condense into a "taking" shape,—crediting it, nevertheless, to its source without charging anything for our services,—when, we say, we see this going the rounds, we rather like it. It gratifies our self-love, because it shows us that we have succeeded in making a readable article of it,—and it gratifies our love for our neighbor, because it shows us that our neighbor knows a readable article when he sees it. But it is not so gratifying, when after taking extra pains with an article, and modestly calling the attention of our readers to that fact by commencing somewhat in this wise, "We condense the following from the *Ensign*,"—we see it copied in that exact form into—for example—the *Scientific Journal*. This we confess grates slightly upon our feelings. We would mildly hint that courtesy requires the *Scientific Journal* rather to say "The *Press* condenses," etc. But the crowning aggravation of all is to see the aforesaid article, thus strutting in borrowed feathers, transferred *verbatim* to the columns of the *Polymer Review*, and credited to the *Scientific Journal*!

Seriously:—We hold that a journal which takes the pains to worm out and present the *pith* of a valuable article which would otherwise, owing to its great length, or its obscure diction, fail to reach those readers whose time

is precious, is quite as deserving of credit as a journal which translates such an article from a foreign language.

A DESERVED HONOR.—W. T. Wenzell, of Mayhew & Wenzell, has been appointed one of the committee on the revision and publication of the National Pharmacopoeia (or compilation of rules for compounding medicines, etc.) for 1870. Every ten years a national convention of delegates, appointed by the various medical colleges of the country, meet at Washington for the purpose, and after discussing the subject requiring attention, appoints the committee named above. Mr. W. has received the honor of being selected as a member from this coast.

RECEIVED.—From Bancroft & Co., "Mrs. Hill's New Cook Book," and "Guilty or Not Guilty." These and Mr. Cronise's pamphlet on the "Agricultural and Other Resources of California," will be noticed next week.

FISHER'S HYDRAULIC NOZZLE.—Owing to the failure of the engraver to finish the cut in time, we are obliged to defer illustrating this excellent device until next week.

Mining Summary.

THE following information is gleaned mostly from journals published in the interior, in close proximity to the mines mentioned.

California.

ALPINE COUNTY.

WILL SMELT.—*Chronicle*, June 18th: On Monday, smelting the Leviathan copper ores will probably commence. The works consist of two furnaces and a 15-horse power engine. The furnaces will smelt six tons each per day.

EXCHEQUER.—Manager Chalmers will soon be ready to take out ore. Lumber for hoarding nouse is being hauled.

CONCENTRATION.—Works for a concentration upon the low-grade ores of the Tarshish will be erected at the Monitor C. Mill next week.

NEW START.—We notice a gang of men starting a tunnel for opening up the old Isis claim, now known as the Hidden Treasure.

AMADOR COUNTY.

KNNEDY.—*Dispatch*, June 25th: This mine continues to yield rock of almost fabulous richness. The only drawback now is the want of sufficient water to run the mill with.

RICH STRIKE.—We are informed that a large quantity of rock has been taken out of the Potosi mine, near Drytown, which will yield \$150 to the ton.

CALAVERAS COUNTY.

PALOMO.—*Chronicle*, June 25th: We understand that the additional battery of 20 stamps commenced operations yesterday. This augments the number of stamps to 36.

TO BE CRUSHED.—Lewis & Co., Wet Gulch, are hauling quartz to the Burr mill in Railroad. They have 25 tons mined. The new hoisting works are doing good service.

SHEEP RANCH.—One hundred and twelve tons of ore from the McNair claim yielded \$24 per ton in Armstrong's mill. Several other mines on the same lead are producing high-grade ore. Quartz operations generally are remunerative. The rock taken out is now worked by means of arastras. A 20-stamp battery would do the work of all the arastras in the district.

RICH.—Mr. Peter Davis has been prospecting his mine in Monitor district. At the depth of 50 feet a solid, well-defined vein, seven feet in width, is shown, and the rock prospects handsomely. The mine is admirably located for working.

NEW MILLS.—We understand that two quartz mills are to be erected in Whisky Slide. One is to be put up on the old Whisky Slide lead. The other is for custom work.

EL DORADO COUNTY.

GEORGETOWN.—Cor. of *Placerville Democrat*, 25th: I find there is a larger number of claims being worked than for several years. The Eureka is paying about twenty-five ounces of amalgam per week, which is something over expenses. The ledge prospects better than at any time since the claim was opened. If the sulphurets pay half what they assay, the company is doing well. Danes & Urey are working their claim on Hungry Point, and thus far it has paid wages. The seam is narrow, but widening. They are down fifty feet. The claims at Georgia Slide and Jones' Hill are all doing well.

GREENWOOD.—Cor. of *Stars and Stripes*, 23d: The St. Lawrence hydraulic claim and the McMichael and Nagler claims are working three new men, with an average yield of fifty ounces per week. The French claim has been paying for years large dividends to its owners, Desmarchais & Co., who average forty ounces per week. The Greenwood claim has been fitting up more extensive hydraulic operations. The Never Sweat, owned by Curtis, Nager & Brown, is being opened into paying ground. The Spanieh mill has been shut down on account of mismanagement. The Cedarberg & Brown is known as a "seam claim," and rumor has it that they are taking it out by the bucketful.

INYO COUNTY.

BULLION.—Los Angeles *News*, 25th: Three hundred and sixty-eight bars, weighing thirty-two thousand six hundred and thirteen pounds, were yesterday forwarded to Wilmington by railroad, whence it will be shipped to San Francisco. It is from Owen's river district, and shipped by the Owen's Lake Silver and Lead Co.

NEVADA COUNTY.

PITTSBURG.—*Transcript*, 22d: This mine is paying largely. On Monday they melted a bar of gold valued at \$5,000, the yield of four days' run with ten stamps. Two new furnaces have been erected, one for retort-

ing and the other for melting. Eighty men are employed at the mine and mill.

MANHATTAN.—This company, recently incorporated, is opening a mine on Gold Flat. The owners purchased the engine and hoisting works on the Wagoner ledge, which have been erected on the Manhattan, and will be started up to-day.

POTOSI.—Same of 23d: The shaft is down 22 feet, where they have a ledge of decomposed quartz and ochre, from which they obtain fine prospects. They have out three or four tons of quartz, which looks well.

NORTH SAN JUAN.—Same of 24th: The new ditch into San Juan and Sebastopol, by Spooner, Brown and others, will be 19 miles in length, and have a capacity of 1,000 inches. The survey is completed. Mining operations at San Juan are progressing satisfactorily.

At French Corral, Kate Hayes Flat and Empire Flat, extensive preparations are being made for working this summer. The claims of Poulinier & Co. are just fairly being opened.

At Birchville, but little mining is going on, the best of the claims having been worked out. Two miles below Birchville some very valuable claims, hardly yet touched, will be in operation in a short time.

At Sweetland, two companies are at work and doing well. The Buckeye claims, lately sold to an English company, are yielding fair dividends.

BANNER.—Same of 15th: This mine has been turning out good pay for some months past, with the prospect of a steady yield. The lowest level is at a depth on the slope of the ledge of 620 feet, and they have procured pumping apparatus with the view of sinking another hundred feet.

PENNSYLVANIA.—We are informed that they have the water pumped out to the 300-foot level. This is the lowest level, but the incline is 90 feet deeper, which will soon be pumped out. The levels and drifts, as far as examined, are in good condition.

FIDELITY.—Same of 23th: The owners of this mine, above Washington, are negotiating for the purchase of the Salathiel mill, which they propose to remove to the Fidelity.

OMEGA CO.—We saw at the bank two gold bars worth \$5,000 each, the result of a partial clean-up of one of the claims of the Omega Water and Mining Co. The company are running two sets of claims and employ over 50 men.

BLUE TENT.—*Gazette*, 23d: Water for mining purposes is plentiful. The Sailor Flat Co. uses 300 inches day and night; Last Chance, 350 inches; Cressey & Belden, 400 inches; Killam & Co., 300 inches; O. S. Cressey, 200 inches.

PLUMAS COUNTY.

CRESCENT.—*Quincy National*, June 18th: The mill is running to its utmost capacity, and paying well. The company have commenced to sink their main shaft deeper at the Indian Valley mine; the ledge is finely developed in the bottom. Judkipe & Kellogg are working their usual complement of men in their mine and mill, at Cherokee. This mine pays a handsome dividend every month. Bachelder & Co. are crushing very rich rock—the richest ever taken out in Indian Valley.

SAN BERNARDINO COUNTY.

CLARK.—*Guardian*, June 18th: This district is attracting attention. It is 45 miles from Hardyville on the Colorado. The mine is being opened and a thorough system of mining inaugurated by a company of San Francisco capitalists represented by J. W. Crossman.

SIERRA COUNTY.

ITEMS.—*Messenger*, 25th: Baron Stech will resume his place as superintendent at the Kanaka mill. Ned Leonard's quartz mill has been running for the past two weeks.

TUOLUMNE COUNTY.

WORK RESUMED.—*Sonora Democrat*, 25th: A cut is being run from the Table Mountain Humbug tunnel to the New York tunnel. The law-suit between these claims is at last over. There is still enough ground for 10 or 12 years' work.

YUBA COUNTY.

BROWN'S VALLEY.—*Appeal*, 23d: The Dexter and the Upper Pennsylvania mills are in full blast, and the prospects encouraging. The Dexter made their clean-up on Tuesday, and the result is thought by outsiders to be satisfactory. The company keep their own counsel.

Arizona.

ITEMS.—*Prescott Miner*, June 11th: The bullion from between 60 and 80 tons of Box Elder ore was this week run into bars. It amounted to \$1,700. Reliable persons

are confident that the tailings contain as much. Big Bug boiler is undergoing repairs. Work goes on in the Hassayampa, Walker, Walnut Grove, Martinez and Wickenburg districts. The White Picacho mine, near Wickenburg, is said to be four feet wide, and the ore averages \$120 to the ton in silver.

Colorado.

ITEMS.—*Central City Register*, June 22d: Alf. Owens, Pleasant Valley, shipped last week \$3,000—sluiced out of the gulch. Joe Harper has struck pay. Three claims are being worked on the Gregory Second. On the Frank Dalton property the vein runs, under stamps, from 7 to 10 ounces per cord. Hussey purchased nearly \$11,000 in gold in the last three days. Capt. Phillips has a 12-inch vein of beautiful ore on the Jones lode. The old Central Co's property, on the Roderick Dhu, is turning out \$1,500 per week. Moss & Co., working four men in the gulch, between Walker's mill and Prof. Hill's works, are taking out \$17 per day to the man. Sudeberg ore, in stamp mills, yielded seven ounces of gold per cord. W. H. Stephens has fitted up the large stone mill in Nevada, and has it running. Worden & Smalley have leased Mose Hall's stamp-mill, in Eureka, and are running it upon ore from the Ingomar. Dr. Holland has men mining on the Champion lode, Trail Run. One cord of Clark & Thompson's Coyote ore gave, last week, in arastras, 17 ounces of gold. Large amount of ore in sight in the Central Co's mine, on the Prize lode. Shift 270 feet deep. Rollins' mill will run all summer.

GRAND ISLAND DISTRICT.—The Caribou is the most developed of the lodes. The crevice appears to be five or six feet in width, carrying from 10 to 20 inches of pay material. The principal shaft is only 60 or 70 feet in depth, but the vein has been struck for 800 feet. The Caribou Co. have 15 tons of fine looking ore out, and twice as much of a grade lower. The Poor Man, just below the Caribou, is a large lode, in which the pay material is twenty inches in width. It has the same characteristics as the Caribou, but scarcely any pitch.

ITEMS.—*Central City Herald*, 22d: Machinery for reduction works on Chicago creek, passed through town last evening. The Gilpin county mine is worked more profitably than ever. About 30 hands are employed. Mr. Cutter intends running an additional drift. At present, the ore is \$100 to the ton, and is easily mined. Mining is very active in Nevada district. Work has commenced on several leads, and a rich return is obtained. Quartz Hill has a lively appearance, and Nevada is jubilant. B. C. Waterman's new mill is unlike any other in the county, is a complete success, and is run by a New Jersey 75-horse-power engine. Nine mills, consisting of 124 stamps, are now running in Nevada district. A new shaft house has been built over the Spark's lode. The old Whitcomb mill keeps pegging away. The Gilpin mill, started by Mr. Lewis, is supplied from the American Flag and Prize lodes. Clayton's claim on the American Flag has improved. The last run yielded 19 ounces to the cord. Cy. Hurd is taking out ore from the same lode. He will commence sinking next week. Fitz Simmons & Co., on the discovery shaft of the California lode, are now at a depth of 180 feet. The last ore run went two and a half ounces to the cord. Clark & Co., of the Hidden Treasure, have reached a depth of 230 feet, and are taking out 8-ounce ore from a crevice from 20 inches to 7 feet in width. The old Lexington mill has been remodeled. The 24 stamps now crush 15 tons daily. It has been running on Roderick Dhu ore with an average yield of four ounces per cord. Hoppe & Co., on the Kent County lode, Quartz Hill, are down 175 feet, and have a crevice 12 to 18 inches in width. Clark & Bradley, on the Ralls County lode, have a 6-foot crevice with ore that yields nine ounces gold per cord. Chretley & Jones are down 100 feet.

ITEMS.—*Georgetown Miner*, 16th: V. T. Harris this week discovered a rich ore-deposit on the Jamez Guthrie lode, two feet wide. Discovery shaft on Cashier lode is 60 feet deep. Six tons ore gave \$230 per ton at the smelting works. A working force will soon be put on the Mendota. Morris' tunnel advances 10 feet per week. Nash tunnel has struck the west extension of the Equator lode.

Idaho.

ITEMS.—*World*: Meredith & Co. have cleaned up from their bill claims \$16,070, after a run of 45 days, and have not cleaned up the ground sluice yet. Col. Merritt has made a big clean-up on his bar

claims above town. He has been having bars run and assayed all day.

Montana.

CABLE CITY.—*New North-West*, June 17th: Mr. Cameron will start the mill next Monday. Some 25 or 30 men will be employed in the mine, and 10 in the mill.

SILVER BOW.—Cor. of same: The ditches are all full, but the diggings are not paying big. The largest run last week was \$800. The water will, however, last all summer.

ROCKER CITY.—Cor. of same: Water is plenty, and everybody working, but no further demand for labor. Some 20 companies have opened in the main gulch and are doing well. Rocker Hill is paying from \$10 to \$30 per day to the hand. Several companies are working in Oro Fino, and are making from \$8 to \$25 a day to the hand. A fresh supply of Chinamen have arrived in the gulch.

CEDAR CREEK.—No. 45 below discovery cleaned up on the 8th, half a day's work with five hands, \$200. Water rising compelled them to stop work. The unknown depth of the pay gravel on lower Cedar prevents each individual claim being opened, which has caused the owners to form companies and throw their ground together to get it drained.

In Oregon Gulch prospects as high as \$2.50 to five pans were struck above the falls near the old No. 125, and the boys have gone to work in earnest setting sluices, to test the gravel. McWhirk, Warren & Co., 59 above discovery, cleaned up on the 11th, with five hands, one day's work, \$900. Bonner & Welch to-day received word from a reliable claimholder at Cedar that he had just got his claim opened and run two and a half days, taking out \$980. The water was falling, and good pay was anticipated, but our report of the 15th says the water was again up.

ENGELAND.—*Helena Gazette*, 20th: Mr. W. D. Flowers yesterday showed us a clean-up on the Only Chance in the shape of a chunk of retort of 140 ounces. This mine is down 266 feet, and the vein is wider and better. The clean-up was from two beds only. Mr. Flowers had a patent just received from Washington for 1,200 feet on the lode. The tunnel for the Nevins lode has not yet reached the vein. The owners are taking out good quartz from their shaft, and crushing in their arastras. There are five bed-rock flumes being put down in the gulch. The Highland Gold Co's mill is silent at present.

RED MOUNTAIN CITY.—Cor. of same: Stamps & Co. have just struck bed-rock. The Flume Co. will soon do so. Langworthy & Co. will do it in 20 feet further. McLanahan and Co., at the mouth of Horse Gulch, have some rich ground. Mole & Linter have a bed-rock flume, and are doing well. Wm. Onslay, from Butte, has commenced a bed-rock flume on No. 17, 18, and 19. Connavan and Wilson are working discovery claim, but have as yet struck no pay grit. The Dixey Co., on Gold Hill, at the head of Moree creek, commenced building an arastra April 26th, and have just run one week, and cleaned up one tub, from which they took \$600. They have as much more to clean up yet. The Nonpareil, Pierce and Bros., have a splendid arastra. On Moose creek there are two leads, the Day and the Harvey, each down 125 feet. The Harvey shows a face of five feet. Wash. Stapleton has made a contract to pay \$100 per ton for the rock, and freights it to Argenta, 80 miles, to have it crushed.

WATER.—*Helena telegram*, 21st: A company have been formed in this city to bring water from a lake 20 miles distant, and \$40,000 has been subscribed. The ditch is to contain 2,000 inches of water. Work will be commenced at once. It will redeem some of the richest mining ground in the Territory.

Nevada.

GOPE DISTRICT.

GOOD YIELD.—*Elko Independent*, June 25th: Ten tons from the Mammoth mine sent to Reno gave a yield, over all expense, of \$1,530.

CRESCENT.—The ledge is explored to a depth of 200 feet by an incline, which exposes the ledge two feet in width. Last Monday the company had on dump 250 tons of ore that will work \$90 to the ton.

HUMBOLDT.

DUN GLEN.—*Register*, 25th: We are informed that a valuable discovery was recently made in the Alaska mine. When the shaft was down 60 feet they struck a vein four feet wide, which had the appearance of decomposed elata. Mr. Bowen fancied it contained traces of mineral, sent a sample to San Francisco for assay, and got a return of \$1,200 per ton. Judge

Cummings worked one pound, from which he obtained one ounce of silver.

STAR DISTRICT.—*Silver State*, June 21st: Several bodies of fine ore have been found in the Sheba, some of which will yield \$1,000 to the ton. The De Soto is yielding fine ore. The best is asked for shipment to Swansea, while the inferior grades will be subjected to concentration.

BATTLE MOUNTAIN.—Cor. of same: Martin & Hogan started their furnace upon the 13th. The Battle Co. have struck another ledge. R. McBeth has commenced work on the original location. The Sheba is taking out fine ore. The White mine has started work. The Avalanche has been pumped out. There will be three shifts of men worked. Smith & Thomas will start work on their extension, now that the Avalanche is pumped out. The Masonic shaft is down 50 feet. The ledge is 18 inches wide, showing fine mineral all the way. The Trenton has shipped 10 tons to Reno for reduction. The Little Giant employs 15 men. The Mary Ann has again commenced work. The Maggie Jones is panning out well. The Holbrook Co. are taking out fine-looking copper ore.

ALPHA.—Geo. Carmany has struck another ledge, one of the first in the county. It is in the South Mountain, and called the Ante.

BULLION.—For the week ending Monday, John C. Fall & Co. shipped to San Francisco 460 pounds of fine silver bullion, averaging .900 fine.

RAILROAD.—*Elko Independent*, June 22d: The furnace of Rogers & Haskell will fire up to-day on Sweepstake ore. Then ore from the Bullion, 60 tons from which is at the furnace. The Iron ledge is showing pure chlorides. The California has passed from copper to rich silver-bearing galena. There are 20 mines taking out smelting ore. Ritchie & Co. are taking out ore from the Orphan Boy, which is copper thus far. The Bullion ore shows gold.

REESE RIVER.

GOOD FARM FROM BELMONT.—*Reveille*, June 20th: We mentioned that rich ore had been struck on the bottom of the incline of the El Dorado South mine. Yesterday a gentleman informed us that developments within the week have disclosed immense amount of ore of the highest grade. A few specimens from the dump will work at least \$1,000 per ton. The Buel mill is not work night and day on ore from the High Bridge vein. The supply is more than equal to the capacity of the mill. Leon & Co. contemplate the erection of a mill of their own.

BULLION FROM BELMONT.—Same of 22d: Five bars of the value of \$3,175 were shipped by Mr. Canfield yesterday.

THE EL DORADO SOUTH.—Same of 23d: Mr. Terry, from Belmont, brought us a chunk of ore weighing six pounds from the El Dorado South, at a depth of 270 feet. As a specimen it is unsurpassed in beauty and richness. Mr. Lundhorn, who is familiar with the ore, says it will go \$2,000 per ton. When we add that the vein is nine feet wide, and that none of it will work less than \$100 per ton, some idea may be formed of the value.

BIO SMOKY.—Capt Dahlgren has rented the Sterling mill at Kingston, and will place it in running order, with a Stetefeldt furnace.

MINERAL HILL.—*Elko Chronicle*, June 26th: Huher & Curtis are building a first-class 10-stamp mill, with Stetefeldt furnace. The Austin Co. are taking out high-grade ore. In the Giant shaft they are taking ore from a 5-foot vein worth \$500 per ton. The Live Yankee is turning out ore from a 14-foot vein worth \$300.

WASHOE.

BULLION.—*Gold Hill News*, June 25th: Stock to be increased from one million to two. In the 500-foot level they have drifted 300 feet.

HALE & NORRIS.—Daily yield, 260 tons; principally from the seventh level. The upper mine shows improved yield. The winze from the sixth level has made its connection, giving good air circulation. The cross-cut, 150 feet north of the shaft, has reached the west wall, showing a width of ore of over 40 feet.

OCIDENTAL.—Yielding at the regular rate. The lower tunnel will intersect with the winze within two weeks. The foundation of the new mill is completed, and the frame commenced.

YELLOW JACKET.—Yielding 250 tons of high-grade ore daily; also 150 tons of low-grade from the upper levels.

IMPERIAL-EMPIRE.—The winze is down to the level below. Sinking in the main shaft is resumed. A deposit of fair grade ore has been found in the old workings of the Imperial mine.

CHOLLAR-POTOSI.—Yielding 220 tons per

day; average assays, \$66. The Belvidere section shows improvement.

GOULD & CURRY.—Daily yield, 70 tons; average assays, \$50.

SACRAMENTO AND MENEDITH.—The ore exposed consists principally of a huge gravel deposit, mixed with quartz boulders, rich in gold. In fact, the deposit is worked for the gold alone. The mill operates well.

VIRGINIA CONSOLIDATED.—A considerable amount of high-grade ore is yielded from the upper mine, through the old Sides tunnel.

CONFIDENCE.—Much surface ore has been shipped to Carson, but the supply falling off, it was shut down on Wednesday.

SIERRA NEVADA.—The surface gravel deposits show improvement. The east body looks especially well. The new mill is running well.

BELCHER.—The 152-foot level improves in drifting north, and gives increased yield.

CALEDONIA.—Daily yield, 40 tons, from the 200-foot level. The mine is looking well.

HOPKINS.—About 18 tons of low-grade ore is daily extracted from the upper level. The lower levels yield 30 to 35 tons of \$20-ore per day.

OPHIR.—The water is again out of the new shaft, and work is resumed in the lower drifts.

CROWN POINT.—Daily yield, 45 tons low-grade ore, from the upper levels.

KENTUCKY.—Daily yield, 26 tons.

OVERMAN.—*Enterprise*, 26th: A less amount of ore than usual has been extracted, obtained from the upper levels.

SCURRO TUNNEL.—The tunnel was in, yesterday, 1,270 feet. It is still in very tough blue clay. They have struck a very considerable vein of water—four inches. There are strong indications that a ledge will soon be reached.

NEW LEAD.—A lead, thirteen feet in width, and assaying over \$1,000 in silver and gold, has been found in Spring Valley, below Silver City. It is said that it can be traced to the northward three or four miles.

WHITE PINE.

ITEMS.—*News*: The Silver Wave have run into a fine ledge at the depth of 20 feet. The original Hidden Treasure is like a beehive. The tunnel facing Hamilton is in ore at the depth of 200 feet. The ledge is almost perpendicular. There are different stories about the Eberhardt sale. It is said that the English company have only agreed to give the figure named, after having inefficiently explored the mine to determine its approximate value. A few days since Walsh's men broke into deposits of black sulphure of silver, in the Trench mine. We have a specimen. It runs about \$4 to the pound. The Sampson mine had almost petered out of market eight. We now learn that things have been fixed up. The tunnel in the Silver Vault is progressing. Considerable work is being done on Blue Hill. The Domingo has a 60-foot front, and a large amount of ore on dump. The Cliff is taking out milling ore, which runs from \$20 to \$60 per ton. New development in the south Oregon shaft of a body of fine ore, showing a face of five feet. A drift is being run to connect the old works with this. The White Pine Smelting Works had been running continuously for 23 days, and the furnace was still as good as ever. The Pogonip and Othello are to be worked by an Eastern Co., who have effected the purchase of a two-thirds' interest. San Francisco and Revelle Mill and Mining Co. have sold their property in R-ville District, for thirty odd thousand dollars. The Cutter and two other mines, on Mount Ophir, are likely to change hands. Parties from Cincinnati have been to examine them. The party of three, under Prof. Peck, he of the divining-rod, have sunk 150 feet, and struck something supposed to be good. A Chicago party is on the way to put up a smelting establishment in White Pine. On the 24th the Voss furnace was in the 15th day of its run, with a prospect of as many more days. Bullion shipped for week ending 20th, \$28,236.

OUTSIDE DISTRICTS.—Buckeye mine, near Eureka, belonging to some Cornish boys, has been sold to Wm. M. Lent for \$65,000. There is a large amount of ore on the dump, which is not included in the sale. Eleven bars of silver, received from Ely, were milled in Raymond & Ely's five-stamp mill, and the ore was from the Ely mine—proceeds of two weeks' run. Value, \$10,000. Three smelting furnaces are now going up in Robinson District. Charley Hanson has sold his mining interest in Pinto for \$20,000 gold coin. The purchaser is Mr. Dunne, of the Truckee mill, near Reno. The 20-stamp mill at Egan is being remodeled for dry-crushing. The ledge is three and a-half feet wide, and

very regular. The hoisting works are perfect, and everything is arranged for permanent work.

ELY.—Pioche cor. of *News*: Armed forces in battle array three times lately. First.—Pioche Co. and Challenge Co. The latter had several tons of ore on, and proposed to send it to mill. Pioche Co. objected. C. Co. took it off without a shot. P. Co. served an injunction. Second.—Vermillion and Spring City P. Co. claims later. V. Co.'s forces hold the ground at present. Third.—P. Co. vs. Frank Wheeler and party. Latter built a fence. P. Co. tore it down. Fence rebuilt. Both armies drawn up. Old prospect holes used as rifle pits. Multitude of spectators on the hills around. Finally, P. Co.'s army went to supper, and the other crowd stepped in and took possession of the ground. In the morning a compromise was effected.

New Mexico.

THE NEW MINES.—*Santa Fé Post*, June 11th: Hon. J. D. Bail, of La Mesilla, writes: "We cannot speak with absolute certainty, because nothing but assays have been made, but taking everything together, we were forced to the conclusion that these mines are among the richest ever discovered. In size and extent they are unsurpassed. * * * One-sixth interest in the Brown lode has been sold, as I learn, to Haywood & Co., of California, for \$35,000. * * * The ledges are from thirty to sixty-five feet wide, boldly projecting above the surface from thirty to forty feet, and are plainly visible for fifteen miles."

ITEMS.—*Press and Telegraph*, June 18th: The Montezuma Lode West, Bartlett & Co., thirteen miles from this city, lies comparatively idle for want of capital to put machinery upon it. From the discovery shaft, at a depth of eighteen feet, we have a piece of quartz that assayed \$141 gold, and \$21 silver. The ledge crops out six feet, and is, in places, 100 feet wide. Prospects at Arroya Honda are encouraging. About 200 inches of water is running into Humbug Gulch, and the miners are in a pleasant condition of mind. James Decan has started a large rocker in Grouse Gulch, and from 350 huckets of pay dirt cleaned up \$29 in gold.

Oregon.

QUARTZ.—*Jacksonville Sentinel*, June 25th: We are informed that Sam. Bowden cleaned up, after crushing about 80 tons of quartz, on Jackson creek, \$2,500.

Wyoming.

NORTH PARK.—*Cheyenne Advocate*, June 9th: A gentleman just in states that there are now about 75 men in that district, some prospecting, others sluicing, and those who are industriously working are taking out from \$4 to \$8 per day to the man. He showed us a sack of dust containing \$135, which he had taken out with a rocker in 16 days, and several nuggets which were worth from two to seven dollars.

Mining Shareholders' Directory—Meetings, Assessments and Dividends.

(Compiled weekly from advertisements in the SCIENTIFIC PRESS and other San Francisco journals.)

ASSESSMENTS.			
NAME, LOCATION, AMOUNT AND DATE OF ASSESSMENT.	DAY	DAY	DAY
American, G. H., June 13, \$3,000	July 18—Aug. 8	DELINQUENT, OR SALE.	
Aurora Cons., W. P., May 7, \$1,000	June 14—July 7		
Belcher, G. H., June 8, \$4,000	July 11—July 30		
Cosala, Mexico, June 2, \$1,000	July 7—July 27		
Confidence, G. H., May 14, \$10,000	June 17—July 8		
Cordillera, Mexico, June 8, \$500	July 9—Aug. 17		
Cherokee Flat, B. G., June 17, \$5,000	July 19—Aug. 9		
Excelsior, Argentina, June 22, \$200	July 30—Aug. 20		
Evening Star, No. 1, W. P., June 4, \$5,000	July 2—July 25		
Featherstone, W. P., June 14, \$20,000	July 20—Aug. 11		
Gold Hill Quartz, G. H., May 16, \$20,000	June 20—July 11		
Hope Gravel, May 25, \$1,000	June 27—July 18		
Hall & Van Dyke Cons., June 7, \$500	July 23—Aug. 20		
Imperial, G. H., May 7, \$5,000	June 10—July 2		
Jennie A. Cons., W. P., June 20, \$100,000	July 25—Aug. 15		
Latawina, W. P., June 2, \$150,000	July 14—Aug. 6		
Manmoth, W. P., May 26, \$20,000	July 1—July 22		
Mineral City, May 12, \$1,000	June 16—July 2		
Mountain City, Elko co., April 8, \$50,000	May 23—July 11		
Noonday, W. P., May 10, \$300,000	June 15—July 7		
N. Bloomfield Gravel, June 20, \$5,000	July 23—Aug. 9		
Pogonip Flat, W. P., June 15, \$200,000	July 23—Aug. 9		
Pioche & G. C., Pioche cor., June 11, \$2,000	July 26—Aug. 16		
Segregated Belcher, G. H., May 30, \$3,000	July 21—July 22		
Talulah, Sierra dist., May 10, \$2,000	June 25—July 18		
Virginia, W. P., May 14, \$50,000	June 21—July 6		

MEETINGS TO BE HELD.			
Chollar Potosi	Annual Meeting July 11		
Edgar Cons.	Annual Meeting July 23		
Evening Star	Annual Meeting July 11		
Globe	Annual Meeting Aug. 2		
Miser's Dream	Annual Meeting July 5		
Overman	Meeting July 7		
Rosario & Carmen	Annual Meeting July 6		
Silver Vault	Annual Meeting July 7		
Yellow Jacket	Annual Meeting July 18		
LATEST DIVIDENDS.—(Within Three Months).			
Amador, div. \$10 per share	Payable April 7, 1870		
Chollar-Potosi, div. \$1	Payable June 10, 1870		
Eureka, div. \$7.50	Payable May 7, 1870		
Golden Rule, div. \$600	Payable March 26, 1870		
Hale & Norcross, div. \$6	Payable April 9, 1870		
Ida Elmore, div. \$1	Payable Dec. 14, 1869		
Kentuck, div. \$5	Payable Feb. 10, 1870		
North Star, div.	Payable May 6, 1870		
San Marcial, div. \$600	Payable June 10, 1870		
Union, div. \$1	Payable May 10, 1870		

*Advertised in this journal

San Francisco Mining Stock Market.

During the period under review, the mining share market has been characterized by a considerable degree of activity, if we take into consideration the present dull condition of trade generally, and the continued reticent disposition of outsiders to enter the stock arena. Several heretofore prominent stocks sold to a very large extent, at weakening rates.

IMPERIAL—was in the market to a larger extent than last week, at decreased rates. From the Secretary's annual report for the fiscal year ending May 31, 1870, we extract the following statistical data:

RECEIPTS.	
Cash on hand May 31, 1869	\$7,680 16
Bullion	156,893 53
Assessments	147,740 53
Gold Hill and Rock Point Mills	3,474 10
Property sales	15,000 00
Notes payable	22,000 00
Imperial Empire Shaft	2,406 89
Sundries	10,451 67
	\$379,642 98
DISBURSEMENTS.	
Gold Hill Mill	\$68,989 23
Rock Point Mill	3,295 58
Alta Mine	96,756 03
Holmes Mine	5,178 55
Imperial-Empire Shaft	82,945 63
Virginia and Truckee Railroad Co.	27,000 00
New Drifts	11,852 90
General expense	13,674 01
Expenses in San Francisco	8,470 35
Local expenses	10,633 53
Bills receivable	15,000 00
Sundries	9,765 55
Cash on hand, May 31, 1870	191 00
	\$379,642 98

The cost of reducing 12,020 tons of ore (including hauling) amounted to \$7 96 per ton, with supplies on hand. The cost of extracting 11,925 tons of ore from the old shaft amounted to \$7 20 per ton, including shaft repairs, sinking, etc. Since this Company went into operation, the expenses for milling and mining purposes, including new machinery and improvements, aggregate \$4,113,290, and the dividends paid stockholders foot up \$1,067,500. In the same time, the receipts from ores and sundries sold for account of mines and mills were \$5,303,517, and from assessments, \$291,740. At the date of this report, the total indebtedness of this Company was \$22,000; against which \$18,259 37 was due on assessment No. 7, and \$15,000 on bills receivable. Following are the names of the Trustees elected for the ensuing year: A. K. P. Harmon, J. D. Fry, Thomas Bell, S. W. Glazier, Robert Sherwood, James Freborn, and Thomas Sunderland. At a subsequent meeting of the Board the following officers were elected: A. K. P. Harmon, President; J. D. Fry, Vice President; D. A. Jennings, Secretary, and R. N. Graves, Superintendent.

CHOLLAR-POTOSI—sold to a considerable extent at improved rates. For the week ending June 24th, 1,320 tons of ore were taken from the mine, showing an average assay value of \$64 30 per ton. The Belvidere section has improved in both quantity and quality since the previous report. On the Potosi tunnel level, at the locality where the Belvidere body comes down, the prospects are reported to be excellent. Blue Wing is affording the usual quantity of ore. At the new shaft the first station drift west has small quantity of good ore, and prospecting in this section is steadily carried forward. Twenty feet more drifting will be required to connect the north drift with the Potosi fifth station. On the 28th eleven bars of bullion, valued at \$35,415, were sent forward to the office in this city.

HALE & NORRIS—changed hands to a less extent than the previous week, at rather well maintained figures. The product of the mine for the week ending June 25th amounted to 1,617½ tons of ore, 663 tons coming from the upper mine, and 954½ tons from the seventh station (lower mine) level; previous week, 1,716 tons. At the above date they had on hand, in the dumps, 6,156½ tons. On the 23d ult. the winze had attained a depth of 16 feet below the seventh station, car samples of ore taken from it showing an assay value of \$53 per ton. The south drift is being continued from the seventh station, the ore in the face showing \$30 to \$45 per ton, and at this date they had not ascertained the width of the ore body at that point. The ore breasts in the upper mine are reported to be extensive, and present a flattering appearance.

GOULD & CURRY—was in the market to a moderate extent. During the week ending June 27th they extracted 537½ tons of ore, the average assays from car samples showing \$50 84 to the ton. Considerable drifting has been done, but nothing of an encouraging nature has been found in the lower levels. The ore faces from the second station level up to the El Dorado floor show no material change. On the 28th of June they sent down \$11,396 of bullion.

BELCHER—is rather dull of sale. On the 27th of June they sent forward \$10,418. The general appearance of the mine does not give any very good promises. **KENTUCKY** has been quiet. During the week ending June 24th 277½ tons of ore were extracted, yielding \$6,070 56, equal to \$18 80 per ton. **CROWN POINT** produced 327 tons during the week closing June 24th valued at \$4,273 97, or \$13 07 per ton. **OVERMAN** sent down \$7,000 in crude bullion on the 24th of June. **OPHIR** has been tolerably active. On the 28th of June the following report was made: At shaft No. 1 work was progressing well; north drift in good ground, and southwest drift No. 1 still in very hard material. The southwest drift No. 2 is still in bad condition, but good progress is being made, and they are clearing out and retimbering the same. The improved price of **AMADOR** is thought to be due to the fact that in all probability no assessment will be levied. *Commercial Herald*.

REDUCTION WORKS AT OAKLAND POINT. Land has been leased at Oakland Point, on Center and First streets, for the erection of reduction works. The situation is such that ore can be delivered by the Western Pacific Railroad within fifty feet of the furnaces. The works are to be constructed in the most improved manner, and with the most complete arrangements for dispatching work.

Tarpping and Gardening.

COMMUNICATIONS for this department are solicited from all parts of the Pacific States and Territories.

When do Insects Attack Vegetation?

It is seldom that an insect attacks a perfectly healthy tree or other healthy vegetable growth; but let any tree or shrub be neglected, either in pruning, dressing or in any other way, and some insect will surely find it out. It has been said by an agricultural writer that insects answer a good purpose—they compel the owner to take care of his trees, or they will take them all to themselves.

Examine a tree which has been attacked by this horer; notice particularly where the worm entered, and nine times out of ten you will find that the tree was previously diseased at that particular spot. In the Eastern States there will generally be found a little hudge about the point of attack, produced by freezing and thawing in winter, and the subsequent efforts of the tree to heal itself—sap accumulates around the diseased part and produces an abnormal growth. In California, the horer seldom attacks a tree that is not *sun-burnt*. Has any one been troubled with horers here who has trained his trees to low branching, or otherwise protected their trunks from the direct and constant rays of the sun? If any have suffered who have taken such care, we think a careful examination will find that something else was wrong about the tree before it was attacked.

Observe a forest tree that has been cut down and allowed to lay upon the ground for any considerable length of time, and exposed to the sun, with the bark on. The borers have completely riddled it. Any one who has cut much dead-wood for fuel in California, must have been particularly struck with this fact.

What we say of the conditions under which insects attack trees is equally true of vines, shrubs and the cereals. The mildew of the grapes is due to a disease which has previously fallen upon the vine. A perfectly healthy vine, planted in a proper exposure, and cultivated as it should be, will never be troubled with mildew. An excess of moisture produces a disease of the leaf, upon which the sporulae lodge and find a congenial spot for taking root; while if the leaf is perfectly healthy, they will blow harmlessly away. It is very seldom that either worms or winged insects attack a perfectly healthy leaf or stem. There are certain exceptions, as when any locality is visited with an unusual number of such insects, as locusts, grasshoppers, etc.

If your wheat is properly cared for in the preparation of the seed, and in draining and preparing the soil, it will seldom be attacked with mildew or rust—never, in fact, unless disease is first induced by unpropitious weather. Good cultivation will also enable it to withstand an excess of either drouth or moisture, which, under an imperfect system of culture, would be ruinous to the farmer's hopes.

The evils of this life, generally, are not without their beneficial effects. Were it not for the penalties inflicted, the laws of Nature would be so constantly violated by man that this world would soon become a perfect chaos—both morally and physically.

THE TEA PLANTS AT CALISTOGA.—The report circulated a week or two since, with regard to the unfavorable condition of the tea plants of Sam. Brannan's estate at Calistoga, is now contradicted. At least 100,000 of them are throwing out roots and giving every sign of vigorous life. The tea seeds, large quantities of which were also sown last spring, are promising well.

APRICOTS and olives promise an unusually full crop in Los Angeles county.

Germination of Seeds, and the Preparation of the Ground Therefor.

Having examined somewhat minutely the origin, manner of fertilization and physical construction of seeds, it will be both interesting and profitable now to inquire into the conditions of their germination, and learn how we can best assist Nature in the operations of plant growth. In this inquiry we must first obtain a clear view of the circumstances and conditions which best promote the germinations of the seed and give to the plant its first impetus of growth.

We have already seen that the seed contains the germ, or, rather, the embryo of



FIG. 1—CLODDY OR STONY SOIL.

the plant, every portion of which is there as fully as the rudiments of an animal are in the womb. If this seed is healthy, no matter how dry and apparently lifeless it may be to the touch and sight, it nevertheless possesses life and vitality, that needs but the proper conditions of warmth, moisture and air to become excited into activity. What that life is we know not, and cannot describe any more than we can embryo animal life. That is one of the hidden secrets of Nature. We merely know something of the circumstances under which that life can be excited into activity. These circumstances or conditions we now propose to examine by the aid of several hastily-prepared illustrations.

When a healthy seed is placed in the ground, nothing comes of it unless certain



FIG. 2—SOIL WITH WATER, BUT WITHOUT AIR.

conditions of warmth, air and moisture are present; and these must also be properly combined. Any very great excess of either will be fatal to germination or sprouting. Experience teaches us that the finer and more evenly we pulverize the soil, the more perfectly we secure the proper conditions; and the less fine and less uniform the particles of soil, the more imperfect is the germination and after-growth of the plant.

If a seed is placed in the ground as shown in Fig. 1, where there is a stone, *a*, upon one side and an unbroken, hard clod, *b*, upon the other side, with unevenly pul-



FIG. 3—SOIL WITH AIR, BUT WITHOUT WATER.

verized particles of earth elsewhere surrounding the seed, it is partially deprived of all three of the desirable conditions. The stone, by its easy transmission of heat, keeps the temperature near the seed too high in the daytimes and too low at night, while both exclude air; consequently the circumstances are unfavorable for germination.

In Fig. 2, the seed, *a*, is placed in a fine and evenly-pulverized soil, but where the

interstices are entirely occupied by water instead of air, while the interior of the particles of earth are also filled with water. (In each of the figures herewith given the dark portions represent water, the light, air, and the straight lines, earth.) It is clear that in Fig. 2 the seed must be almost entirely deprived of air—one of the indispensable conditions of germination. The excess of water, moreover, renders the earth around the seed too cold to meet the proper conditions of warmth required. The evils of the excess of moisture may be readily and intelligently studied by the aid of this figure.

Again, in Fig. 3, a total lack of moisture is observed;—none is seen in the interstices, none within the particles of earth—nothing but air and earth is shown. Under such conditions heat finds an easy access to the seed and as easy an escape. The want of moisture and excess or irregularity of heat must be fatal to germination.

Fig. 4 represents the seed deposited in a soil properly pulverized; while between every particle of soil the air finds ready access, and in the interior of every particle of soil one or more particles of moisture

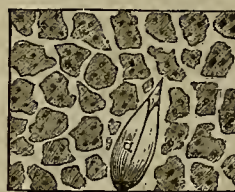


FIG. 4—SOIL WITH WATER AND AIR.

are lodged. These conditions are evidently favorable for the process of germination: warmth (the season being favorable), moisture and air, all coming in ready and undisturbed contact with the seed.

Under these conditions a physical change soon takes place by the presence of the moisture, causing the seed to expand. Heat is thereby generated, something in excess of that in the surrounding soil, which assists the elements of the air and moisture to exert into activity the vital principles—a chemical change at the same time taking place in the constitution of the seed.

The hidden, unseen, vital principle now commences to act, decomposing portions of the surrounding water and grasses, and appropriating or assimilating to the germ such particles of matter (plant food) which are needed to develop and further build up the now animated embryo. The substance which composes the larger portion of the seed (the *cotyledon*, heretofore described in these articles) furnishes food for the growing plant until the leaves and roots which it builds up are able to seek other sources of nourishment in the surrounding earth and air.

In our next we shall examine further into this miracle of growth.

VALUE OF NEWSPAPERS TO FARMERS.—Clark Bell, Esq., in a late agricultural address at Steuben county, New York, full of matter of immediate and practical interest to his hearers, among other things said: "No one can too highly estimate the value of a good newspaper in a family of children, and I am of the opinion that if one is taken constantly in a family, it will be impossible for the children to come up without becoming intelligent upon all the questions of the day. Every household should bring in the newspaper, then, as an absolute and indispensable necessity. I defy any farmer to try for a year, and then be able to say it has not paid, and been in every way for his good." Of course this refers only to such papers as are devoted to really useful and instructive reading.

SIX GOOD RULES FOR CATTLE MEN.—Never buy a low-bred animal; cheaply purchased is half sold; feed only with the best of food; feed regularly and cleanly; keep your animals warm and dry (this rule should be followed in California as well as elsewhere); sell as soon as fat.

Jottings in Santa Clara County.

Los Gatos is the name of a pleasant little village situated ten miles west of San José at the foot of the Santa Cruz range of mountains, on the Los Gatos creek. The situation is a little cone at the mouth of a picturesque cañon, half inclosed with hills and beautifully studded with noble trees, that struggle away in squads towards the open valley, or fringe the stream in wanton profusion. There are favorite picnic grounds in this vicinity. A large amount of wood and lumber finds its way from the mountains to San José through the village.

The Los Gatos Manufacturing Company owns a large stone flouring mill, that was built in 1856 at a cost of about \$100,000. It has five run of stones. They have also built a woolen mill that runs 240 spindles and 5 looms. The whole is run with water power. A substantial flume, one and a half miles long, built at a cost of \$10,000, carries the water to the iron pipes, where 60 feet of pressure drives two turbine wheels, a Leffel and Swain, to supply the power. To such as are interested to learn the relative cost and merits of these turbine wheels, it would be worth a visit to these works. Two tailoring establishments have been started in this place, that work up some of the honest cloth here made into substantial clothing. The San José Water Company takes the water from the mills just where it leaves the wheels. It is carried in an open flume three miles to a reservoir, and thence conveyed through iron pipes, laid underground, seven miles into the city, to sparkle in fountains and glasses, to lay the dust of the streets, to drive with steam the fiery engine, to enter in the thousand uses so grateful to man.

No Chinese labor is employed about any of these works; and it is extremely gratifying to find a growing desire among the enterprising, industrial interests, to encourage our own people in preference to that class of immigrants whose interests are in no way connected with ours, and whose education, desires and objects are wholly foreign; who simply invade this country to carry away the golden spoils.

S. H. HERRING.

Greasing Wagon Wheels.

The proper greasing of wagon wheels is of much more importance than generally supposed. The *Coachmakers' Magazine* gives some valuable information on the subject, which may not be generally known. We quote as follows: "Few people are aware that they do wagons, and carriages more injury by greasing too plentifully than in any other way. A well-made wheel will endure constant wear from ten to twenty-five years, if care is taken to use the right kind and proper amount of grease; but if this matter is not attended to, they will be used up in five or six years. Lard should never be used on a wagon, for it will penetrate the hub, and work its way out around the tenons of the spokes, and spoil the wheel. Tallow is the best lubricator for wooden axle-trees, and castor oil for iron. Just grease enough should be applied to the spindle of a wagon to give it a light coating; this is better than more, for the surplus put on will work out of the ends, and be forced by the shoulder bands and nut-washer into the hub around the outside of the boxes. To oil an iron axle-tree, first wipe the spindle clean with a cloth wet with spirits of turpentine, and then apply a few drops of castor oil near the shoulder and end. One teaspoonful is sufficient for the whole.

We would add that for journals on which there is a heavy pressure it is a good plan to mix with the oil some lampblack or common soot. Powdered plumbago or black lead is also employed for the same purpose."

Another writer in decrying some of the thoughtless acts of cruelty to animals says: "Some persons may not be aware that the trifling neglect of a pair of wheels being comparatively dry or well greased will cause twenty miles to take far more work out of a horse than forty would in the latter case; yet wheels absolutely screaming from dryness are often seen and heard attached to carts and wagons; and thus would the brute in human form let them scream until he had finished his journey's end or his day's work, though his horses were drawing, from such cause, at least one ton in four of resistance more than they would if the defect were attended to."

An Insectivorous Plant.

We give herewith a representation of one of the most remarkable plants known to botanists—*Dionaea Mucipula*, or Venus' Fly-trap. It is confined almost exclusively to bogs and marshy places about Wilmington, North Carolina. It belongs to a class commonly known as dew plants, from their having the appearance of being covered with dew.

In this species the leaf-stalks have two broad elongated wings, much larger than the leaf proper, which also consists of two lobes or wings, fringed with cilia (or hair-like appendages, similar to an eyelash). Near the center of each leaf are six small hairs, in which resides a peculiar sensitiveness hereinafter noticed. This description will be easily understood by referring to the engraving. The plant sends up a single flower-stalk, which bears a



cluster of flowers upon its summit, as shown. The mode in which the plant catches insects and consumes them is described as follows in the *Hearth and Home*, from which paper we also copy the accompanying engraving.

Whenever an insect attempts to crawl over the leaf, the leaf suddenly closes or shuts up, inclosing its prey in the manner of a steel trap, and the oil on the edge of the leaf, interlocking like the teeth of a trap, effectually prevents his escape. It has been supposed by some that the object of this arrangement was to supply the plant with nutrition, but this was doubted by some botanists, including Linnaeus; but lately the matter has been set at rest by the experiments of William M. Canby, Esq., an American botanist residing in North Carolina. Mr. Canby found that the glandular hairs secrete a fluid which dissolved the insect, and supposed that the fluid was then in some way conveyed to the roots of the plant, and then taken up for its nourishment. After going through this operation, the leaves would reopen and again catch insects; but each time they did so became less and less sensitive, and finally lost their irritability altogether. This induced him to try other substances.

He fed several leaves with pieces of raw beef, and at the end of ten or twelve days the beef (excepting some gristly pieces

purposely introduced for experiment) was entirely dissolved or digested by the fluid secreted by the glandular hairs, and was all absorbed by the leaves, which then began to reopen. A slight shower aided this curious digestive process, but too much water appeared to weaken the effect of the fluid secreted. To show that this is not the result of the decomposition of the animal matter, a planarian was noticed that had been caught by one of the leaves; he endeavored to eat his way through it, but, although alive, was very weak, being surrounded by the fluid, which was gradually killing him; this showed that the fluid was not secreted until after the prey was caught.

Mr. Canby tried cheese, another animal substance, but it was only partially digested, and finally killed the leaf, but without injuring the rest of the plant. A large centipede was destroyed and devoured by another leaf; but, generally, beetles and insects having hard-case wings, were rejected after a short time.

We have here a curious nut for our vegetarian friends to crack—namely: a carnivorous vegetable provided with the means of catching insects of various kinds, and then turning its leaves into a kind of stomach, furnished with a sort of gastric juice, and deliberately devouring them for its own nutrition.

This plant can be cultivated in small pots of peat-earth, covered with moss, and the pot placed in a saucer of water in a shaded part of the greenhouse. It should be kept continually moist, but never deluged with water. It can be increased by seeds or division of the roots; and the leaves, if placed on damp moss and covered with a bell-glass, will emit young plants from their edges.

Silk Business in Santa Cruz County.

While in Santa Cruz county I took occasion to visit the cocoonery of Mr. Jessie Williams, whose farm is seven miles north of Watsonville, in among the hills, some 600 feet above the sea level. The locality is sheltered from the prevailing winds and fogs, and seems to be very favorably situated for silkworms.

He has out three acres of trees, mostly the *Morus Multicaulis*, which he prefers where eggs are more of an object than silk. His trees are three years old, and he heads them very low, giving them a bushy form, with numerous shoots and limbs. He expects to get better leaves and more of them by this method of training. He thoroughly cultivates his land, which is of a light pliable loam, but does not irrigate. Indeed, he thinks the leaves much the best for feeding, when grown without irrigation.

Mr. W. is hatching 160,000 worms this year from four ounces of eggs. His trees will feed them. So far, he had not lost a worm, and they all appeared to be in perfect health. He had some hundreds of cocoons at the time of my visit, and worms in every stage of growth. His breeding-room is in a building by itself. He gives plenty of air, but does not allow a strong draft to strike the worms. He considers the even climate of the Santa Cruz mountains the best in the world for silkworms.

Mr. W. intends planting 5,000 more trees this year, and of building a cocoonery that will accommodate 2,000,000 worms.

He has already devoted much time and study and has had some up-hill experience in this business; but he is now sure of success, is deeply in earnest—is bound to succeed—and invites and offers to assist others to embark in the enterprise. He expects to produce 500 ounces of eggs this year—enough to make twenty millions of worms.

This place is well worth a visit from any one who has a desire to engage in the culture of silk.

Silk-growing is a branch of culture of which I have had no experience; but I am most favorably impressed with what I saw and learned at Santa Cruz. I can discover no reason why the business should fail of complete success.

Before reaching his place I inquired by the way, and was told it was not worth my

while going there. "Mr. W. was half crazy; had ruined himself, etc.—Could never make it pay. In short, silkworms were a humbug in this country. One good cow and a dozen chickens were worth more than all the silkworms in California!"

My opinion in the matter is this: One such "crazy man" as Jessie Williams is worth all the timid cow and chicken men in California, in every progressive sense of the word.

S. H. H.

What I Know of Farming—No. 24.

Fruit-trees—The Apple.

If I were asked to say what single aspect of our economic condition most strikingly and favorably distinguished the people of our Northern States from those of most, if not all, other countries which I have traversed, I would point at once to the fruit-trees which so generally diversify every little as well as larger farm throughout these States, and are quite commonly found even on the petty holdings of the poorer mechanics and workmen in every village, and in the suburbs and outskirts of every city. I can recall nothing like it abroad, save in two or three of the least mountainous and most fertile districts of Northern Switzerland. Italy has some approach to it in the venerable olive-trees which surround or flank many, perhaps most, of her farm-houses, upholding grapevines as ancient and nearly as large as themselves; but the average New England or Middle State homestead, with its ample apple orchard and its cluster of pear, cherry and plum trees surrounding its house and dotting or holding its garden, has an air of comfort and modest thrift which I have nowhere else seen fairly equaled. Upland Virginia and the mountainous portions of the States southward of her may in time surpass the most favored regions of the North in the abundance, variety and excellence of their fruits; for the peach and the grape find here a congenial climate, while they are grown with difficulty, where they can be grown at all, in the North; but up to this hour, I judge that our country north of the Potomac is better supplied with wholesome and palatable tree-fruits than any other portion of the earth's surface of equal or nearly equal area.

On the whole, I deem it a misfortune that our Northern States were so admirably adapted to the apple and kindred fruit-trees that our forefathers had little more to do than bury the seeds in the ground and wait a few years for the resulting fruit. The soil, formed of decayed trees and their foliage, thickly covered with the ashes of the primitive forest, was as genial as soil could be; while the remaining woods, which still covered seven-eighths of the country, shut out or softened the cold winds of winter and spring, rendering it less difficult, a century ago, to grow fine peaches in Southern New Hampshire than it is now in Southern New York. Devastating insects were precluded by those great, dense woods from diffusing themselves from orchard to orchard as they now do. Snow fell more heavily and lay longer than now, protecting the roots from heavy frosts, and keeping back buds and blossoms in spring, to the signal advantage of the husbandman. I estimate that my apple-trees would bear at least one-third more fruit if I could retard their blossoming a fortnight, so as to avoid the cold rains and cutting winds, often succeeded by frosts, which are apt to pay their unwelcome farewell visits just when my trees are in bloom or when the fruit is forming directly therefrom. Hence I say to every one who shall hereafter set an orchard, give it the northward slope of a hill if that be possible. Other things being equal, the orchard which blossoms latest will, in a series of years, yield most fruit, and will be most likely to bear when the apple crop of your vicinity proves a failure. I do not recommend storing ice to plant or bury under the trees in April, for that involves too much labor and expense; yet I have no doubt that even that has been and sometimes might be done with profit. In the average, however, I judge that it would not pay.

In locating and settling an orchard, the very first consideration is thorough drainage. Nothing short of a destructive fire can be more injurious to an apple-tree than compelling it to stand throughout winter and spring in sour stagnant water. Barrenness, dead branches, and premature general decay, are the natural and right consequences of such crying abuse. There are many reasons for choosing sloping or broken ground for an apple orchard, whereof comparative exemption from frost and natural facility of drainage are the most obvious. A level field, thoroughly

underdrained to-day, may, through neglect and the mischiefs wrought by burrowing animals, have become little better than a morass thirty years hence; but an orchard set on a tolerable steep hillside is reasonably secure against wet feet to the close of its natural life.

A gravelly or sandy loam is generally preferred for orchards; yet I have known them to flourish and bear generously on heavy clay. Whoever has a gravelly field will wisely prefer this for apples not merely to clay but to sand as well.

And, while many young orchards have doubtless been injured by immoderate application of rank, green manures, I doubt that any man has ever yet bestowed too much care and expense on the preparation of his ground for fruit-trees. Where ridges or plateaus of fast stone do not forbid, I would say, turn over the soil to a depth of at least fifteen inches with a large plow and a strong team; then lift and pulverize the subsoil to a depth of not less than nine inches; apply all the wood ashes you can get with one thousand bushels of manure if you are in a manure region; if not, use instead from thirty to fifty bushels of quicklime (oyster-shell, if that is to be had) with one hundred loads per acre of spamp muck which has lain a year on dry upland, haking in the sun and wind, and now you may think of setting your trees. If your soil was rich western prairie or Middle State garden to begin with, you can dispense with all these fertilizers; yet I doubt that there is an acre of western prairie that would not be improved by the lime or (perhaps better still) a smaller quantity of refuse salt from a packing-house or meat-retailing grocery. There are not many farms that would not repay the application of five bushels per acre of refuse salt at twenty-five cents per bushel.

Your trees once set—and he who sets twenty trees per day as they should be set, with each root in its natural position, and the earth pressed firmly around its trunk, but no higher than as it originally grew, is a faithful, efficient worker—I would cultivate the land (for the trees' sake), growing crops successively of ruta hagas, carrots, beets, and early potatoes, but no grain whatever, for six or seven years, disturbing the roots of the trees as little as may be, and guarding their trunks from tug, or trace, or whistle-tree, by three stakes set firmly in the ground about each tree, not so near it as to preclude constant cultivation with the hoe inside as well as outside of the stakes, so as to let no weed mature in the field. Apply from year to year well-rotted compost to the field in quantity sufficient fully to counterbalance the annual abstraction by your crops. Make it a law inflexible and relentless that no animal shall be let into this orchard to forage, or for any purpose whatever but to draw on manures, to till the soil, and to draw away the crops. Thus until the first blossoms begin to appear on the trees; then lay down to grass without grain, unless it be a crop of rye or oats to be cut and carried off for feed when not more than half grown, leaving the ground to the young grass. Let the grass be mowed for the next two or three years, and thenceforward devote it to the pasturage of swine, running over it with a scythe once or twice each summer to clear it of weeds, and taking out the swine a few days before beginning to gather the apples, but putting them back again the day after the harvest is completed. Let the swine be sufficiently numerous and hungry to eat every apple that falls within a few hours after it is dropped, and to insure their rooting out every grub or worm that burrows in the earth beneath the trees, ready to spring out and apply himself to mischief at the very season when you could best excuse his absence. I do not commend this as all, or nearly all, that should be done in resistance to the pest of insect ravage; but I begin with the hog as the orchardist's readiest, cheapest, most effective ally or servant in the warfare he is doomed unceasingly to wage against the spoilers of his heritage. I will indicate some further defensive energy in my next.—*Horace Greeley*.

THE GRAPE CROP.—The prospect of a large crop of grapes throughout the State is very encouraging. The demand for California wine in the Eastern States is increasing and prices have very materially advanced of late.

MAMMOTH CHERRIES.—They raise cherries in Alameda county that measure 3½ inches in circumference. Of a lot recently sent to this city, thirty-six of the largest weighed a pound—so says the *Bulletin*.

Scientific Press.

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San Francisco:

Saturday Morning, July 2, 1870.

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Notices to Correspondents.

J. M. W.—NICKEL.—This is last quoted at \$1.25 to \$1.50. We should like a description of the ore, as we are doubtful about its being nickel. The obtaining of nickel from its ores is a long and complicated process, which depends much on the nature of the ore. One way is to roast until the arsenic is expelled, then to melt with sulphur and potash, then to wash well and dissolve in acid, and from the solution to throw down iron, copper, etc. The nickel oxide may be thrown down with caustic potash (in an air-tight vessel) or the oxides may be precipitated by carbonate of soda or potash, treated with oxalic acid, washed, dissolved in ammonia and heated, whereby oxalate of nickel is precipitated. The nickel obtained must often be treated more than once if it is necessary to get it pure and free from cobalt. Some remarks on the ore will be found under the "Contributions to Our Cabinet."

FOSSIL TOOTH.—A description of a fossil tooth from Table Mountain, by Prof W. P. Blake, sent us by G. A. Treadwell, will be published at the earliest possible moment.

SILVER CITY, IDAHO.—Letters from our correspondent from this locality will be published in our next.

ANOTHER disastrous fire is reported. At Pittsburg, on the 28th ult., during a storm, a 20,000-barrel tank, filled with petroleum, was struck by lightning. The burning oil running towards the river set fire to other buildings and to a bridge. The loss is estimated at over half a million dollars. One life was lost.

FOURTH OF JULY.—The Committee on Literary Exercises for the Fourth of July celebration have selected W. H. L. Barnes as Orator of the day, Bishop Kip as Chaplain, and S. W. Piercy as reader of the Declaration of Independence.

Pushing Forward.

It is hardly necessary in commencing a new volume, as we do to-day, to remind our readers that we are constantly pushing forward in our efforts to improve the SCIENTIFIC PRESS. We have never relied upon promises of what we propose to do; but have always been able to point to what we have done in the past, as the best assurance of what is in store for the future.

At the opening of the present year we reduced the price of the paper from \$5 to \$4 per annum, believing that the modified condition of affairs on the Pacific slope, growing out of the opening of the Overland Railroad, and other facilities for more frequent intercourse with other portion of the world, fully warranted such a step. Our anticipations have been more than realized in the increase of subscriptions, so much so as to enable us to give an additional amount of reading matter by the presentation to our readers of a double-sheet the first issue of every month.

Illustrations.

We have also made such arrangements as are now enabling us to greatly increase the number, interest and variety of our illustrations. While this improved feature adds largely to the cost of publication, we feel confident the additional interest and value thereby given to our columns, will be duly appreciated by a discerning public.

The Miner, the Mechanic, the Inventor, the Farmer and the Naturalist, will all find something of constant and practical interest in this direction.

The Miner will always be presented with everything new in the way of reducing ores, whether by mill process or by smelting.

All important improvements in Machinery will be promptly presented to the Mechanic, while the Inventor will be as regularly furnished with hints and stepping stones upon which others have mounted, and from which he in turn will be able to see still further and more clearly into the undiscovered future.

The ideas and instructions that we are here constantly placing before the Farmer will speak for themselves. If the reader will pardon us for a mere hint at the future, we venture the promise that no one thing that is new and of any real practical importance in the mechanics of Agriculture shall be omitted in that portion of our illustrative department.

The Naturalist too will now and then find something to interest and instruct; while the general reader is never forgotten.

How far we have succeeded in making the SCIENTIFIC PRESS acceptable to the public, we can only judge by the words of hearty commendation which we are constantly receiving, not only from our brethren of the press, but from numerous private letters, from the readers with which our patrons pay up their annual subscription and from the rapid increase of our list of subscribers.

A reference to the index published in our last issue affords the best evidence of the wide field of research and instruction in which we are engaged. The present number affords ample evidence of the truth of what we have written, and to strangers our subscribers can fully attest that the present is but an average of our issues upon the first of each month.

The carefully digested mining summary which we give each week; the chronicles of scientific and mechanical progress; the large and varied information on agricultural matters, and the many matters of general and special interest, together with the numerous illustrations, in all the various departments, combine an amount of information which for value, interest and variety, will not suffer in comparison with any periodical of the day.

Mines at Baker City, Oregon.

Our correspondent, J. M. W., writes us, under date of June 19, concerning the mines of this city. The Rockefeller lode, of which much has been said, was discovered by accident. An express rider, by name Rockefeller, on his way home from Umatilla to Idaho, found his horse lame at this place, and on dismounting to look at the horse's foot, picked up a rock which proved to be a specimen of quartz containing an abundance of free gold. He made up a prospecting party and came back, and soon discovered a rich and well-defined quartz ledge. The first rock worked yielded \$150 to the ton in gold, and no attention was then paid to the silver glance (sulphuret) which the present owners, Brown & Co., now find quite abundant.

Messrs. Brown & Virtue have worked their ledge down some 300 feet to the water level, taking out ore enough to keep a ten-stamp mill running night and day. They are now preparing to erect a steam pump for the purpose of freeing the mine of water. Our correspondent visited the place in company with Mr. Virtue. The greater part of the remainder of his communication we give in his own words.

The width of the ledge at the present depth is two feet and the ledge is as well-defined (between the walls of porphyry?) mixed with slate) as I ever saw. The rock that has been taken out recently averaged \$35 to the ton of free gold, and the sulphurets have assayed \$150 per ton. They now employ ten men. Their mill is eleven miles from the mine on East Powder river, which stream contains water-power enough to run fifty mills, such as the Rockefeller. It is surprising to me that more rich ledges have not been struck in the vicinity of Baker, for the placers are very rich and much quartz has been found in the placer mines that was rich with free gold. It is my impression, however, that, as the country becomes more developed, many rich veins of both gold and silver will be found in this county. In the placer mines in the claim of Caldwell & Co., at Gimletville, they found a few weeks ago a nugget valued at \$3,990. A claim at Eagle creek, in the same county, run forty-two days and cleaned up \$4,200. A Chicago company are now negotiating to buy what is known as the Burnt River ditch, and propose enlarging it so as to supply steady water to the El Dorado and Amelia City and other rich districts. The scarcity of water only prevents the mines in this locality from giving surprising proofs of their richness, and if they were 4,000 miles away, there would be a grand rush to them. There have been shipped from Baker City, during the month of May last, \$150,000 and upwards of bullion, and for the year ending June 1st, 1870, over \$450,000. At least \$150,000 has left this place in private hands during this time. A great drawback to traders in Eastern Oregon is the scarcity of coin, and the very high rates that are charged in making the exchange. My old friend, Capt. Fisk, is engaged in the assaying business in Baker, and he informs me that it costs from three to four per cent. to get coin from your city. The Capt. has promised to keep you posted on this section of the country, and for fear I should make this letter too long and tedious to you, and deprive the Capt. of some of his intended items, I will bring it to a close by saying that I was well pleased with everything in Eastern Oregon.

EXPEDITION TO BRAZIL.—On June 23d two professors and ten students of Cornell University sailed for Brazil, where they intend spending six months in scientific explorations. Prof. C. F. Hart, who was with Agassiz, if we mistake not, is in charge of the expedition.

Patents and Inventions.

A Full List of Patents Issued to Pacific Coast Inventors.

(FROM OFFICIAL REPORTS TO DEWEY & CO., U. S. AND FOREIGN PATENT AGENTS, AND PUBLISHERS OF THE SCIENTIFIC PRESS.)

FOR THE WEEK ENDING JUNE 21ST.

INSTRUMENT FOR REMOVING TWINE AND WIRE FROM BOTTLES.—John T. Haviland, San Francisco.
GRAIN-LIFTER AND HARVESTER.—William M. Jackson, Woodland, Cal.
CHILD'S CHAIR.—Abraham Henry Wehser, San Francisco.

NOTE.—Copies of U. S. and Foreign Patents furnished by DEWEY & CO., in the shortest time possible (by telegraph or otherwise), at the lowest rates. All patent business for Pacific coast inventors transacted with greater security and in much less time than by any other agency.

Notices of Recent Patents.

Among the patents recently obtained through Dewey & Co's Scientific Press American and Foreign Patent Agency, the following are worthy of mention:

DOVE-TAILING MACHINE.—E. Heath, S. F.—This is a simplified arrangement for forming the dove-tail joints of drawers and boxes, and consists of two sliding frames, moving on tables, one of which serves to dove-tail the end, and the other the side piece of a box, without the use of swinging guides, numerous gauges and beveled tables. The saws for the two frames can be fastened to the same mandrel or to separate mandrels. The two tables, moreover, may stand side by side, or may be separated, and may be used for all ordinary purposes of sawing by simply removing the sliding frames. The sliding frame for the side pieces has a tapering guide fastened to one of the cross beams, so as to give the desired angle to the tenon, the board standing upon this guide, while the frame slides at right angles with the saw mandrel. The end pieces are formed on a similar sliding frame on the other table, but the guides in this case stand at an angle with the mandrel. The construction renders it possible not only to use the tables for common sawing, but also to fit up any plain sawing table with the device at a small expense, while it does away with all sawing guides, which soon get loose and out of order, and necessitate two sets of gauges and the resetting of the guide for each side of the dove-tail. When the table is fitted up especially for this work, a large number of saws and cutters may be used, so that all the dove-tails of any box can be cut at once by two motions of each frame, leaving nothing more to be done except to fit them together. The tables may be hinged at one end, and the opposite end raised and lowered by screws, to regulate the depth of the mortices and tenons.

PAINTING PHOTOGRAPHS IN OIL AND WATER COLORS.—R. Winter, S. F.—The object of this invention is the production of a new and improved style of painting upon photographic pictures, or cards upon which a photograph has been taken. Coloring photographs is quite popular, and hence it is very desirable to use some method by which the coloring matter can be laid on without producing a harsh or unnatural effect. The inventor claims that, by his method, he produces a brilliancy, softness and clearness of outline which cannot be obtained in photographs as ordinarily painted. Certainly his productions are very artistic efforts. Possessing all the fidelity of the photographic outlines, and, in addition, having the colors laid on in the softest and most natural manner, the pictures compare most favorably with the choicest of oil paintings. Those who have seen the photographs are unanimous in their praise, and we hear the most favorable criticisms from all sides.

MILL FOR JAPAN.—We have previously alluded to the concessions made to foreigners, with regard to the mines, by the Japanese Government, and to the mining prospects there. We find now that the Pacific Iron Works of this city are manufacturing a 10-stamp mill, with pans, settlers, etc., and engine and boiler complete, for "government use" in Japan. We could not learn the locality for which the mill is intended. It is ordered for working both gold and silver ores.

Improved Floor for Stalls.

It is a matter of economy, as well as of humanity, to have the stalls for cattle as clean and neat as possible. But too often through poor construction and neglect the stable is a most disagreeable place. The liquid and refuse matter are allowed to remain, or only imperfectly removed; and thus what might be made a valuable means of enriching the soil is left to become a disagreeable and unwholesome object.

To assist in making the stable what it should be, is the object of the device here illustrated. In this the floor of the stall is a wooden grating, B, which is hinged at one end, C, so that it is easy to raise it when necessary, by means of cords and pulleys, as is shown sufficiently plainly in the engraving. The bars in these gratings are placed a quarter of an inch apart, so that the calks of the horse's shoes cannot catch between them, and but little dirt can fall through. They are arranged so that any one can be raised, independently of the others, by means of a small hook provided for the purpose. And as their ends are slotted, as shown at C, they can be entirely removed when desired.

Under the stalls are the gutters, A. Those on the lower floor have a lining of cement, and those on the upper story are of wood lined with zinc or any other suitable waterproof material, which may also be used for covering the beams. Thus the stalls can easily be kept clean, and may be thoroughly washed out by means of hose whenever it is needed. The gratings can be inclined at any required angle, and when the middle bars are worn they may be changed with those at the sides, so that the floors will last a great length of time when made of good timber.

A patent for this device was obtained June 8th, 1869, by William M. Beakley, of Verplanck, New York, who may be addressed for State and county rights.

A NEW ENTERPRISE.—The *Call* says that a San Francisco party has bought a tract of swamp land in Alameda county, with the view of utilizing the same by stocking it with terrapins. Of course we suppose frogs will be raised as food for the terrapins, and incidentally, also, for the supply of the growing market for that delicacy in this city. The proprietor congratulates himself upon the fact that drouth will never affect his crops; neither will his pets get the pip, and die off as the chickens do on the dry ranches.

We see no reason why terrapin and frog-culture may not, to a limited extent at least, prove equally as remunerative as fish-culture. Neither require much attention or capital, while the increase is enormous. It has been fully demonstrated that one acre of water can be made to produce more valuable food than two or three acres of land. "Swamp and overflowed land" may yet be shown to have a value for other purposes than "reclamation."

IRON PIPES, when laid in the ground, and packed all around with dry clay, do not rust, or at least, their oxidation is very slow. The clay protects the metal from the action of oxygen in moisture and air.

UTILIZATION OF IRON SLAG.—Mr. Joseph Woodward has taken out a patent in England for converting the millions of tons of slag from the blast furnaces into building brick.

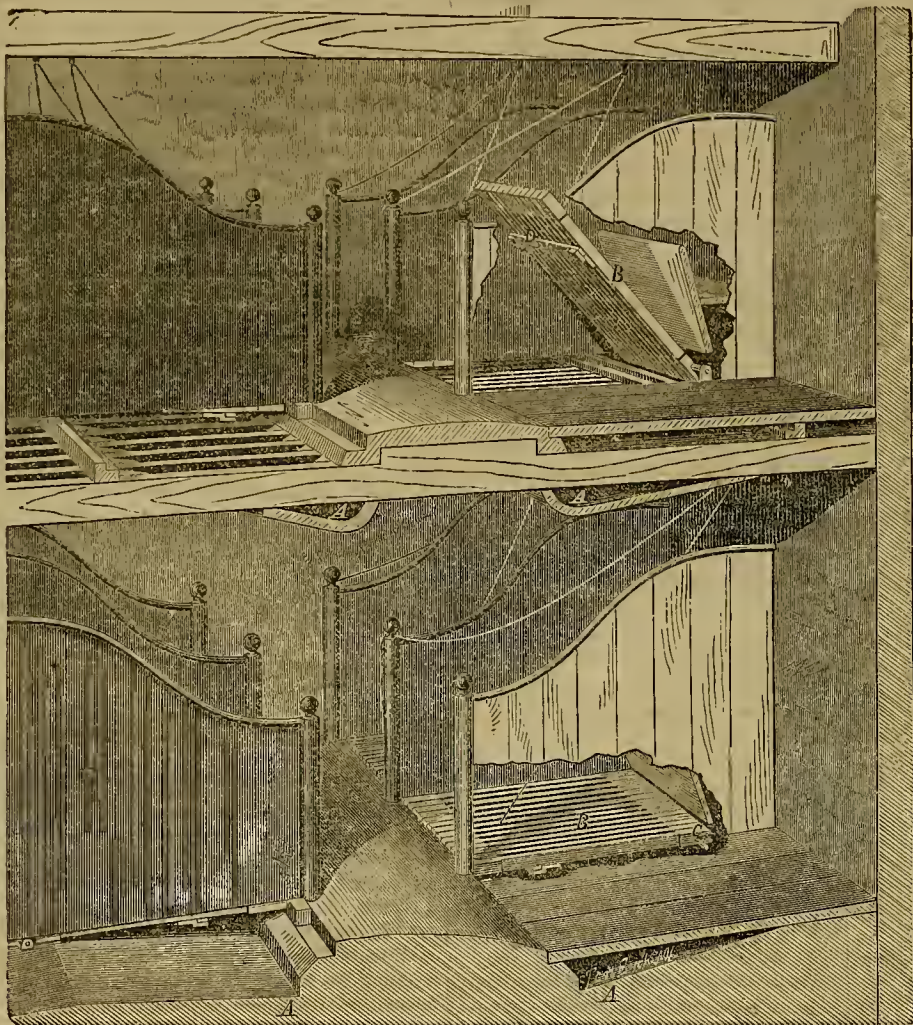
Our Home Industries.

Sawing and Planing Mills.

It sounds strange to the Eastern visitor to hear the Californian continually announcing his intention to return "home" at some future time. How many there are on our coast who seem to consider this country as merely a temporary place of residence, good for making money in, but to be abandoned as soon as sufficient wealth has been acquired. A Californian, as some one has said, seems to have no home. "He builds his house on pegs, and the chickens run around under it, and now and then

worth about \$60; and then more or less of Spanish cedar, laurel, cherry, walnut, mahogany, etc.

The newest, and certainly one of the largest and best, of our city mills is the Enterprise, on Spear and Stuart streets, between Howard and Folsom. This is owned by D. A. Macdonald & Co., an old California firm, which has been engaged in the business many years. But this spring they determined to give up their old location, on the corner of Beale and Market streets, and about the first of May they had finished and commenced running their new establishment, which we have visited lately.



BEAKLEY'S PATENT IMPROVED STALL FLOOR.

he puts it on wheels, and trundles it to some other locality."

This is still true to a great extent now, but not so much so as formerly, and it will not be equally applicable in the future. We are beginning to acknowledge the fact that the better policy is to build up comfortable nests here. Our children will regard this country as their home, and will not apply that term to the East.

An evidence of the growing determination to abide in this land, is the greater amount of attention and money expended on the fitting up of buildings. Every year the number of handsome residences is increasing, and the manufacture of the various articles of wood-work for houses is already an important branch of our home industries.

Under the head of "Sawing and Planing" in the S. F. Directory for 1870, we find twelve names given. Five of these, the California, the Mechanics, the Empire, the South Point, and the Enterprise mills, do a large business. The work turned out amounts in value to between one and a-half and two millions dollars (at a rough estimate) yearly, and many thousands of feet of lumber are used every month. Of this last, the greater portion is Redwood, worth now about \$30 per thousand. Then comes Sugar Pine, worth \$55 to \$60; then Cedar,

machine, five sticking machines, two shaping machines, and six sash and blind machines.

On one side of the lumber yard is the engine house, a fire-proof brick building, with iron doors. The engine is one hundred horse power and, with the boilers, was made at the Risdon Iron Works. The shafting came from the Vulcan Works. The main shaft is sixty-five feet long, and the main belt one hundred and twenty feet long and twenty-four inches wide. The fuel used consists of the shavings from the mill, and this forms an economical feature in the construction, worthy of note.

The rear part of the building, on Stuart street, has been let to a firm, who do the turning and glazing for the concern, while up stairs is the carving and stair-building department. Macdonald & Co. own the adjoining lot on the east of their mill, so that at some future time they can extend their works, if necessary.

To describe in detail the various operations to which the lumber is subjected to shape it into boards, into sashes, blinds, mouldings and scroll-work of every description, would demand too great a portion of our paper. It is most interesting, however, to see the working of the different machines, and how quickly a rough piece of wood is transformed into some shapely device. The variety, and quick and neat operations of the various machines bear testimony, in the highest degree, to the inventive talent of our age.

In this establishment some eighty men are employed, and, on an average, at least 300,000 feet of lumber are worked up monthly. The firm—which is composed of the following gentlemen: D. A. Macdonald, Jos. McGill, J. H. Macdonald and Howard Chapman—has furnished many public and private buildings with wood-work, and the last figures show that their business must be very extensive.

ARTIFICIAL HONEY and much of the syrups used by brewers in the manufacture of spirits is derived from damaged wheat, corn and rice, and from potatoes. When such substances begin to decay the nitrogenous principle is the first to be destroyed, while the starch, which forms the chief portion of their

substance, is more permanent, and, if promptly taken in hand, may be saved. By chemical manipulation this starch is converted into glucose or grape sugar, which, after proper flavoring, is subsequently sold for honey or syrup, and in the latter condition employed by the distiller. Nearly all the liquid honey sold at the East, and, no doubt, much in this State, is thus manufactured. Old honey-comb is also sometimes nicely filled with this substance, and sold as the genuine product of the bee. The gum employed for labels and envelopes is made from this glucose—hence its sweet taste. There is nothing especially bad about such sweets, other than the deceit practiced in palming them off for something else than what they really are.

OVERLAND PASSENGER TRAFFIC.—The through passengers to this State from the East, overland, during the first five months of 1870 numbered 13,170; through passengers the other way, 7,831—or a gain for California, by the railroad, of over 1,000 a month. The arrivals by sea for the same time was 10,214; departures, 4,751—a still larger gain than that by railroad.

EXCELLENT kid gloves are now retailed in Paris at two cents a pair.

Notes on Contributions to Our Cabinet.*

ORES FROM COPE DISTRICT.—We have received a number of specimens (Nos. 457 to 462) from this district, forwarded by our correspondent, W. H. M., whose interesting letter from Mountain City is continued in this issue. These specimens however, were loosely packed, and consequently were considerably broken on the way. Moreover, the labels were so torn that only a few were decipherable. Those which we could make out, we have numbered separately. The others are comprised under No. 457. This fact will explain also why we mention but one name in this connection.

No. 457.—The general character of the ore is of finely-divided minerals, disseminated through a quartz gangue. These minerals are generally of so small a size that they are with difficulty decipherable. Evidently we have been sent working specimens and not show pieces, or else the transport has destroyed the crystal specimens. The ore is evidently very rich, and there is an abundance of horn silver. There are also some fine specimens of native silver. Silver glance (sulphuret) occurs in varying amounts. There are, moreover, small amounts of galena, iron and copper pyrites, zinc-blende (in one or two instances) and some feldspar, with iron and copper etains. These remarks apply in general to the following from the district.

No. 458.—Argenta mine. The rock is partly decomposed, containing considerable feldspar. One specimen contains a very large amount of horn-silver. The other specimen has evidently been subjected to artificial heat, and shows numerous globules of metallic silver.

No. 459.—Great Eastern mine. Here the copper stains and the fine crystals of galena, iron and copper pyrites and zinc-blende occur plainly, but in small amounts.

No. 460.—Belle of the West. Presented by C. H. Massie. Considerable feldspar occurs in this specimen.

No. 461.—Monitor mine. Considerable copper and iron stains, and some galena. In one or two places there are some minute green minerals, which are not plain enough, however, to be deciphered.

No. 462.—Idaho Extension. With zinc-blende and pyrites.

From the appearance of the above specimens, we are inclined to believe that a good mine in Cope district must be an exceedingly valuable property. Thanks to the donors.

No. 463.—Very fine specimens of native gold with iron pyrites in quartz and calc- spar. These specimens are very rich and handsome. They came in a small oval wooden box. Who is our unknown friend?

No. 464.—Sample of grindstone from the quarry of Thomas Robinson, Vallejo Mills, Alameda county. A grindstone of this quality was exhibited at the Sixth Industrial Exhibition of the Mechanics' Institute, and a diploma was awarded therefor. The committee say in their report:

The stone is of altered cretaceous formation, is of fine grain, even gray color and texture, free from quartz veins or other defects, and is the best freestone yet found in California for the purpose to which it is at present applied. In grit it is of good quality. This grindstone is evenly and truly balanced and very well wrought, and fully equal in every particular to the best imported stones used for similar purposes to which this is applicable. Mr. Robinson is fully entitled to a diploma. As a building stone it is second to none on this coast. This we practically endorse. Awarded a diploma.

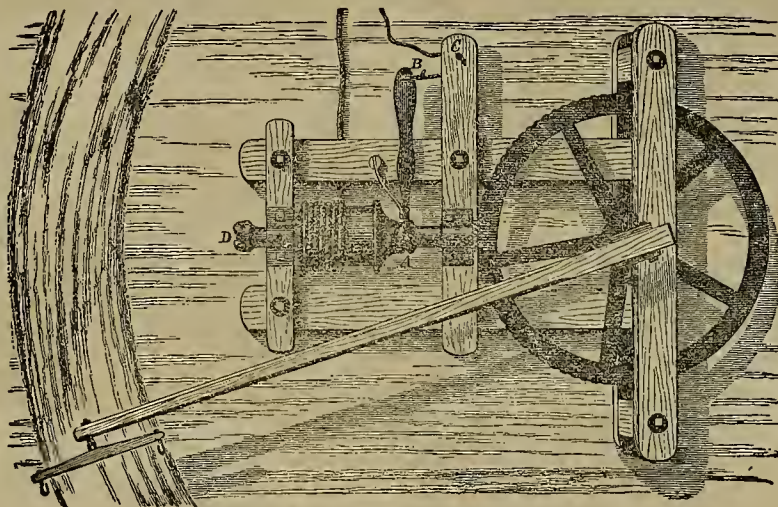
No. 465.—Magnetic pyrites, containing nickel, from Fenushyttan, Nora, Sweden. Presented by Mr. E. Andersen, who informs us that this variety of mineral is found in abundance in the locality given above, in the mines which have been worked for iron ore. Nickeliferous varie-

ties have been found in Norway, Sweden and in Pennsylvania. It is from these that most of the nickel of commerce is prepared. At the Camden Nickel Works, N. J., ore from the Gap mines in Lancashire county, Pennsylvania, is mostly used with some nickel-holding pyrite and millerite (sulphide of nickel). The whole amount of pure nickel produced in this country before 1864 was not over 100,000 pounds. Now these works turn out at the rate of 150,000 pounds yearly.

* Under this heading we shall continue to mention and describe, according to merit, such specimens of ores, minerals, fossils, curiosities, etc., as may be sent to us by mail or express prepaid. Each article will be numbered, marked with the name of the donor and the locality, and placed in our cabinet. A full account of the place, occurrence, etc., adds much to the value of such specimens.

Ribbon Manufacture in Alameda County.

The Oakland Transcript says that arrangements are being made to establish a ribbon manufactory at San Leandro. We are glad to learn that such an enterprise is in contemplation. In order to give permanency to the business of raising silkworms, and



DERR'S CAPSTAN FOR ELEVATING HAY FORKS.

to make it profitable, the production of the silk itself, by reeling, and the conversion of the same into threads, ribbons and other manufactured goods, must be gradually introduced. In no other way can the silk business rise to any considerable importance in this State.

We do not know how much truth there may be in this reported project for establishing a silk manufactory across the Bay; but there certainly cannot be any serious difficulty in the way. We have an abundance of capital, and any amount of skilled labor can be obtained, by proper effort, either from the Atlantic States, from Europe or from Japan. The protection afforded by our present tariff, and the production of the silk from our own soil, will more than counterbalance the difference in the cost of labor between this country and Europe.

Sewing silk, ribbons and silk dress goods generally of every description, are now manufactured in the Atlantic States in large quantities. Silk manufacture is no longer an experiment there. It is as thoroughly and permanently established as are the manufactures of woollens or cottons. We can feed workmen here cheaper than they can be fed in the Atlantic States, and we have the added advantages here of being able to raise our own raw silk and a climate in which neither the drawbacks and disadvantages of long and cold winters nor the enervating effect of hot summers are ever encountered. We hope to see the project at San Leandro carried out and followed by others of a similar character.

An English tailor has invented a pair of trousers with wheels at the end. The experiments are said to give the speed of a horse and the power of instantaneously stopping. It is supposed that for such trousers he demands pay in advance.

Capstan for Elevating Hay Forks.

Mr. Derr, of Ohio, sends us an illustration of a device of his, which he thinks will be of great interest to our farmers. By means of this, he says, twice as much hay can be unloaded in a given time as by the old plan, and, moreover, one man is spared. And it can be used for driving any light machinery, such as feed-cutters, corn-shellers, etc.

A light horse-power is constructed with a spool or capstan working free on the tumbling shaft. One end of a rope is fastened to any horse hay-fork, passed over pulleys in the ordinary way, and the other end is attached to the spool. The horse is kept continually in motion, and when the fork has been placed in the hay, it is raised by a person standing on the load, who pulls a rope which passes around a pulley at C, and is attached to the end of a lever, B, which throws the spool in or out of gear by means of a clutch, A, as is easily seen from the cut. The hay having been thrown from the fork, the gearing rope is loosed,

permitting a spring to throw the lever back, and thus ungear the spool, and the weight of the fork reversing the action of the spool, is brought at once to the load.

It will be observed that no time is lost reversing the fork. In the old way of backing the horse the whole length of the rope to re-load, considerable time was consumed, and it was necessary to have a man to attend specially to the horse.

The end of the shaft, D, is constructed so that it can be coupled to any other shaft when the device is used for driving other machinery.

A patent was granted for this invention, August 10, 1869, to William Derr, of Seneca county, Ohio, whom address for State or territorial rights.

A NEW USE FOR THE PUMPKIN.—The English Gardener's Magazine suggests a new use for the pumpkin, or rather the pumpkin vine. It is—to use the tender shoots as greens. It is recommended that the growth of the plants be well established before cutting is commenced, and that all the young fruit be removed as fast as it sets. "Cook and serve in the same manner as for turnip or other greens. The brilliant green color, delicate aroma, and grateful flavor of the pumpkin-tops, when properly cooked," says the Monthly, "will commend them to the nicest epicure."

At a late meeting of the Geographical Society in Vienna, a resolution was adopted recommending the sending of an Austrian expedition to the South Polar Sea in 1874, to make observations of the transit of Venus. It has been calculated that the most favorable point from which to witness the appearance and disappearance of the planet is in 53° latitude and 12° longitude east from Greenwich, or in the neighborhood of McDonald's Inlet.

Lectures to Workingmen.

A paper on this subject in a former number of *Nature* contains much of interest both to lecturers and to their audience. The following is worthy of place here:

I am not here expressing any opinion as to the rights and wrongs of many things at which workmen aim, and in which they engage. But totally irrespective of opinion, it is evident that there are many important questions the management and the decision of which are in the hands of the workingmen, and a right view of the respective importance of facts and of argument is the only safeguard against being misled. It is just at this very point that scientific teaching helps to make men right. I am not saying whether or not I believe that science is to be the regenerator of mankind. But this is certain, that there is a great benefit to be gained from scientific teaching, that it supplies to workingmen that which as a class they are deficient in, and that which as a class they are desirous of having; and that here there is open before all who care for these matters a wide field of direct and immediate utility.

I have seen 600 men, on a tempestuous winter evening, come to a lecture on astronomy at one of our great workshops in the North. It is a wonderful sight to see so many faces intelligent and seeking for knowledge. Workingmen are a peculiar audience; they are rather fond of cheering; and I have often had to check a piece of applause arising just before the conclusion of a demonstration which was tying together, so to speak, in a knot, several threads of argument. Such applause, coming, as I have so often seen it, just before the completion of an argument, indicates the satisfaction which all feel, and which these men are unsophisticated enough to express, when there just begins to dawn upon them the feeling of seeing, without being told, what some things have got to do with one another; the feeling, in fact, of making a discovery. And I can fancy nothing more encouraging to a lecturer who loves his subject than such facts, and nothing which more bears out the assertion that I have made, that there is among workingmen a true desire for, and a true appreciation of, something genuine in science. Workingmen—at least those with whom I am acquainted—have a strong perception of right and wrong, a strong moral character, a clear and open way of giving everything a fair hearing—that natural honesty which is the backbone of a nation.

STOUT-HEARTED LITTLE SACRAMENTO.—When I beheld the magnificent train of coaches, from the East come out of those snow-capped mountains yonder, and thunder loudly down across these plains, then I lift my mental hat to Sacramento. Stout-hearted little Sacramento!—that was not dismayed by the wasting fire and the flood; that was not dismayed or turned back from her large enterprise by the hootings and the jeers of small souls. Well might her citizens, when they had scaled, angle-headed, the summit of the Sierra, look down with a little triumph upon a dim and dismal spot by the sea, where these owls bopped up and down and croaked on their sand-spits around the Bay, until they got their eyes yellow in the fog, and couldn't see out even as far as the Farallones. One thinks of Emerson's lordly doggerel: "Gods! I will not be an owl; but sun me in the Capitol." I like the people of Sacramento, if for no other reason, because they are not always boasting of their weather, as the people of San Francisco do—even when they are stuffd so full of fog and sand that their voices seem to issue from under a bed-tick.—*Overland Monthly*.

TRAINING HEDGES.—In training hedges it is very important that the hedge should be cut with sloping sides, so that the light and air may more readily penetrate to its center. A hedge with a square top and perpendicular sides can never be kept thick at the bottom. The pruning, as a general thing, should be done just after the young growth has pushed out; although, in forest trees of naturally large growth, this operation should be somewhat longer delayed, or until summer has well set in, else such trees cannot be kept down. Severe summer pruning will keep the strongest and largest class of trees in a dwarfed condition for several years at least, and, in most cases, continually. Pruning is, to some extent, equivalent to cutting back the roots, as roots will not increase much out of proportion with the branches.

Chinese Deer.

Two of the animals here portrayed are now in the Zoological Society's Museum at London, England. The *Rural New Yorker* says that in 1865, M. Armand David, a French missionary at Peking, discovered the existence in the Imperial parks, near the Chinese capital, of a strange species of deer, and informed certain French authorities of the fact. A year later he sent to France skins and parts of skeletons of these singular beasts. In the spring of 1869, through the British Ambassador to China, the Zoological Society made application to Prince Kung for leave to obtain

The Timber of California.

BY J. RICHARDS M. E.

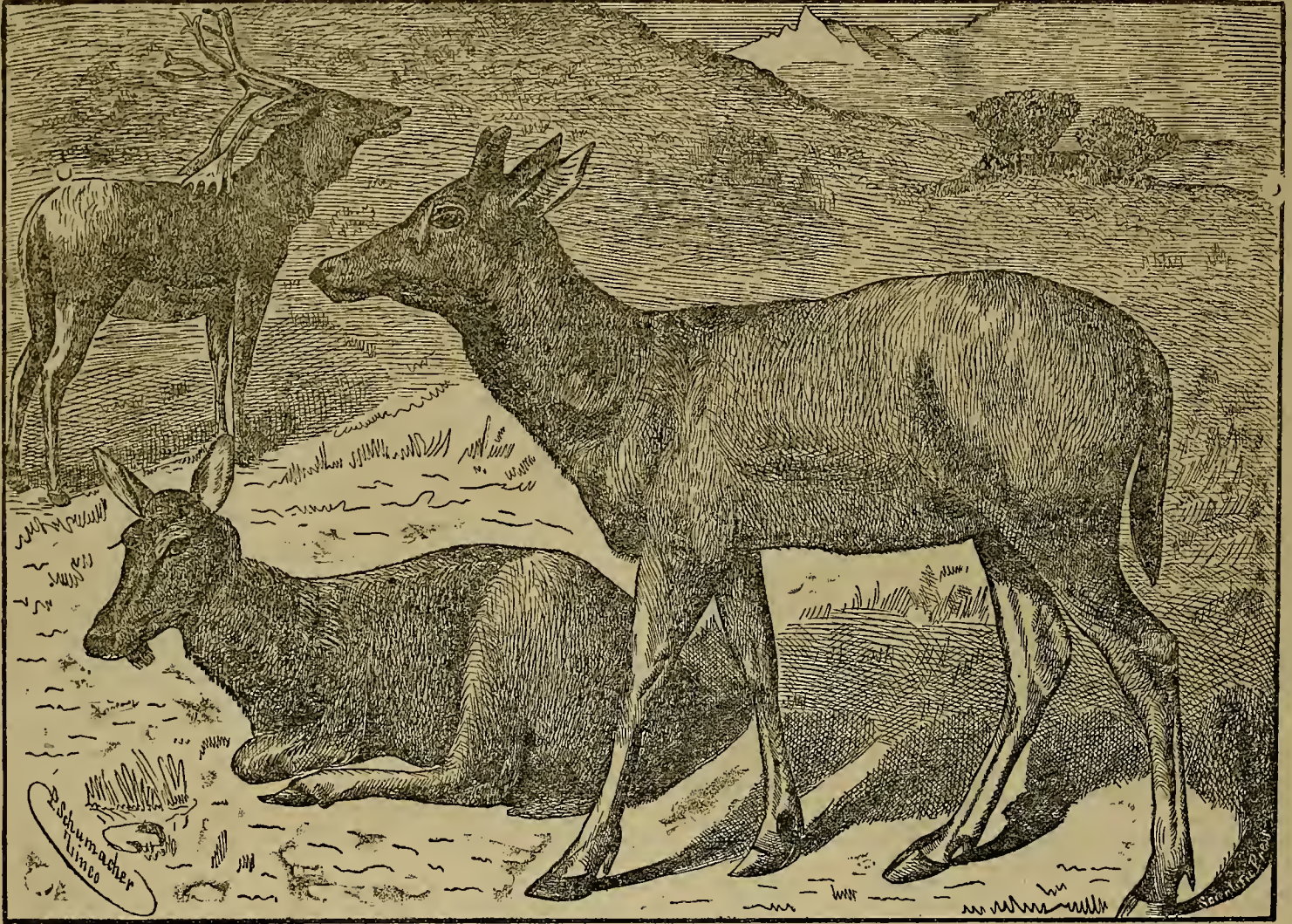
"To learn your own country, go to another," is a maxim as true as any ever uttered. An American who has in the last year been in England, or on the Continent, has no doubt heard more of our Pacific coast, and learned more facts that bear upon its future, than he would learn in the eastern portion of the United States in a decade. Ross Browne's "Mineral Resources of the Pacific Slope" would no doubt be found with less trouble in Paris or London than in Philadelphia or New York. It is true that European attention

with gunpowder in order to manufacture them?" Considering the heavy timber growth of California, perhaps the question is not so ridiculous after all. Our sawing machinery now in use in the Atlantic and Middle States is totally inadequate for the purpose. Reciprocating saws can, of course, only work on timber where its depth does not much exceed the stroke. Circular saws must increase in thickness as their diameter, and will, aside from other objections, waste too much stuff in the kerf. But lo! "another saw has risen"—one that offers at once a solution of the whole problem. The band saw will, with a thin blade, cut through even the giants of the Yosemite valley.

The band saw has in Europe been extensively and successfully applied to lumber cutting. It has in the Atlantic States

railway carriage wheels,—in England the discs or plates made from hard wood being now extensively used. Painted wood is the best and most healthy material for the interior of our dwellings, filling each and every condition with that nicety that proves the ample provisions of Nature for our wants, when we acquire the wisdom to discern them.

Lumber manufacture on the Pacific coast will no doubt attain an importance that it has in no other part of the world. This vast country must be studded with thousands of dwellings, not built, as in the Eastern States, throughout the course of two centuries; but in a few years—within the span of life of those now living—the vast country will, in all probability, teem with a population of twenty millions of souls. Her agriculture and manufactures



CHINESE DEER IN THE ZOOLOGICAL SOCIETY'S MUSEUM, LONDON, ENGLAND.

living specimens from the royal parks, and the young pair illustrated were shipped from Shanghai in April, reaching London in August of the same year.

These deer are called by the Chinese "Milon," or more often "Sse-pou-siang," the latter meaning "not one of the four," because of a fancy that they resemble the stag in their horns, the cow in their feet, the esmel in their neck, and the ass in their tail, and yet are different from all of them. The long tail and large ungainly feet render them at once distinguishable from the ordinary deer. The horns of the male in the pair shown are not yet developed, and the third one is pictured as fully matured, to show the full growth of the antlers.

Books.—It is stated that in 1863 there were published in the United States 1,450 original American works, 359 reprints of English books, and 109 translations and reprints of continental publications; total number, 1,918. They are classified as follows: Theology, 264; Fiction, 310; History, 174; Poetry, 127; Law, 108; Art, Sciences, 116; Year Books, 134; Medicine, 101; Travel, 91; Trade, 41; Education, 71; Juvenile Books, 235; and 155 miscellaneous.

has been directed to this matter from possible or probable Asiatic emigration that may indirectly have an influence on the "trade to the East," that has built up the national wealth of England, and augmented that of France, Germany and other Continental powers. But granting that this has directed attention to our Pacific coast, by calling out those learned and philosophical papers on emigration, by English savans, it is not to Asiatic emigration, even as a secondary condition, that this great interest in American affairs is ascribed. It is to the great rivalry in manufactures and manufacturing resources that this wonderful country will in future present. It does not require a great stretch of imagination on the part of the people of Europe to see a time when the metals and manufactured wares of the Pacific slope will meet them in Constantinople and Cairo, if not in Calcutta, while the trade of Japan and China will, through the reciprocal feeling growing out of emigration, revert to our Pacific slope.

This is, however, foreign to the subject that heads this article. In speaking of the timber growth of California to lumbermen in the Atlantic States, or abroad, the first question is, "What can you do with it? Your pines are too large to be sawed; how can you use them? You must blast them

been demonstrated as the best means (to say nothing of its great economy) for cutting the hard woods of Central and South America, which are imported in the log. There is scarcely a limit to the depth through which a hand-saw blade will cut; and as the speed of performance of any saw is as the speed of the teeth, we have in these two propositions the index to its capacity: a thin blade moving from 2,000 to 4,000 feet per minute square through the timber. The first cost of the saw is proportionately less than that of any other, and the mechanism to operate it consists only of a pair of wheels mounted on suitable supports, with the saw-guiding devices. Carriages, of course, can be constructed upon general plans, that will carry timber of any size, requiring no especial feature except increased strength and proportions. With practical means of deep sawing, the cost of manufacturing lumber will be reduced, as the size of the timber increases, and give to California an advantage which it has pleased Nature to bestow upon her, in her having heavy timber growth.

Wood and other metals are inseparable in manufactures, they must keep together. The elasticity and peculiar nature of wood as a material in construction, it is fair to presume, will not, in the future, be supplanted by another. For thousands of years it has held its place as a building material, as the only kind of framing that will stand in land carriages; and in some cases, where it has been supplanted by iron, it has returned to assert its superiority. An instance in point is in the manufacture of

will demand a rapid and economical conversion of her timber into lumber. Let us hope, then, that the band-saw has its mission here, and will be found equal to and adapted to the momentous work which we have mapped out for it on the Pacific slope.

A CALIFORNIA EVERGREEN is exciting considerable interest among horticulturists in England. The *Gardeners' Chronicle* says the original was sent from California. It is known as the "Samson cypress." The parent plant is about nine feet high and three through the thickest portion of the foliage. The *Chronicle* closes its remarks upon it as follows: "In the symmetrical outline of the tree itself, in the regularly radiating vertical ramifications, in the slender, graceful character of the everywhere erect spray, there is about this plant an air of refinement rarely met with, and which, combined with its bright and enduring verdure, stamps it as a gem of the first order among hardy evergreens."

GAS AND HEALTH.—Those who are compelled to work much by gas-light should have a care that the room they occupy is well ventilated. The necessity for this may be inferred from the fact that two common gas-jets will consume as much air as three men will require; hence, it is not surprising that so many operators who are compelled to work late at night by gas-light become feeble and sickly.

Kustel on Roasting of Ores.

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Of the various processes to which ores are subjected, the most important and difficult, especially in a financial point of view, is the roasting. It is in this process, in many cases, that all the profits are eaten up; hence, the operation deserves a large share of attention. From Mr. Kustel's book (now in press) on the "Roasting of Gold and Silver Ores, and the Extraction of their Respective Metals without Quick-silver," we make the following extracts:

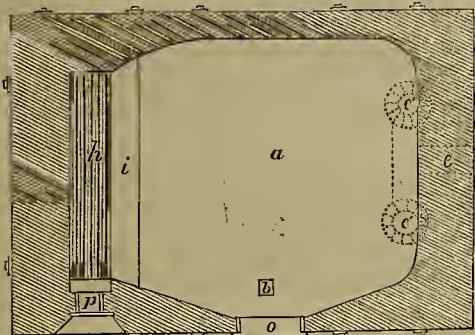


FIG. 3—SMALL ROASTING FURNACE, GROUND PLAN.

with regard to roasting furnaces. These extracts are not taken continuously, but from several places. Thus we take the introductory remarks on the roasting furnaces, and then the description of the long furnace, which has been used with great success. Of Stetefeldt's furnace (among others) there is an excellent description, with illustration, which, however, we omit, as we have spoken of it lately and have not space for everything. The long furnace, however, has not before figured in the papers. Mr. Kustel, we may remark, devotes considerable space to the subject of roasting processes and apparatus.

Roasting not only requires much care,

rine to the ore, and this only through the chlorination period. During two or three hours of each charge, when desulphurization and sulphatization are going on, this must be performed by the oxygen of the air, while, if chlorides were present from the beginning, sulphurets, sulphates and oxides would have been partly decomposed directly by the chlorine, whereby time and a certain percentage of salt are saved.

In this respect a great advantage is gained by the introduction of "long furnaces," in which a continual formation of chlorides on the finishing hearth, near the bridge, is going on, volatile chlorides and free chlorine being evolved, which, on their way to the fire, are constantly in contact with the ore for a space of thirty to fifty feet in length. These furnaces show a great economy in fuel, labor and salt, and the roasted ore contains a better percentage of chloride of silver.

Another most important improvement in the way of chloridizing roasting is found in the Stetefeldt furnace, where all ore particles are involved in chloridizing gases under very favorable circumstances. The roasting is cheap, and from twenty to twenty-five tons of ore are roasted in twenty-four hours—more than ever accomplished in any other furnace.

Long Roasting Furnaces.—This kind of roasting furnace, as represented by Fig. 6 in cross section, and Fig. 7 in ground plan, gives much satisfaction, as there is not only a great saving of fuel effected, but also a greater quantity of ore can be roasted in a given time than with a single furnace. It is only a modification of the double furnace, but it seems to be more convenient for the roasters. The heat is better utilized, as the flame has not to pass flues between the hearths and is not broken so often; but the moving of ore from one

space between the roof and hearth of the other two. The ore is fed in the last hearth through the sheet-iron funnel *a*, spread equally on *b*, and, according to its drawings or the quantity of sulphurets contained, stirred more or less for one and a half to two hours. As it is not only inconvenient, but impossible to have a good stirring effected at a distance of twelve feet, which requires long and heavy tools, there are for this reason working doors on both sides of the furnace. The roaster uses hoes or rakes, eight feet long, made partly of gas pipe, which are light and handy. The working doors are thirty inches wide. They must all be kept closed except when the ore is being raked, and then it is very proper to have half of the door closed (with a piece of sheet iron). Sufficient air comes in at the working door of the first hearth.

After one and a half to two hours the ore is being raked, and then it is very proper to have half of the door closed (with a piece of sheet iron). Sufficient air comes in at the working door of the first hearth.

furnace of a similar description is in operation in La Dura, (Mexico) roasting refractory silver ores for the chlorination process.

A furnace 60 feet in length with six hearths, as built by Mr. Graff, at San Marcial, has the advantage of being capable of roasting from eight and a half to twelve tons of ore in twenty-four hours, discharging every hour from 700 to 1,000 pounds according to the charge. In case ore is subjected to roasting, which has not enough sulphur to create the required heat in burning, an additional smaller fire-place must be attached on one side, so as to bring the flame into the fourth hearth.

Mexican Mines.

Mexico is probably the richest mineral country in the world, and its riches are by no means worked out as yet. We have previously noticed a work on the "Min-

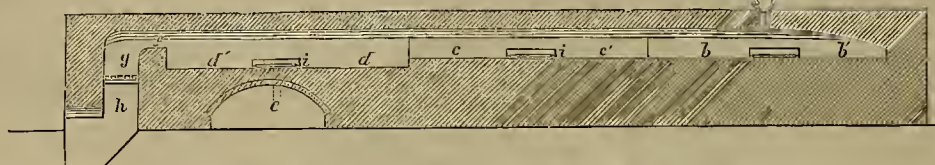


FIG. 6.—LONG ROASTING FURNACE, CROSS SECTION.

duced on *b*, *b'*. The second hearth has a greater heat than the third one, the ore is treated here as before, being raked as often as possible. After a lapse of one and a half to two hours the ore is moved again to the first hearth, in the same way as before, that is from *c* to *d'* and from *c'* to *d*. The ore is now exposed to a light red heat by which the chlorination or oxidation must be finished in the same time as on the other hearth. It is necessary to change here the ore from the bridge towards the flue, and reverse, once during the roasting. When ready, the roasted ore is drawn into iron cars below the furnace through the opening, *e*. When all the ore has been removed, the charge on the second hearth is transferred to the first, from the third to the second and from the funnel to the third hearth, and the process continued as before, so that a thousand pounds are drawn out every one and a half or two hours.

The bridge, *f*, is fourteen inches high.

eral Resources of Mexico" by Mr. C. Chipman, which contains much of interest. "If one half of the known silver lodes," says that gentleman, "were worked as they should be, by modern machinery and the skill which science and practice impart, the product of silver and gold alone would reach \$1,000,000,000 annually, and would employ in various ways ten million people." The figure seems large, but he adduces facts to support them. Baron von Humboldt estimates the total yield of precious metals by Mexico at \$4,218,243,840, from its discovery to the commencement of this century. The Veta Madre vein alone has yielded silver to the value of \$225,000,000, and although traced for many miles, has been worked only for a length of about one

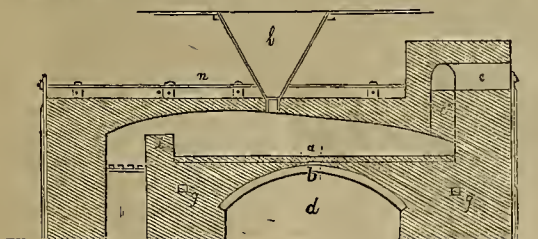


FIG. 4.—SMALL ROASTING FURNACE, CROSS SECTION.

but it is also an expensive operation. For this reason the choice of the right kind of furnaces is of very great importance, and so much more as a perfect and economical extraction of silver depends principally on the result of roasting. The chloridizing roasting is known to be the most suitable way for the subsequent extraction of silver in whatever way it may be performed, by amalgamation or solving; consequently those furnaces in which the ore particles are exposed to the action of chlorine and other chloridizing gases to the most advantage, must be considered the best. The old style of furnace was four to six feet wide and ten feet long, and in them a small part of the ore was exposed to the greatest heat near the bridge. The gases evolved were carried along by the draft, being in contact with the surface of the ore for a length of ten feet while passing over it; but on account of the narrowness of the hearth, the ore at the bridge had to be changed often with the cooler part at the flue.

The next step in improvement was the adoption of wider hearths, even wider than long. The heat was more uniform and the result better. In both kinds of furnaces the chlorination of the metals depends principally on the chlorine developed in the mass of the ore while passing through it; but once above the surface, the chlorine and volatile chloride metals have little chance to transmit their chlo-

hearth to the other is more troublesome. There are two men employed at a time, there being one ton and a half to two tons in the furnace. The hearths are either horizontally arranged, as the drawing shows, or only the first one is level and the

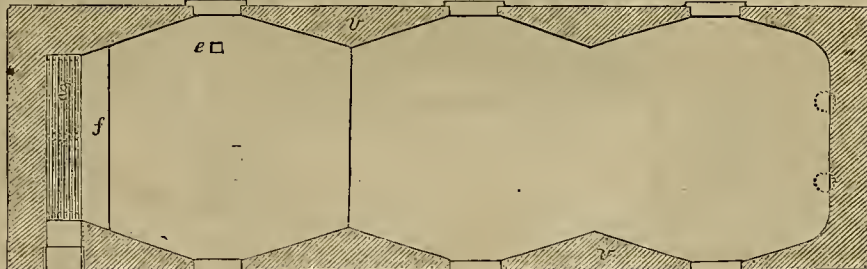


FIG. 7.—LONG ROASTING FURNACE, GROUND PLAN.

For the purpose of admitting air or steam a canal can be made in it. The fire-place, *g*, is 18 inches wide and 8 to 9 feet long, and 15 inches below the top of the bridge.

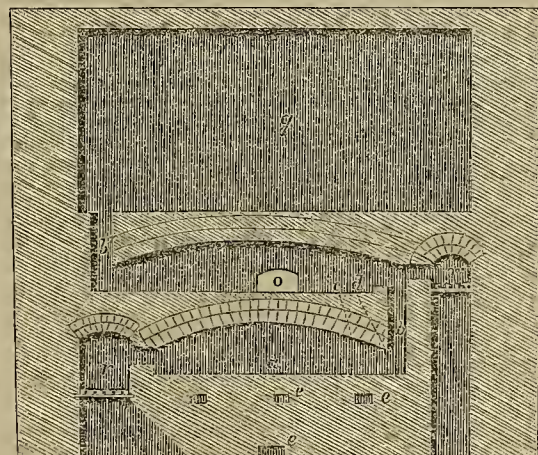


FIG. 5.—DOUBLE FURNACE.

other two are inclined; this facilitates the shifting of the ore. Each hearth is ten feet long and ten or twelve feet wide. After the first hearth there is a step of four to six inches, partly to divide the first from the others, but principally to contract the

The ash-pit, *h*, is made according to what seems more convenient, either as represented in Fig. 6 or as in Fig. 3. A deep ash-pit is more favorable for the preservation of the grates, as they are less heated. Each door is provided with an iron roller, *i*. A

and a half miles. Among other examples, the San Dumas mines gave over \$2,000,000 for 24 years; the Pavillon divided among its shareholders over \$6,000,000 per annum; the Sombrierite paid its shareholders \$5,000,000 in seven months; the San Avario paid \$54,000,000 in three years; the Gallego paid \$11,000,000 in six years; and the Real del Monte company has paid for years, and still pays, dividends averaging \$1,500,000 per annum, notwithstanding heavy expenses, among which were some \$150,000 yearly for drainage up to the end of 1868, when they completed the Aviadero adit, which is about four miles long, and which cost upwards of \$500,000. With proper protection of life and property, enormous results may be still expected from this country.

REVISING THE BIBLE.—It would seem that a serious attempt was to be made in England to effect a revision of the Bible. The object is to make only such alterations as are of importance, and in the style of the authorized version as far as possible. No change is to be made without strongly preponderating evidence. Scholars from all sects are invited to assist. It seems rather improbable, however, that any new version can be made which will be acceptable to all churches.

California and Immigration.

Immigrants from abroad are pouring into New York at the rate of over a thousand a day. They are dispatched thence to all parts of the country. Kansas, Nebraska and Colorado are receiving the largest proportion of these new settlers, while the older Eastern States are securing a considerable number. A few go into the Southern States, and others find their way to the shores of the Pacific. But it is very evident that those who come here are only a small percentage of the number to which the great and diversified resources of California justly entitle her. Whatever other reasons there may be, this one is plain: In the other States and Territories no exertion has been spared to attract immigration thither. Immigration Societies have been formed; special and reduced rates of transportation have been secured; agencies have been established in New York and the seaports; pamphlets, circulars and newspapers have been printed by millions, by railroad companies, land speculators and State officers, and circulated broad cast; and agents have been sent to Europe to perform the same work there in the districts from whence this great stream of emigration starts.

Until recently no organized efforts of this kind have been made in California. But our people are waking up to the necessity of an additional agricultural population, the development of the resource of the State, and the adopting of the same means to secure these objects that have been successful elsewhere. The advantages that California presents to the immigrant are so great that it is only necessary to bring them to the attention of the emigrating classes to insure their preference for our shores. But when here, they should be well received; the inducements and advantages which each section of the State has to offer, fairly set before them; the location of public lands yet open to settlement and the prices at which private lands are for sale stated; and every facility offered them to become settlers at once and permanent and productive citizens. Holders of large tracts of land, however, must make up their minds to sell portions of their property at fair rates and upon easy terms, to hasten and encourage the improvement of the remainder. They must not turn away the men who come offering by their industry to double and treble the value of their possessions.

The California Immigrant Union was organized to do this work. It is actively engaged in disseminating information concerning the resources of California and the inducements it holds out to immigrants, both in the Eastern States and in Europe. It has already done much in this way both directly and indirectly. It has dispatched an agent to Germany to circulate translations of its publications there, and by personal efforts in conjunction with its correspondents in the seaports, and by means of arrangements for the cheap transportation of passengers, many in large bodies and otherwise, seek to turn a desirable portion of the current of immigration in this direction. It is doing the same work in the Eastern States, so that with the foreign may come also an American element, in-

spired with the enterprise, activity and intelligence our free institutions and general education create. Here, it is calling upon the public-spirited and intelligent men of the interior to cooperate with it, by working for the benefit of their own counties and attaching to each the new population of which they stand in need. Its organizations and its operations have stirred up others to engage in this same style of work

the same work, and large numbers of both these papers containing this matter have been purchased and sent abroad, thus showing that as a mere business operation it pays newspapers to publish this style of matter. The large edition, (100,000) of an illustrated advertising sheet, published by Messrs. Wentworth & Bornek, as an extra *Weekly Alta California*, also contained this essay and much other matter of the same

addresses furnished, whenever good results are likely to follow. Strangers are always welcome there, and such general or particular information as they require concerning the public or private lands of the State is freely furnished. The following is the list of the officers of the California Immigrant Union:

President, C. T. Hopkins; First Vice-President and Manager, C. S. Capp; Second Vice President, Charles Crocker, Vice President Central Pacific Railroad; Third

Vice President, L. Gottig, President German Savings Bank; Secretary, C. W. Grant; Treasurer, J. Seligman & Co., bankers; General Agent, W. H. Martin. Trustees—L. Gottig; P. H. Canavan, Importer of wines and liquors; H. J. Booth, manufacturer; Alex. Well, of Lazard Freres; Chas. Crocker; Chas. Kohler, of Kohler & Frothing; F. Berton, banker, Consul of Switzerland; G. O'Hara Tasche, Danish Consul; S. Capp; A. Seligman; Thomas Breze, of Murphy, Grant & Co.; Chas. Clayton, merchant; C. T. Hopkins, President California Insurance Company; Aug. Heibing, of Strauss & Heibing; A. D. Bell; S. O. Putnam, Secretary Steam Navigation Company.

Honorary Committee—His Excellency H. H. Haight, Governor of California, President ex-officio; Hon. T. H. Selby, Hon. J. G. Downey, D. J. Oliver, Morris Speyer, Christian Christiansen, Jos. A. Donohoe, Gustave Mahe, Hon. Leland Stanford, Hon. Robert Watt, Hon. Milton S. Latham, G. B. Ceruli, Italian Consul; H. Barroillet, Peruvian Consul; F. Roseng, Hon. E. W. McKinstry, W. W. Hollister, John A. McGlynn, Joseph G. Eastland, A. R. Baldwin, J. W. Stow, L. L. Robinson.

Bean Culture.

Santa Cruz county is a great place for growing beans. The climate along the coast appears to be peculiarly favorable to the sure and prolific yield of this useful product.

Since the earliest occupation of this coast by the Spanish, the cultivation of the bean has been a leading agricultural interest. Wherever there is a Mexican settlement *frijoles* are as indispensable as Chili peppers, jerked beef, and *tortillas*.

So sure and profitable is the crop, that thousands of acres are yearly devoted to the culture in this county. For a general culture the white field bean, the Chili bean, and the Rosita are preferred. A few fancy varieties have been introduced by late settlers and cultivated to some extent, but no special favorite has yet inaugurated a bean excitement, although there would be as much sense in it as in the late "potato revival."

With a deep and thorough stirring of the soil they appear to do equally well on the bench lands and bottoms. I am assured that it is no uncommon thing to plow them three to five times from November to May, the month of planting, and that it pays to thoroughly work and pulverize the soil. The yield on well-cultivated soils will average 3,000 pounds to the acre. The wholesale price ranges from two to three cents on the ranch. [Considerable more than double

the average value of wheat to the acre.—Ed. Press.]

The old fashioned way of treading and pounding out, is the method of threshing still employed. Some sort of a machine is needed that will do the work quicker, cheaper and better.

A large quantity of beans were injured last season, between the time of harvesting and threshing from exposure to rains.

The fields are looking beautifully green now. The cultivators and hoes are at work, and the promise of an abundant harvest was never better. S. H. HERRING.

CORRESPONDENCE.—The correspondence printed this week from our traveling agents, W. H. M. and J. M. W., will both be found of much interest. The letters of our traveling correspondents will add a valuable feature to the present volume of the Press.



LITH. BRITTON & REY, S.F.

and probably greater efforts have been made to attract population and attention to our resources during the past six months than at any time heretofore.

The German translation of the prize essay written for the California Immigrant Union by Mr. John S. Hittell, entitled "California as a Home for the Emigrant, etc.," has been translated into German, and has appeared in the columns of the *Abend Post*, of this city, together with other matter which is eventually to form part of the pamphlet now going through the press. The matter has been stereotyped in duplicate, to facilitate the publication of future editions, and one set of the plates is to be forwarded immediately to Germany that large editions may be printed and distributed there. The *California Demokrat* and other German papers of this city have also published large extracts and abstracts from

sort, written expressly for extensive circulation abroad. Thus its subscribers, advertisers, publishers, and the California Immigrant Union have all been actively engaged in giving circulation abroad to this essay the Union receiving 5,000 copies as a consideration for the use of its essay in that edition, as well as several thousand copies additional from advertisers who were content to trust the Union with the task of distributing periodicals in the Eastern States and elsewhere.

The map of California we publish to-day was prepared expressly for the California Immigrant Union, and is to illustrate its pamphlet. The office of the California Immigrant Union is at 316 California street, and is kept well supplied with matter concerning the resources of the State, suitable for distribution abroad, which is furnished gratuitously to all who apply, or mailed to

Water Supply in Victoria for Mining Purposes.

A matter of vital importance to the mines is the water supply. This has received much attention in Victoria, and the colony is now in an advanced position in this respect. For not only has much been done by private individuals, but the Government also has given extensive aid where the miners have been too poor to erect the necessary works.

But the government has managed these things wisely, and has endeavored, as far as possible, to make such water-works pay for themselves. Having an excellent civil service, the cost of construction is restrained within reasonable limits, and hence the miner is enabled to get his supply of water at a minimum price; and not only is the miner benefited directly in this way, but it is rendered possible for manufactories to be erected in the mining towns! The water statistics of Ballarat show that in 1867 there were at least forty-five manufactories in this one mining camp! Let us look at these statistics for a moment.

The present water supply for this place is furnished from three reservoirs, having an aggregate of 130 acres, with a holding capacity of 292,000,000 of gallons, imperial measure, and a new one is proposed of an area of 200 acres, and a holding capacity of ten to twelve hundred millions of gallons. The aggregate length of races amounts to twelve miles; of mains, eighteen inches in diameter, to four miles 3,234 feet; of street mains, from three to nine inches diameter, 13 miles; of service pipe, 62,500 feet. The total cost of the work up to the end of 1868 was \$350,000; of this, \$50,000 was a government grant, and \$75,000 came from the government water-works' loan, the remainder having been raised by means of a loan upon a special rate and by revenue from the sale of water.

The rate of charges for 1867 was, per 1,000 gallons, measured by meter, as follows: For domestic use, \$1; for manufactures, 75 (now 50) cents; for government establishments, 62 cents; for baths, 25 cents; and for mines, 18 cents. When supplied by valuation, instead of meter, it was 3 to 6 per cent. per annum on the rated value of the premises; when sold from the stand-pipe, 25 cents per load of 120 gallons. There was no charge for water for watering the streets. The amount of water supplied during the half year ending Sept. 30, 1867, was 57,496,680 gallons (imperial measure, which is 20 per cent. more than the American gallon). Of this, 45 manufactories consumed 2,934,000 gallons. The revenue for the year ending the same date was \$37,633.69, and the estimated revenue for 1868 was \$47,960.

Now, these few statistics, on one subject only, give an idea of the enterprising spirit displayed by the people of this mining camp, who have, to a great extent, been thrown on their own resources, and been forced to get along without any great amount of external assistance. And often, when I hear of complaints made in the interior, that San Francisco withholds its capital, I think that it might be better for California mining camps, too, were they obliged oftener to work out, unassisted, their own salvation.

Up to the end of 1868, the government had completed, throughout the gold fields of Victoria, 38 reservoirs, covering an area of 950 acres, and holding 781,887,583 gallons, at a cost of about \$260,607. Besides these, it was building five reservoirs covering 950 acres, and holding 6,383,000,000 gallons, and estimated to cost less than \$900,000. These reservoirs, when built, are put under the control of local boards.

From January, 1863, to December, 1868, government had granted 201 licenses to divert, collect and distribute water throughout the various mining districts. The area of reservoirs constructed by parties holding licenses was about 340 acres; of races, 1,555 acres; the length of races was 403 miles; the capacity of the reservoirs, 546,681,902 gallons; and the maximum quantity to be diverted per diem, 242,667,460 gallons. The estimated amount of capital thus invested was \$1,088,645; and the annual rent paid to the government, \$7,462.50. There are other enterprises

commenced and proposed which will involve an estimated outlay of \$10,000,000.

The prices paid by the miners vary, of course, very considerably; but it appears to be conceded that not more than a few cents per thousand and gallons can be paid. At Buckland the quantities for sluice-heads range from 80 to 150 inches, and the charges per week (of 72 hours) from \$10 to \$15. In Beachworth district the weekly charge per sluice-head averages \$6.25. A number of licenses issued for the district were not accepted, because the government rent, fixed at the rate of two cents for 7,000 gallons, was deemed too high! In one case, a licensee, who proposed to divert 36,000,000 gallons daily, objected to accepting the license because the rent was fixed at £50 per annum—about 68 cents per day.

This question of water supply is of great interest to California and other States and Territories of the Pacific. If the mining camps here could obtain supplies for mining, irrigation, manufacturing and domestic purposes,—any one may imagine the result for himself. It will not do any harm to think on the subject. We say that we have as fine a country as Victoria (or any other place), and as smart inhabitants. It only remains to state that the Victorians have done these things! How about California? M.

Singular Freak of a Potato.

The *Rural New-Yorker* recently acknowledged the reception of several specimens of abnormal potato growth, in which a new potato had formed within an old one, and by its expansion in growing broken the potato apart. In remarking upon these singular growths, the *New-Yorker* says that it is either the case that the potato exhibiting this phenomenon has deeply-seated dormant eyes, or that it possesses the power under favoring circumstances of forming buds where none previously existed. Dr. Hexamer has found that potatoes which were



pared and every visible trace of eyes removed, would sometimes produce shoots and tubers. We copy an engraving of a remarkable instance of the abnormal growth of a potato. The specimen as it came from Mr. Wm. Langley, Garland, Pa., was a partially cracked tuber with a small one just forcing its way out of the fissure. Upon breaking open this old tuber a distorted mass of branches was found within, upon which several small tubers were forming, as shown in the reduced figure. Upon all the specimens of this singular growth that we have seen, the outer surface of the old tuber was dry and hard, and it is probable that when the bud or eye started into growth it found less resistance towards the center of the potato than it did in pushing towards the circumference.

A NEW FOOD FOR HORSES.—It is said that the Arabs cultivate a shrub called "Carroubain," which is found to be a valuable adjunct in the feeding of horses and mules—five pounds of it with four of barley being the feed. The plant only flourishes in very strong soil and a dry climate. A shrub twenty feet high will cover a space thirty feet in diameter, and yield some thirty pounds of fruit. It is coming into use in France for finishing off fat stock—many preferring it to barley. Why do not some of our California horticulturists make an effort to secure some of the plants, which are indigenous to the dry plains of Africa, and try them upon the parched lands of this State? There are many such plants, suitable as food for both man and beast, which might undoubtedly be cultivated to advantage in the driest portions of our interior and southern valleys.

HOW TO PRESERVE FENCE POSTS.—The *Prairie Farmer* says fence posts covered with boiled oil thickened with pulverized charcoal will last longer than iron.

Flax Culture in Santa Cruz.

There are 2,500 acres of flax cultivated in Santa Cruz county this season, mainly in the Pajaro valley. While much of the wheat last year was a failure, the few fields devoted to flax were such a success as to encourage a more extensive cultivation. Finer fields of flax than are growing in this county this season were never seen. To give stability to the business all that is now needed is a sure market for the straw and fibre, and an established price for straw and seed.

The Oakland Sack Factory last year paid \$10 per ton for the straw, baled, at the landing here. Some of the straw is now lying at the wharf. There are over 2,000 tons more of straw seeking a market this season.

About one-third of the straw in weight is fibre. It is a well known fact that for actual service, sacks made from this fibre are worth 100 per cent. more than sacks made from the jute that the Oakland mills are now using. There should be a difference in the price of linen and jute sacks sufficient to warrant the Oakland company to step forward in this enterprise, to encourage the farmer and make good serviceable sacks instead of the miserable jute sacks now made from imported material. If the farmers themselves will demand the linen sacks it will be doubly to their advantage. They will get good sacks and accomplish something towards creating a market for flax.

If looked upon liberally and right, there is a mutual interest between the farmer and manufacturer. It is something more than a speculation, it should be a settled and a permanent industry. There is not a flax brake in Santa Cruz county. Here is an opportunity for an investment in a sure and worthy enterprise. The fibre always has a market value. No place in this State has better conveniences for manufacturing than Santa Cruz. The cost of the flax brake that I noticed last spring in the Oakland mills was \$350. It has a capacity of one ton per day. Several such brakes might be employed here the year round.

Linseed.

The yield of seed to the acre ranges from 700 to 1,300, and this year will average 900 pounds per acre, making about 1,125 tons of seed raised in this county this year. This will net the farmer 3 to 4 cents. Last year the San Francisco Oil Works imported over 250 tons of seed, and they have already received several cargoes from abroad this season. Seed grown in this State is very rich and decidedly superior for oil.

As to the cultivation of flax, it seems to succeed best on land quite rich, but not too wet. Land free from weeds and very thoroughly cultivated is best. Where land is foul it should be pastured, summer-fallowed or occupied with some hoed crop the year before sowing to flax. The best field that I saw was plowed three times before sowing, and sowed in February with 50 pounds of seed to the acre. After the flax was well growing, it was weeded out by hand. This sort of care will pay. Rich soils that will lodge wheat, barley, oats, etc., will produce a very superior fibre. Although there is much difference in the appearance of fields, some of which, owing to poor tillage and filthy weeds, will not be fit for fibre, yet flax is considered a sure crop. The advantage and the necessity of a thorough cultivation is proved. With a proper spirit of enterprise on the part of manufacturers, this product so long neglected is found to be one of the important industrial interests and resources of California. S. H. HERRING.

TRULY TERRIFIC.—A telegram tells us that at Dry Creek a wonderful discovery has been made in the shape of some huge mastodon. As this "far exceeds in size anything yet discovered in the world," it may well be termed wonderful. Further information says that the distance between the eyes is four feet, that eight feet of a tusk had been uncovered, that the diameter of this was 18 inches and the length supposed to be 12 or 14 feet. After the first announcement we were prepared for bigger figures. Call-back Barnum.

WINE FROM LOS ANGELES.—An average of 18,000 gallons of wine and brandy has been shipped monthly from Los Angeles for the last seven months.

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Cuts ordered for illustration are the property of the inventor who pays for them, and can generally be used for circulars, pamphlets, books, or other newspapers. The engravings to be seen in each issue of the SCIENTIFIC PRESS are a fair sample of the work of the artists who can always be found in our office.

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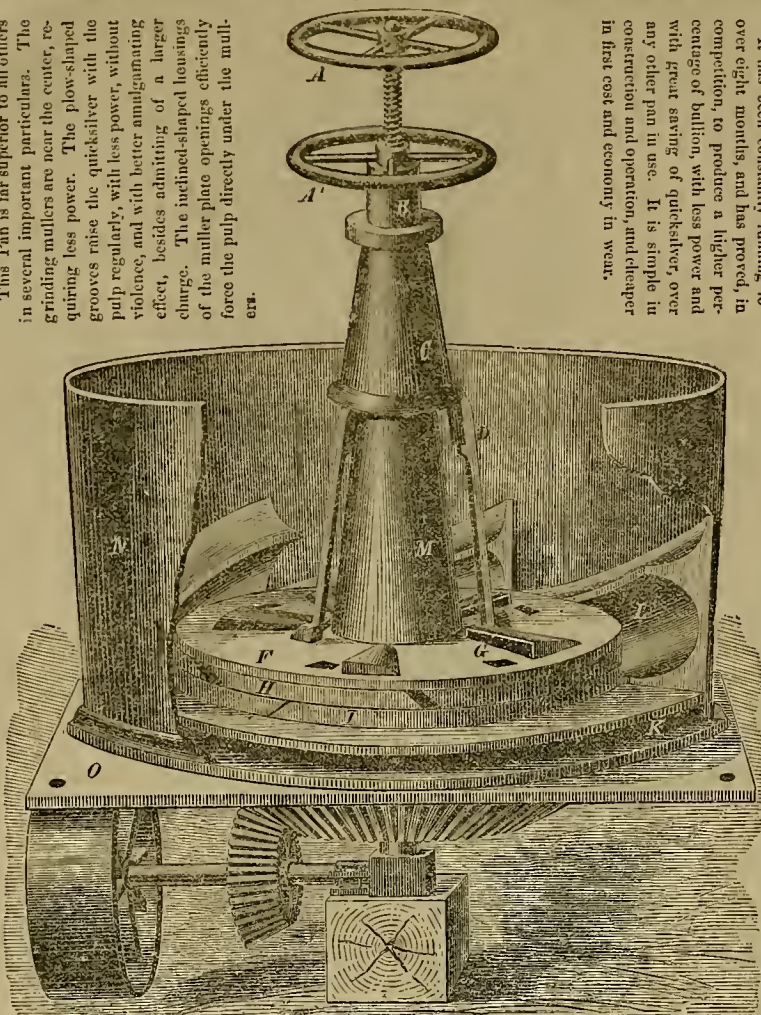
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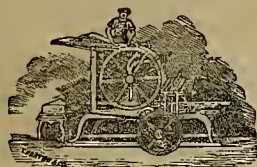
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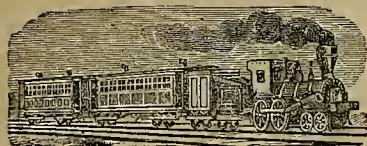


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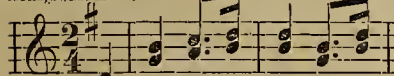
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New Mining Notices.

Globe Gold and Silver Mining Company.
NOTICE OF ANNUAL MEETING.—Location of Mine and Works: Monitor District, Alameda County, California. Notice is hereby given, according to law, that the ANNUAL MEETING of the Stockholders of the Globe Gold and Silver Mining Company will be held on Tuesday, the 24 day of August, 1870, at 4 o'clock, P. M., of that day, at the office of the Company, No. 401 Bryant street, the object of the meeting being to elect Trustees for the ensuing year, to serve till their successors shall be duly elected and qualified; also, to act upon a proposition to remove the office of the Company to Monitor; and for the transaction of such other business as may come before it. By order of J. WINCHESTER, President.

B. SHIRAF, Secretary pro tem.
Dated San Francisco, June 30, 1870. jy2-1m

Cordillera Gold and Silver Mining Company.
Company, Chihuahua, Mexico.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the eighth day of June, 1870, an assessment of fifty (50) cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary, at his office, No. 321 Washington street, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on Saturday, the ninth day of July, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the first day of August, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

HENRY R. REED, Secretary.
Office, 321 Washington street, San Francisco. juil

Office of Eclipse Consolidated Mining Company.
Company, 210 Battery street, San Francisco, June 20th. The Annual Meeting of the Stockholders of this Company will be held on Saturday, July 23d, 1870, at twelve o'clock, M., for the election of Trustees for the ensuing year and the transaction of any other business that may be presented.

ju25-4w SOLON PATTEE, Secretary.

Evening Star No. 1 Silver Mining Company.
Location of Works: White Pine County, State of Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the first day of June, 1870, an assessment of five (5) cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary, at the office of the Company, Room 6, No. 321 Montgomery street, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on Saturday, the second day of July, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the twenty-fifth day of July, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

WM. H. WATSON, Secretary.
Office, Room 6, No. 302 Montgomery street, San Francisco, California. ju4

Jennie A. Consolidated Mining Company.
White Pine District, Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the twelfth day of June, 1870, an assessment of ten (10) cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary, Room 37 New Merchants' Exchange, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on Saturday, the second day of July, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the fifteenth day of August, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

J. M. BUFFINGTON, Secretary.
Office, Room 37 New Merchants' Exchange, California street, San Francisco. ju25

Latawana Mining Company—Near Hamilton City, White Pine, State of Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the second day of June, 1870, an assessment of fifteen cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, at 614 Merchant street, Room 26, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on the fourteenth day of July, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Saturday, the sixth day of August, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

A. MARTINON, Secretary.
Office, 614 Merchant street, Room 26, San Francisco, California. juil

Office of the Placer Gold Mining and Canal Company.
Location of Works: Township No. Six (6), County of Placer, State of California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the eleventh day of June, 1870, an assessment (No. 2) of two dollars (\$2) per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary, at the office of the Company, No. 204 Montgomery street, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on Tuesday, the twenty-sixth day of July, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Tuesday, the sixteenth day of August, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

O. S. HALEY, Secretary.
Office of Company, No. 204 Montgomery street, San Francisco, California. juil8

Pogonip Flat Silver Mining Company.
Location of Works: White Pine, Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the fifteenth day of June, 1870, an assessment of three (3) cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, No. 1 Express Building, northeast corner Montgomery and California streets, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on the twenty-third day of July, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the eighth day of August, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

T. J. OWENS, Secretary.
Office, No. 1 Express Building, northeast corner Montgomery and California streets, San Francisco. ju25

New Advertisements.

Thursday Evening.

Owing to the time necessary to mail the present large edition of the SCIENTIFIC PRESS, we are obliged to go to press on Thursday evening—which is the very latest hour we can receive advertisements.

IMPORTANT BOOK!

Now in Press.—Roasting of Gold, and Silver Ores, and the Extraction of their Respective Metals without Quicksilver. By G. Kustel, Mining Engineer and Metallurgist; Author of "Nevada and California Processes of Silver and Gold Extraction," and "Concentration of all Kinds of Ore." Illustrated by numerous engravings. Published and sold by Dewey & Co., proprietors SCIENTIFIC PRESS, San Francisco.

This Book will contain 120 pages and be issued about July 10, 1870. Price, \$2.50, coin.

WONDERFUL Scientific Discovery.
THE GREATEST EVER MADE.
Having baffled the Ingenuity of Chemists and Physiologists for Ages Past.

DR. CROWLY'S EMERALD HAIR BALM.

No EXAGGERATION, but a stern reality, verified by the undersigned:
Dear Doctor: I feel much pleasure to inform you that your "Emerald Hair Balm" has caused the growth of hair on my head—having only used one of your bottles, although I had been bald for twenty-five years. You are quite at liberty to use this intimation as you please. Yours truly,
JOHN STAPLETON,
California street, San Francisco.
To W. J. Crowley, M. D., No. 20 Montgomery street, San Francisco. 1v21-1m

MAOAZINES.	P. An.	
Harper's.....	\$4 00	W. E. LOOMIS,
Atlantic.....		News Dealer
Godley.....		AND STATIONER,
New York Ledger.....		S. E. corner of Sansome and
Blackwood.....		Washington streets,
Hours at Home.....	3 00	Supplies all
Good Words.....		Eastern Periodicals,
Peterson's.....		BY THE
Arthur.....	6 00	Year, Month, or Number.
Lady's Friend.....		
Harper's Weekly.....	6 00	
Chimney Corner.....		
Literary Album.....	6 00	
London Society.....		
All the Year Round.....	15 00	
London Ill. News.....		

DR. ABORN
Has Consented to Remain on the Pacific Coast a while longer.

He can be consulted until the 10th of September, as follows: At the Auzerais House, San Jose, from the 1st to the 31st of July; at 22 Kearny street, San Francisco, from the 1st to the 5th of August; at the Yosemite House, Stockton, from the 6th to the 31st of August; and again at 22 Kearny street, San Francisco, from the 1st to the 10th of September.

Card from Wm. Hoskins, Notary Public, Oakland.

DR. ABORN.—I take pleasure in bearing testimony to your skill and Treatment for Catarrh and Bronchial Affection, having been under your treatment the past ten weeks, and find myself nearly cured. As you are about leaving for San Jose, I cheerfully recommend you to all similarly afflicted.

Oakland, June 3, 1870. WM. HOSKINS.

No Painless Operations.
Dr. Aborn does not subject his patient to any painful or unpleasant operations. His treatment is mild, and safe for the most delicate child. The afflicted are hereby informed, that after the first visit, for many of the diseases which he makes a specialty, they can take the treatment home and use it until cured, without pain or interruption to their usual avocations.

Prominent Californians.
Hon James A. Johnson, M. C., Lieut. Governor Holden, Charles N. Fox, Esq., S. O. Houghton, Esq., Gen. E. F. Beale, Melville Goffe, Esq., Wm. Hoskins, Esq., Messrs. Wm. B. Cooke, H. M. Jones, Henry Orman, Jr., J. H. Hardwick, Perry Dyer, J. S. Carter, Hubert Burgess, and many other prominent citizens of California, have willingly given their cards to the public, testifying to the efficacy of Dr. Aborn's treatment. Many cures have been effected by the Doctor within a few days, and a number of those cures were of many years standing, and had resisted all the ordinary modes of treatment. The usual success attending Dr. Aborn's treatment should inspire new hope of speedy recovery even in the most hopeless cases. 1v21-2m

NEW VOLUME, JULY 1, 1870.

SUBSCRIBE FOR THE

Best Illustrated Newspaper

—FOR—

PACIFIC COAST READERS.

The Scientific Press,

[ESTABLISHED 1860.]

A large Illustrated, Practical Scientific Home Journal, devoted to

Mining, Farming, Mechanic Arts AND INDUSTRIAL PROGRESS.

Each weekly issue contains 16 pages (size of Harper's Weekly), except our double sheet, published on the first week of each month, which comprises 24 pages. It is ably edited, and contains, in concise and desirable form, all the most important discoveries, inventions, improvements and developments in the various branches of Science, Mechanic Arts and Industrial Pursuits, interesting to all intelligent readers on this coast. We make a live paper for the times, using plain, comprehensive language, giving information which cannot be had from books, or so readily and cheaply obtained from any other source. Each number often furnishes profitable hints to the reader worth many times its annual subscription price. Please examine sample copies and subscribe at once, and you will not regret it.

Terms, for six months, \$2.50; one year, \$4—payable in advance. Sample copies of the PRESS and illustrated Patent circulars sent free on receipt of postage stamp. DEWEY & CO., Publishers and Patent Agents, No. 414 Clay street, San Francisco.



RESPONSIBILITIES OF THE STOMACH.—The stomach is the most wonderful of all manufactures. It converts the nutrients taken into it into materials of flesh and blood. As the body wastes it re-creates its tissues, fibres and bones, renewing them we are told once in seven years. It performs this work by turning the food into the basis of the blood, which is the material of all of them. To tone this responsible organ when weak and disordered, to regulate its action and the action of its dependencies, the liver and the bowels, the most admirable of all medicines is Tarrant's Effervescent Seltzer Aperient. It invigorates the digestion, controls the secretions and purifies the blood. SOLD BY ALL DRUGGISTS.

MARAVILLA COCOA.—For Breakfast.—The Globe says: "Various importers and manufacturers have attempted to attain a reputation for their prepared Cocoas, but we doubt whether any thorough success has been achieved until Messrs. Taylor Brothers discovered the extraordinary qualities of 'Maravilla' Cocoa. Adapting their perfect system of preparation to this finest of all species of the Theobroma they have produced an article which surpasses every other Cocoa in the market. Entire solubility, a delicate aroma, and a rare concentration of the purest elements of nutrition, distinguish the Maravilla Cocoa above all others. For homeopaths and invalids we could not recommend a more agreeable or valuable beverage." Sold in packets by all Grocers, of whom also may be had Taylor Brothers Original Homeopathic Cocoa and Soluble Chocolate. Steam Mills—Brick Lane, London. 5v20-1y

A Good Agent

Is wanted, on liberal terms, to travel for the SCIENTIFIC PRESS.

ICE. ICE.

On and after April 1st the price of ICE will be TWO (2) CENTS PER POUND DELIVERED. AMERICAN RUSSIAN COMMERCIAL CO. D. E. MARTIN, Superintendent, 714 and 716 Battery street 16v20-4y

Professional Cards.

JOHN GORMAN,
NOTARY PUBLIC.

COMMISSIONER FOR

Nevada, New York, Etc.

No. 612 MERCHANT STREET. 5v20-3m

JAMES M. TAYLOR,
Attorney and Counsellor at Law,
Court Block, 636 Clay Street
SAN FRANCISCO.

JOHN BOAOH, Optician,
Has removed from 522 Montgomery street to
540 Washington street,
East of Montgomery.
Surveying Instruments made, repaired and adjusted
22v17-8m

GILES H. OSAY, JAMES M. HAYEN,
GRAY & HAVEN,
ATTORNEYS AND COUNSELLORS AT LAW,
In Building of Pacific Insurance Co., N. E. corner Cal.
ifornia and Leidesdorf streets,
SAN FRANCISCO. 27v16

REMOVAL.

DR. BEERS, Dentist,
Has removed from Tucker's Building to
No. 109 Montgomery street, three doors
north, opposite the Occidental. 2v20-3m

Dr. J. H. PAINE, Dentist,
Wadsworth House, No. 225 Bush street,
between Cosmopolitan and Occidental
Hotels, San Francisco.

Business Cards.

A. H. JORDAN,
Architect, Designer and Draughtsman,
No. 430 Montgomery Street,
SAN FRANCISCO. 16v19-47

Farmers and Mechanics
BANK OF SAVINGS,
No. 235 Sansome Street.
Interest paid on Deposits. Money Loaned on Real Estate.
H. DUTTON, President.
GEO. M. CONDEE Cashier. 19v16-3m

NATHANIEL GRAY, H. M. GRAY,
N. GRAY & CO.,
UNDERTAKERS,
641 Sacramento St., cor. Webb, San Francisco.
Sole Agents for Barstow's Metallic Burial Cases and
Caskets. 25v14t

J. HOOVER,
PUBLISHER,
And Wholesale Dealer in
Fine Chromos and Lithographs.
The Largest Assortment in Philadelphia.
WHOLESALE DEPOT:
No. 804 Market Street, Philadelphia, Penn.
9v20-6m

C. B. FETTY,
SEAL ENGRAVER
AND LETTER CUTTER.
Seals, Brass Stamps, Steel Punches, etc. Orders by
express promptly attended to. No. 622 CLAY STREET,
bet. Kearny and Montgomery, San Francisco. 23v20-3m

PIERRE A. FORTIER,
Practical Optician
105½ Montgomery Street, up stairs.
The only manufacturer in the United States who can
make Glasses adapted to any imperfection of sight
Prices very moderate. 24v20-3m

Trades and Manufactures.

WM. BARTLING, HENRY KIMBALL,
BARTLING & KIMBALL,
BOOK BINDERS,
Paper Rulers and Blank Book Manufacturers.
505 Clay street, (southwest cor. Sansome),
15v12-3m SAN FRANCISCO.

J. F. PAGES,
SEAL ENGRAVER,
AND LETTER CUTTER.
Brass and Steel Stamps and Dies, 608 Sacramento street,
San Francisco. Orders by express promptly attended to.

California File Manuf'g Co.
437 BRANNAN STREET, bet. Third and Fourth.
W. WUSTHOFF, L. KRAMER, M. HARRIS, J. BURKE.
REAPER AND MOWER SECTIONS, BARS
AND KNIVES COMPLETE,
At a saving of 60 per cent. New Files of every description
on hand and made to order. Old Files re-cut, and war-
ranted equal to new. Orders from the country promptly
attended to. 8v19-47

SAN FRANCISCO MILL.
HOBBS, GILMORE & CO.,
Manufacturers of Boxes,
Market Street, bet. Beale and Main.
For sale—Mahogany, Spanish Cedar, and other Woods.

J. M. STOCKMAN,
Manufacturer of
PATTERNS AND MODELS,
(Over W. T. Garratt's Brass Foundry,
S. E. Corner of Mission and Fremont sts.,
5v14t SAN FRANCISCO

L. SCHUMANN,
PIONEER
Meerscham Pipe Manufacturer,



No. 341 KEARNY STREET,
Between Bush and Pine streets, San Francisco.

The first and only Manufacture on the Pacific Coast.
MEERSCHAUM MOUNTED WITH SILVER. Meerscham
Pipes Boiled and Repaired. Amher Mouth-pieces Fitted.

D. BOYLE, JOHN BENN, M. RUBE,
AMERICAN MILLS,
Nos. 30 and 32 California Street.
Joh work of all kinds in the Drug and Spice Line
promptly attended to.

SECOND DEPARTMENT.—Feed Ground, Corn Meal, Oat
Meal, Graham Flour, etc., constantly on hand. 7v20-6m

SAN FRANCISCO
CORDAGE COMPANY.

Manila Rope of all sizes. Also, Bale Rope and Whale
Line constantly on hand. Mining Ropes of any size
and length manufactured to order.

TUBES & CO., Agents,
611 and 613 Front street.

F. SCHOENER,
METAL SPINNER.

All kinds of Metal spun to order. Give me a call at
No. 10 STEVENSON STREET, fourth story Pioneer Mills.
14v20-3m

NOTICE.

HYDRAULIC HOSE MANUFACTORY.

Hose made to stand any pressure—from 100
to 300 foot fall. Miners are invited to call and
examine my work. Tents, Awnings, Specie and
Ore Bags made to order, and cheaper than any
other factory. A share of patronage is solicited from my
friends. [10v20-3m] S. HOWARD, 424 Davis st.

A. J. HAIGHT,
Gold Pen Manufacturer,
315 Montgomery Street,
Room No. 16, up stairs, San Francisco.
Gold Pens Repaired. Watches, Clocks and Jewelry
repaired and warranted. 8v20-6m

SAN FRANCISCO
PIONEER SCREEN WORKS,
JOHN W. QUICK,
No. 203 Fremont Street, near Howard.
Screen Punching of all kinds and qualities for Quartz,
Cement, Flour and Rice Mills, at Eastern prices. 10v20

THE GIANT
POWDER COMPANY.

BANDMANN, NIELSEN & CO.,
General Agents,
No. 210 Front Street, San Francisco. 25v19

M. M. COOK, H. N. COOK,
M. M. COOK & SON,
MANUFACTURERS OF
LEATHER HOSE,
Belting, and Horse Collars,
801 Battery street, Corner Broadway,
SAN FRANCISCO. 26v19-3m

THEODORE KALLENBERG,
Machinist, and Maker of Models
for Inventors.

All kinds of Dies, Stamps and Punches made. Also,
all kinds of Small Gears cut, and Repairing done on very
reasonable terms, and in the best manner. 87 No. 10
STEVENSON STREET, near First, Pioneer Mills. 25v19-3m

OSCAR LEWIS, J. H. CULVER,
LEWIS & CULVER,
Pattern and Model Makers
20 Fremont street, over Phoenix Iron Works.
Manufacturers of Models for the Patent Office, in
wood or metals, and all kinds of Experimental Ma-
chinery. 1v20-3m

"ENTERPRISE"
SAWING AND PLANING MILL.

D. A. MACDONALD, J. H. MACDONALD,
JOSEPH MCGILL, H. CHAPMAN,
D. A. MACDONALD & CO.,
Manufacturers of DOORS, SHEDS, BLINDS AND
BUILDINGS, 217 to 225 Spear street, and 218 to 226
Stewart street, between Howard and Bolson, San Fran-
cisco. 87 Finishing Work for buildings constantly on
hand and got up to order. 20v20-3m

The Merchants' Exchange Bank
OF SAN FRANCISCO.

Capital, One Million Dollars.

A. N. COLEMAN.....President.
G. H. WHEELER.....Cashier.

BANKING HOUSE,
No. 418 CALIFORNIA STREET.
25v20-47

FARM MILLS.

A superior article for farm use. Operated either by
hand or power. Price very low. Send for circular.
Manufactured by
22v20-1m LANE BROTHERS, Washington, N. Y.

Metallurgy and Ores.

MINING SCHOOL.

Mosheimer's Practical Mining School

Will be reopened by the FIRST OF JUNE, and prac-
tical instruction given in all branches of Assaying,
Crushing, Amalgamating, Concentrating, Smelting and
Refining Ores; also Erecting Furnaces and Reduction
Works of every kind. To give all miners a chance to
learn Assaying of Ores (what everyone ought to) I have
reduced my former charge for

Assaying Ores.....\$ 50.00
To work Gold and Silver Ores..... 100.00
Smelting and Refining, including Assaying..... 160.00

Many gentlemen who have been taught in my estab-
lishment will bear testimony that in a few days they
learned more than they expected to learn in a month.
Before going into mining, every man ought to know
how to test ores, and then he will go to work with pru-
dence and never fail to be successful. Apply to

J. MOSHEIMER.
Office, 328 Montgomery street; Works, 2,005 Powell
street, San Francisco. 22v20-3m

A. T. GREEN,
COMMISSION MERCHANT,
No. 3 Front Street, San Francisco.

Agent for SAMPLING, CRUSHING, ASSAYING and
SELLING OF ORES. Shipment received from miners,
and the entire business transacted with promptness and
accuracy. MERCHANDISE of all descriptions pur-
chased and shipped on Commission for Country Mer-
chants. Consignments of PROVISIONS received and
sold at the highest market prices.

Refers, by permission, to Jas. Linforth, of Linforth,
Kellogg & Co.; Jona. Hunt, Pres. Pacific Insurance
Co.; A. J. Ralston, Sec. Pacific Insurance Co.; Joe. A.
Donohoe, of Donohoe, Kelly & Co.; Falkner, Bell & Co.;
Badger & Lindenberger; Taaffe & Co., and J. B. Roberts,
Esq. 23v20-3m

MORRIS & WHITE,
Practical Assayers and Metallurgists,
No. 30 and 36 Fremont Street,
SAN FRANCISCO.

Ore of all kinds worked by Pan Amalgamation, Chlo-
rination, or Smelting—guaranteeing to work as close to
the Fire-assay as any persons on the Pacific Coast.
Gold and Silver Ores and Sulphurets bought.
12v20-47

CALIFORNIA ASSAY OFFICE,
(Successors to Geo. E. Rogers)
No. 512 CALIFORNIA STREET,
One door west of Montgomery.

H. H. LAWRENCE, Manager.
J. A. MARS, Assayer.
Analysis of Ores, Minerals, Waters, etc. 10v20

G. W. STRONG, W. L. STRONG,
G. W. STRONG & CO.,
Metallurgical Works,
No. 10 Stevenson Street, near First.
Ores worked and Tests made with care. Also, Assays
of Gold, Silver, Copper, Lead, Tin, and other Metals.

RODGERS, MEYER & CO.,
COMMISSION MERCHANTS,

ADVANCES MADE
On all kinds of Ores, and particular attention

PAID TO
CONSIGNMENTS OF GOODS.
4v16-3m

W. T. ATWOOD,
PURCHASER OF
COOPER ORES, BARS, MATT, Etc., Etc.,
505 Montgomery street, San Francisco.
The highest market price paid for ores assaying 10 per cent
and upwards. 23v17-47

CRUCIBLES! CRUCIBLES!
EUGENE DE SABLE,
COMMISSION MERCHANT,

AND SOLE AGENT FOR
J. H. GAUTIER & CO'S CELEBRATED
American Blacklead Crucibles,
No. 310 DAVIS STREET,
SAN FRANCISCO. 20v20-3m

THE FIREMAN'S

FUND
INSURANCE COMPANY.
OFFICE,

S. W. Corner California and Sansome Streets
SAN FRANCISCO, CAL.

Fire and Marine Insurance.

CAPITAL.....\$500,000 00
SURPLUS.....207,115 63
TOTAL ASSETS.....\$707,115 63

D. J. STAPLES, President.
G. T. LAWTON, Vice President.
CHAS. R. BOND, Secretary.
13v20-3m

Railroads and Steamers.

SHORT ROUTE.



The following time will take effect
Sunday.....April 24, 1870.

GOING NORTH—DAILY (SUNDAYS EXCEPTED).

Trains Leave S. Francisco.	Trains Arrive at Chilistoga.	Trains Leave Chilistoga.	Trains Arrive at Marysville.
7:00 A. M.	11:45 A. M.	11:30 A. M.	1:00 P. M.
4:00 P. M.	7:15 P. M.	8:20 P. M.	9:30 P. M.

ON SUNDAYS.

GOING SOUTH—DAILY (SUNDAYS EXCEPTED).

Trains Leave Marysville.	Trains Leave Chilistoga.	Trains Leave S. Francisco.	New World Arrives at S. Francisco.
5:00 A. M.	6:45 A. M.	6:15 A. M.	10:30 A. M.
1:15 P. M.	2:45 P. M.	3:15 P. M.	7:30 P. M.

ON SUNDAYS.

10:15 A. M. | 3:00 P. M. | 2:30 P. M. | 6:45 P. M.

TICKETS for sale at 313 Montgomery street, or on board
steamer New World. R. S. MATTISON, Superintendent.
N. B. Branch Office of Western Union Telegraph Com-
pany, Front and Vallejo street wharf.
Vallejo, April 24, 1870. 13v20-17

Pacific Mail Steamship Company.—For
New York, via PANAMA. PRICES GREATLY REDUCED.
Leave wharf corner of First and Brannan streets punctu-
ally at 11 o'clock A. M. on the 3d and 15th of each
month (except when either date falls on Sunday, then
on Saturday preceding), for PANAMA, connecting, via
Panama Railroad, with one of the Company's splendid
steamers from ASPINWALL for NEW YORK.

July 2.....CONSTITUTION
All steamers touch at Acapulco; the steamer of the 2d
is expected to touch at San Jose de Guatemala; steamer
of the 18th touches at Manzanilla.

For Japan and China.—Steamers leave on the
1st of every month, punctually at noon, for YOKO-
HAMA and HONGKONG, connecting at Yokohama with
the Company's Branch Line for SHANGHAI, via Higo
and Nagasaki.

July 1.—Steamer AMERICA, Capt. Warsaw.
Apply at the Pacific Mail Steamship Company's office,
corner Sacramento and Leidesdorf streets.
13v20 ELDRIDGE & IRWIN, Agents.

California Steam Navigation
COMPANY,

Steamer CAPITAL.....CAPT. E. A. POOLE
" CHRYSOPOLIS.....CAPT. A. FOSTER.
" YOSEMITE.....CAPT. W. BROMLEY
" CORNELIA.....CAPT. E. CONKLIN.
Two of the above steamers leave BROADWAY WHARF
at 4 o'clock P. M. EVERY DAY (Sundays excepted), one
for Sacramento and one for Stockton, those for Sacra-
mento connecting with light draft steamers for Marysville,
Colusa, Chico, and Red Bluff.
Office of the Company, northeast corner of Front and
Jackson streets.
13v12 **R. M. HARTSHORNE,**
President.

REDUCTION IN FARE
FROM

San Francisco to New York

—AND—
BOSTON,

—VIA—
THE OHIOAGO, BURLINGTON AND MIS-
SOURI RIVER RAILROAD.

NEW YORK.....\$138 00
BOSTON.....139 25

Ticket Office, No. 208 Montgomery Street.
24v20 **GAM. A. LEWIS, Agent.**

OCCIDENTAL
Insurance Company
OF SAN FRANCISCO.

Cash Capital,.....\$300,000

GOLD COIN.

OFFICE, 436 CALIFORNIA STREET.

Fire and Marine Insurance.

All Losses paid in U. S. Gold Coin.

A. G. STILES, President.

B. ROTHSCHILD, Secretary. 20v17

Pacific Bank.

PETER H. BURNETT.....President.
FORD H. ROGERS.....Cashier.

REMOVED

To its new Banking House, Northwest corner of San-
some and Pine streets. **O. P. SUTTON, Secretary.**

San Francisco, March 30, 1870. 15v20-3m

The large majority of United States and Foreign Patents granted to inventors on the Pacific coast during the past few years, have been obtained through the agency of DEWEY & Co., publishers of the SCIENTIFIC PRESS. Established in the year 1860, we have an extensive patent library, with full record of cases on this coast, and can give the best and most reliable advice as to the patentability of new inventions.

Central and Western Pacific Railroads.

Time Schedule, May 10, 1870.

EASTWARD.		Express Train Daily.	Hotel Train Daily.	Mail, Sunday excepted.
San Francisco	Leave	8:00 A.M.	8:50 A.M.	9:00 P.M.
Oakland	"	8:30 A.M.	9:20 A.M.	9:30 P.M.
San Jose	"	8:35 A.M.	9:25 A.M.	9:35 P.M.
Stockton	"	12:07 P.M.	1:50 P.M.	10:00 P.M.
Sacramento	Arrive	1:50 P.M.	1:50 P.M.	10:00 P.M.
Fruit				
Sacramento	Leave	2:10 P.M.	2:10 P.M.	9:40 A.M.
Junction	"	2:55 P.M.	2:55 P.M.	10:30 A.M.
Marysville	Arrive	4:00 P.M.	4:00 P.M.	1:15 P.M.
Colfax	Leave	6:00 P.M.	6:00 P.M.	4:00 P.M.
Clack	"	9:00 P.M.	9:00 P.M.	8:45 P.M.
Reno	"	1:15 A.M.	1:15 A.M.	5:45 A.M.
Wadsworth	"	2:50 A.M.	2:50 A.M.	7:45 A.M.
Winnemucca	"	9:10 A.M.	9:10 A.M.	10:15 P.M.
Battle Mountain	"	12:00 P.M.	12:00 P.M.	3:50 A.M.
Carlin	"	3:10 P.M.	3:10 P.M.	10:00 A.M.
Elko	"	4:40 P.M.	4:40 P.M.	12:50 P.M.
Kelton	"	1:30 A.M.	1:30 A.M.	7:45 A.M.
Corinne	"	4:52 A.M.	4:52 A.M.	2:50 P.M.
Ogden	Arrive	6:00 A.M.	6:00 A.M.	5:00 P.M.
WESTWARD.				
Ogden	Leave	6:00 P.M.	6:00 P.M.	5:00 P.M.
Corinne	"	7:15 P.M.	7:15 P.M.	7:25 P.M.
Kelton	"	10:42 P.M.	10:42 P.M.	1:30 A.M.
Elko	"	8:45 A.M.	8:45 A.M.	7:15 P.M.
Carlin	"	10:15 A.M.	10:15 A.M.	9:45 A.M.
Battle Mountain	"	1:25 A.M.	1:25 A.M.	3:45 A.M.
Winnemucca	"	4:05 P.M.	4:05 P.M.	9:00 P.M.
Wadsworth	"	10:45 P.M.	10:45 P.M.	9:00 P.M.
Reno	"	1:00 A.M.	1:00 A.M.	12:50 P.M.
Clack	"	5:35 A.M.	5:35 A.M.	8:15 A.M.
Colfax	"	8:45 A.M.	8:45 A.M.	11:37 A.M.
Marysville	"	4:00 P.M.	4:00 P.M.	4:00 P.M.
Junction	"	10:30 P.M.	10:30 P.M.	5:05 P.M.
Sacramento	Arrive	11:25 A.M.	11:25 A.M.	6:30 P.M.
Mail, Sunday excepted.				
Sacramento	Leave	11:45 A.M.	11:45 A.M.	7:00 A.M.
Stockton	"	1:40 P.M.	1:40 P.M.	8:45 A.M.
San Jose	Arrive	8:30 P.M.	8:30 P.M.	12:15 P.M.
Oakland	"	5:30 P.M.	5:30 P.M.	12:10 P.M.
San Francisco	"	6:00 P.M.	6:00 P.M.	12:40 P.M.

"Local Trains."

From	From	From
SAN FRANCISCO.	OAKLAND.	BROOKLYN.
B 6:50 A.M.	B 6:40 A.M.	B 6:30 A.M.
D 9:00 "	D 8:50 "	D 8:40 "
D 10:00 "	D 9:50 "	D 9:40 "
D 11:00 "	D 10:50 "	D 10:40 "
D 12:00 M.	D 11:50 "	D 11:40 "
2:00 P.M.	12:00 P.M.	11:50 "
D 3:00 "	D 2:50 P.M.	D 2:40 P.M.
4:00 "	3:00 "	2:50 "
5:15 "	4:00 "	3:50 "
6:30 "	5:20 "	4:10 "
B 11:30 "	6:40 "	5:30 "
From		
SAN FRANCISCO.	ALAMEDA.	BAYVIEW.
B 7:30 A.M.	B 7:20 A.M.	B 7:10 A.M.
O 9:00 "	O 8:50 "	O 8:40 "
B 9:30 "	C 9:10 "	C 9:00 "
O 11:30 "	B 9:20 "	B 9:10 "
E 1:30 P.M.	C 11:50 "	C 11:40 "
4:30 "	1:35 P.M.	1:25 "
6:00 "	C 6:05 "	
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For the benefit of those who live at a distance from the city, we give below a brief description of a few of the valuable Patents which we have in our office. It may be well to state here that no Patent is received by us for negotiation until it is first endorsed by reliable experts, to whom each is subjected for acceptance or rejection. We treat all patents alike, recommending only where true merit is found in the invention.

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Although about two hundred different styles of fences have been invented and patented in the United States within the past ten years, yet this Fence, for GENERAL FARM USE, stands at the head of the list. This is a new and valuable invention, and the actual cost of the Fence complete in that State is less than fifty cents per rod. Three men can put up six hundred yards per day. You men who are idle, why hang about the city talking hard times when you can make from five to eight dollars per day building this Fence? We will make a present of ONE FARM RIGHT in each county on the Pacific coast to farmers who will erect one hundred rods of the fence in good style within thirty days after the privilege is granted. We wish to employ several working men to travel in this State and Oregon. Price of territory, and circular with full description of fence, sent on application.

RYAN'S NEW METHOD OF MAKING WHEELS.

To make indestructible iron wheels with little labor and at small cost, is the object of this invention: The hub and spokes are all made out of a single piece of iron. It is first forged down at the ends to the thickness required for the spokes, leaving a hub in the center. The ends are then split into four or more strips (each, as shown in the cut above). A represents the hub; B, C, D, E, when spread to their proper position, form the spokes to one-half the wheel. When the other half is split and spread in a similar manner, the spokes are then rounded and shoulders formed on them ready to receive the tire or rim. It is claimed that the great amount of labor and expense heretofore required in making wrought-iron wheels is obviated by this novel mode of construction. There probably never has been a wheel made that is so durable as the Ryan Wheel, and yet the method of construction is so simple that it can be made by any ordinary mechanic in a common blacksmith shop. All territory west of the Rocky Mountains for sale in States or counties. Thomas Ryan, of Scott's Bar, California, is the inventor. Sample wheels, and the iron from which they are made, can be seen at our office, 314 Bush street, San Francisco.

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— FOR THE —

NEW CITY HALL

— OF —

SAN FRANCISCO.

Office Board of City Hall Commissioners, southeast corner of Sacramento and Montgomery streets, San Francisco, June 22, 1870.

The Board of City Hall Commissioners hereby give notice that they will be prepared to receive at their office, on or before the FIRST DAY OF NOVEMBER NEXT, designs and plans for the new City Hall of San Francisco.

The Commissioners, in order to obtain the very best design and plan, invite the fullest competition among architects, and to this end have resolved to offer the following premiums:

First—For the design and plan selected and adopted.....	\$2,500
Second—For the second best design and plan.....	2,000
Third—For the third best design and plan.....	1,500
Fourth—For the fourth best design and plan.....	1,000
Fifth—For the fifth best design and plan.....	500

The premiums payable in City Hall warrants.

As a guide to architects in the preparation of the designs and plans, the Commissioners have prepared a pamphlet containing full instructions and suggestions, as well as the terms and conditions upon which the premiums will be awarded.

Pamphlets can be had on application at the office of the Commissioners.

Any design or plan in which the requirements of the Board, as set forth in the printed instructions, have not been reasonably complied with, will be rejected from the competition.

P. H. CANAVAN, Chairman,

JOS. G. EASTLAND,

CHAS. E. McLANE,

City Hall Commissioners.

26v20-4m

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We shall adhere to the following rates for advertising in the SCIENTIFIC PRESS from this date:

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One sq. (10 lines agate), \$1.50	\$3.00	\$8.00	\$32.00
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Particular attention will be given to preparing engravings, inserting advertisements in consular, novel and attractive form. We will otherwise assist advertisers in getting up their notices, when desired.

All advertisements in the PRESS appear in both the MONTHLY and QUARTERLY SERIES of the SCIENTIFIC PRESS, which (by special arrangement) are placed for FREE READING in the principal hotels, steamboat and steamship saloons, depots, and public reading rooms and libraries in San Francisco and the Pacific States. Many volumes are also bound, thus affording permanent advertising.

The PRESS now receives the largest and best advertising patronage of ANY WEEKLY PAPER west of the Rocky Mountains.

In regard to the value of advertising in our journal, we refer with pleasure to those who can speak from experience—our advertisers. Better referees, or more reliable names, cannot be found in this advertising columns of any newspaper in the world.

DEWEY & CO.,

Publishers and Patent Agents.

No. 410 Clay street, San Francisco. Jan. 1, 1870.

Time Tests the Merits of all things.—For Thirty Years PERRY DAVIS' PAIN KILLER has been tested in every variety of climate, and by almost every nation known to Americans. It is the almost constant companion and inestimable friend of the missionary and the traveler, on sea and land, and no one should travel on our Lakes or Rivers without it.

It is a speedy and safe remedy for burns, scalds, cuts, bruises, wounds and various other injuries, as well as for dysentery, diarrhea, and bowel complaints generally, and is admirably suited for every race of men on the face of the globe.

Be sure you call for and get the genuine Pain Killer, as many worthless novelties are attempted to be sold on the great evil-tien of this valuable medicine.

Directions accompany each bottle.

Price 25 cents, 50 cents, and \$1 per bottle.

Sold by all medicine dealers.

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FROM THE WEED Sewing Machine Co. \$500

WHOLE WORLD. Buy the BEST. Why? Because the WEED

LESSONS IN ASSAYING.

Determination of Minerals and the use of the Blow-Pipe, to those wishing to gain a knowledge of these branches. Any person may learn to make the ordinary assays in a few lessons. Address me at the Pacific Chemical Works, 216 First street, or Box 118, West Office.

(25-120) HENRY S. HANES.

25v20-1m

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Reading for the Hour.

SEA MOSS AS FOOD.—Great improvements have lately been introduced in the manufacture of farina, which consists of the starchy principle of the various grains, roots, etc., which are suitable for conversion into flour. These improvements have served to greatly increase the consumption of such of the sea mosses as consist largely of starch, but which have heretofore not been very popular as food, by reason of the difficulty in removing from the flour its peculiar marine or fishy taste. The most important of these mosses is the *Lichen islandicus*, largely used for food by the inhabitants of Iceland, who rarely obtain either wheat or corn bread, and whose limited stock of breadstuffs compels them to have recourse to every species of vegetable production which can be induced to grow in their inclement climate. This moss, and another variety, which is found upon the shores of New England, and in many localities in Europe, has been somewhat largely used as food in this country and on the European continent—chiefly in the preparation of blanc-mange. The recent improvements which have been introduced in its manufacture have removed those objections, which have hitherto been a bar to its use, so that it is now one of the most convenient, useful and pleasant substances employed in fancy cookery. A small tablespoonful is sufficient to thicken a quart of milk. It is quite as nutritious as corn starch or arrow-root, seldom burns to the pan, and “sets” in a mould for blanc-mange as quickly as currant jelly. It is really quite an addition to the housekeepers’ stock.

WHY HORSES DO NOT BREATHE THROUGH THEIR MOUTHS!—The soft palate, as it is technically called, *velum palati*, is a sort of curtain affixed to the roof of the mouth, in the region of the palatine arch; it has a free edge which rests upon the epiglottis. It slants in a posterior direction, so that anything in the shape of food coming from the mouth, raises and pushes it backward; but anything coming from the oesophagus or trachea, pushes it forward and downward, closes it, and thus prevents all egress. So that air is expired and respired through the nasal outlet, and all matter vomited from the stomach must also be ejected through the nostrils. In the act of coughing, however, which is a spasmodic action, the air returns in body and with force sufficient to raise the velum palati, so that a passage through the mouth is at the moment secured.

The mechanism of the soft palate is as follows: Its composition is nearly the same as that of the hard palate; yet it abounds more in glandular substance and muscular fibre; by means of the levator palati, the substance is raised. On the lateral and internal portion of the membrane we find bundles of muscular fibres, constituting a pair of muscles known as *depressors*, which aid in retaining the palate in its place, viz., on the epiglottis. From the above brief remarks the reader will perceive that it is not natural for a horse to breathe through his mouth.

M. TWAIN'S AGRICULTURAL EDITORIALS.—Turnips should never be pulled; it injures them. It is better to send a boy up and let him shake the tree.

The guano is a fine bird, but great care is necessary in rearing it. It should not be imported earlier than June or later than September. In the winter it should be kept in a warm place, where it can hatch out its young.

It is evident that we are to have a backward season for grain. Therefore it will be well for the farmer to begin setting out his cornstalks and planting his buckwheat cakes in July instead of August.

Concerning the pumpkin.—This berry is a favorite with the natives of the interior of New England, who prefer it to the gooseberry for the making of fruit-cake, and who also give it the preference over the raspberry for feeding cows, as being more filling and as fully satisfying. The pumpkin is the most esculent of the orange family that will thrive in the north, except the gourd, and one or two varieties of the squash. But the custom of planting it in the front yard with the shrubbery is fast going out of vogue, for it is now generally conceded that the pumpkin, as a shade tree, is a failure.—*Galaxy for July.*

The John Fitch Steamboat.

We take from the *Columbian Magazine* for December, 1786, in possession of the Pennsylvania Historical Society, the accompanying sketch and description of the first steamboat in America. The inventor says in his letter to the editor of the *Magazine*:

“The reason of my so long deferring to give you a description of the steamboat has been in some measure owing to the complication of the works, and an apprehension that a number of drafts would be necessary, in order to show the powers of the machine as clearly as you could wish. But as I have not been able to send you herewith such drafts, I can only give you the general principles. It is, in several parts, similar to the late improved steam engines in Europe, though there are some alterations—our cylinder is to be horizontal, and the steam is to work with equal force at each end. The mode by which we obtain (what I take the liberty of terming) a vacuum, is, we believe, entirely new, as is also the method of letting the water into it and throwing it off against the atmosphere without any friction.

“It is expected that the engine, which is a twelve-inch cylinder, will move with a clear force of eleven or twelve cwt. after the frictions are deducted. This force is

Sex in Potatoes—Late Hoeing.

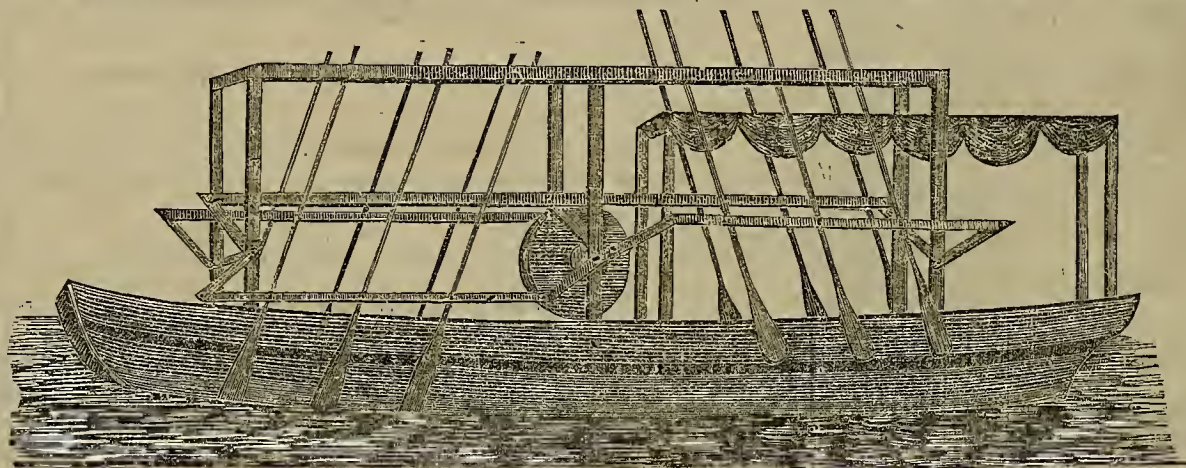
We copied an item two or three weeks since from the *Rural World*, in which a correspondent, Mr. Perry, of Saratoga, claimed that in every variety of vegetable, as in the animal world, there is both male and female, and that in some vegetables the sexes are combined, as in the potato, one end of which the writer asserts is male and the other female.

A late correspondent of the same paper thinks that Mr. Perry cut his potatoes to single eyes and planted the stem end, and it didn't come up very well—hence, he suddenly arrived at the conclusion that it was a masculine chap; then, meeting such good results from planting the other end, he sets that down female. Correspondent No. 2 suggests “that the same principle is developed in the potato that we see in trees and vines—the tendency to the better development of top buds. We know that the higher buds on the vine always push first, because they are stronger or better developed. Just so, precisely, with the potato. The buds at the base, or around the stem end of the potato, are not, as a rule, so well

The Santa Cruz Fuse Factory.

While journeying through Santa Cruz county, I visited the manufactory of the Lake Superior and Pacific Fuse Co., located on a tributary of the San Lorenzo river, called the Zayate, and about seven miles from Santa Cruz. This company use only the best quality of Dupont's sporting powder, prepared especially for them. They manufacture two qualities of fuse, but use the same powder in both sorts. The one marked “water-proof” has one covering of tape and two of composition. That marked “submarine” has two coverings of tape and three of composition. This has stood the test of submersion in fourteen feet of water for five hours. The difference in the cost of manufacturing is about \$1 for each one thousand feet. The company use machinery patented by Messrs. Urrer, Dunstone & Blight, in 1863. They have invented several important improvements, which they design getting patented. Their present method of working is kept strictly secret.

Their machinery is driven by a set of three turbine wheels of their own invention. These



THE FIRST STEAMBOAT BUILT IN AMERICA.

to act against a wheel of eighteen inches diameter. The piston is to move about three feet, and each vibration of the piston gives the axis about forty revolutions. Each revolution of the axis moves twelve oars or paddles five and a half feet (which work perpendicularly, and represented by the stroke of the paddle of a canoe). As six of the paddles are raised from the water six more are entered, and the two sets of paddles make their strokes of about eleven feet in each evolution.

“The cranks of the axis act upon the paddles about one-third of their length from the lower end, on which part of the oar the whole force of the axis is applied. Our engine is placed in the boat about one-third from the stern, and both the action and reaction turn the wheel the same way.

“With the most perfect respect, sir, I beg leave to subscribe myself your very humble servant,
“JOHN FITCH.”

In Fitch's letter to the steamboat company, on the 26th of December, 1790, he says:

“I have given my country a most valuable discovery, on the 30th of August, 1785, for which I have received no compensation, and I doubt not but common justice will induce them to do something for me, especially when they can do it for the benefit of our empire.

“Another inducement which urges me to pursue this scheme is to put it out of the power of future generations to make excuses for the present one. And if I should die in penury, want, wretchedness and rags, that my country may have no excuse, and that I may have the secret pleasure in the contemplation of receiving real pity from future generations.”—*American Engineer.*

TO SILK-GROWERS.—Mayor Selby has received a letter from Bessiges, France, asking the price at which silkworm eggs and yellow cocoons can be obtained from California. The writer is owner of a large establishment at Bessiges, and seems disposed to send large orders to this State. He requests that answers be made in French to the following address: Marje Bonzize, Proprietaire, Bessiges, France.

developed as the blossom end buds; sometimes they are in round potatoes—but in long potatoes the blossom end or upper buds or eyes are much the strongest, and as a matter of certainty would produce better fruit. Just upon the same principle that the highest apple upon the tree is the best.”

The eyes of a potato, according to N. W. Hardy in the *Western Record*, are all connected together by roots running through the potato, and if disconnected, every eye will start; while if the potato is planted whole, the roots of the eyes, of course, remaining uncut, only a part will start. The same writer says that potatoes have two sorts of roots: one that the tubers grow on, and another set which spreads abroad, often to quite a distance from the hill, and near the surface of the ground, drawing in food and other moisture—hence the injury from late sowing of potatoes. Excessive and late hilling of potatoes is very prejudicial. If the ground is left nearly level, then surface roots will much more readily drink in the dews and such other moisture as may be condensed from the atmosphere, by the surface soil, in the absence of summer rains, as in California. The potato plant needs considerable light and air; hence, an open and erect growth should be encouraged as much as possible by light seeding, etc. A good circulation of air among the tops and the consequent healthy growth thereof is the best preventive of the rot.

DIFFERENT WAYS OF PRAYING.—Not a had story is that told of the sailors of three nations in a storm. The Scotchman prayed extempore; the Irishman had by heart his prayers to the Virgin and saints innumerable; but the Englishman went through the ship hunting for a prayer-hook, and could not find one until the storm was over.

are very ingeniously constructed, and will operate all together or separately, driven under a pressure of 44 feet. They are now turning out 10,000 to 15,000 feet of fuse daily, and feel assured that with the improvements in the machinery now contemplated they can make from 30,000 to 50,000 feet per day with the same working force. The company are manufacturing the most important parts of their improved machinery. The day of my visit they had set up a first-class engine lathe. Their other tools, etc., exhibit a readiness for business.

The proprietors expressed the determination to never send one foot of fuse to market which they would fear to trust their own lives with.

My own experience in the use of fuse convinces me that there is a grave responsibility resting with the manufacturer. Two of my companions in blasting were one day hurried out of existence, horribly crushed and mangled at my very side, by the fuse holding fire, and finally exploding the charge when all thought of danger had passed. When I held the quivering, dying form of one in my arms, and mingled my poor sympathy with his last thoughts of far-off friends, and his agony of pain and of parting, I wondered why I was left unscathed to witness such distress, and if the man that made this fuse felt murder in his soul!

But it sometimes happens that fuse becomes damaged in transportation by exposure to damps, etc., and is actually thrust upon the market by traders for a miserable profit.

In the year 1865, I am told that some Lake Superior miners were greatly troubled to get good fuse from this cause. And to avoid the possibility of imposition and danger, they clubbed together and bought up all the poor fuse, and spent one fine evening in boyish sport, burning the same in the streets. They got good fuse after that merry-making, and probably made business dull for the undertaker.

S. H. HERRING.

The University of Alabama has but aix students.

We observe the *Scientific Press* (a journal of much merit, published in San Francisco) has, in the number of May 14th, quoted (without crediting us—inadvertently, we presume,) from an editorial formerly published in our journal, a description of the method of manufacturing Wyckoff's Patent Water and Gas Pipes. It says these pipes are manufactured at Ithaca, N. Y., which is a mistake. They are manufactured at Elmira, N. Y.

We find the above in the *Gas-Light Journal* of June 2d. We failed to see the original article in question. It doubtless appeared during the interval when, as we remarked in the *Press* at the time, we missed receipt of that valuable journal for several weeks. We found the item in the *American Artisan* for April 27th. We did not credit it to that paper, because it had no appearance of claiming originality. We aim to be especially careful to give credit in all cases where credit is due. A paragraph in another column, prepared before we saw the above clipping, will show that we go so far as to urge the recognition of some other editorial work besides original composition.

WHY DO CHILDREN DIE?—In answer to this question, the *Medical Recorder* holds the following language: "The reason why children die is because they are not taken care of. From the day of birth they are stuffed with food, choked with physic, splashed with water, suffocated in hot rooms and steamed in bed clothes. So much for in door. When permitted to breathe a breath of pure air once a week in summer, and once or twice during the colder months, only the nose is permitted to peer into daylight. A little later they are sent out with no clothes at all on the parts of the body which most need protection. Bare legs, bare arms, bare necks, girted middles, with an inverted umbrella to collect the air and chill the other parts of the body. A stout, strong man goes out in a cold day with gloves and overcoat, woolen stockings and thick double-soled boots, with cork between and rubbers over. The same day, a child of three years old, an infant of flesh and blood and bone and constitution, goes out with hose as thin as paper, cotton socks, legs uncovered to the knees, neck bare, an exposure which would dissolve the nurse, kill the mother outright, and make the father an invalid for weeks. And why? To harden them to a mode of dress which they are never expected to practice. To accustom them to exposure which a dozen years later would be considered downright foolery. To rear children thus for the slaughter pen, and then lay it on the *Lord*, is too bad. We don't think the Almighty had a hand in it."

THE HAT is the vulnerable point of the artificial integument. I learned this in early boyhood (by personal experience), and the effect has been to make me sensitive and observant respecting this article of dress ever since. Here is an axiom or two relating to it. . . . A hat which has been *popped*, or exploded by being sat down upon, is never itself again afterwards. . . . It is a favorite illusion of sanguine natures to believe the contrary. . . . Shabby gentility has nothing as characteristic as its hat. There is always an unnatural calmness about its nap, and an unwholesome gloss, suggestive of a wet brush. . . . The last effort of decayed fortune is expended in smoothing its dilapidated castor. —O. W. Holmes.

NEW ENGLAND AID FOR PACIFIC COAST INSTITUTIONS.—In reply to a question of the *Examiner*, the S. F. *Bulletin* gives these instances of donations from New England to institutions on this coast, which are not meant to include all that has been given, as other considerable sums have been donated. College of California, \$7,000; Pacific Theological Seminary, \$25,000; College at Oak Grove, Or., \$50,000. Total \$82,000.

GARDEN SCHOOLS IN JAPAN.—It seems that schools are sometimes, at least, held in the gardens in Japan. Amid the luxuriant flowers and wide-spreading trees, where streams bubble and lakes add their calm beauty to the scene, the pupils sit and learn. Pleasant, certainly.

THE Income Tax is no more, whereat the papers on the coast are rejoicing greatly.

ORANGE WINE.—Peel the oranges very carefully—out the pulp across and squeeze by hand or otherwise, so as to express all the juice. To one gallon of this juice add seven quarts of soft, pure water, and eight pounds of good brown sugar. Mix the orange juice, water and sugar together, and strain. A five-gallon keg, demijohn, or other vessel, may be used according to quantity of juice. Fill the vessel to the brim, reserving to every five-gallon vessel two bottles of fresh juice, as prepared, to supply the waste of fermentation. When no more fermentation can be detected, lay a bag containing about a pound of sand over the mouth of the vessel. After a couple of months cork the vessel slackly, wrapping a cloth around the cork. Draw it out occasionally to let off the accumulated gas. In about six weeks or two months after loosely-corking—during which time the vessel should be kept in a cool place—cork tight; let it thus remain six weeks or two months longer, when the wine will be ready for bottling and use. This will be found a very pleasant drink.

As for the dimensions of the planetary system, at least as we know them at the present time, it has a diameter equal to sixty times the distance of the sun from the earth, or about 5,700 millions of miles. If we desire to form some idea of this immense extent of space, we must estimate it by the time which certain bodies would require to pass through it. Light, which progresses at the rate of 180,000 miles per second, requires 8 hours and 17 minutes to travel from one end to the other of the planetary system; as for a cannon ball, if it continued to travel with a uniform velocity of 495 yards per second, it would take no less than 626 years; sound would require 845 years to travel over the same distance.

The thickness of planetary space is much less extensive than its length. In considering it represented by a line perpendicular to the plane of the earth's orbit, we find it nineteen or twenty times less than the long diameter, or 300,000,000 of miles.—*The Sun*.

TUNNELS AND NARROW GAUGE RAILROADS.—On the first of April there remained a trifle less than three-quarters of a mile of the Mount Cenis Tunnel to be excavated. The work has progressed lately at an average rate of 340 feet per month. It is expected that the tunnel will be finished by July, 1871. The authorities of Turin are making arrangements for the inauguration of the opening. A universal industrial exhibition is being organized for the occasion. The Hoosac Tunnel (Mass.) is progressing at the rate of 10 feet per day. The central shaft is descending at the rate of one foot per day, and will be finished in about four months. The excavation at both ends of the tunnel amounts to over two miles. The little Festinog Railroad in Wales, with its diminutive engines and gauge of one foot eleven and a half inches, has attracted a great deal of attention, and similar roads will probably be adopted in this country to a great extent in new regions.

LUNAR RADIATIONS.—The Council of the Royal Astronomical Society, at the last annual meeting, after stating the results of Lord Rosse's observations upon this subject, which have already appeared in the *Press*, go on to say: "Some later observations have been made upon the same subject in Paris, respectively by M. Baille, at the Ecole Polytechnique, and M. Marié Davy at the Paris Observatory. The former employed a concave mirror of 39 centimeters aperture to condense the moon's rays upon his pile, and also made use of a Thomson's galvanometer. The one conclusion at which he arrived was, that the full moon, at Paris and in the summer months, gave as much heat to his pile as a radiating surface, 6.5 centimeters square, maintained at boiling-water temperature and placed at a distance of 35 meters."

DISRAELI in his last novel, *Lothair*, having attacked Prof. Goldwin Smith, as the latter thinks, this gentleman replies in a letter which contains rather strong expressions. If, as he asserts, Disraeli's expressions "are the stingless insults of a coward," why notice them?

New Incorporations.

The following have filed certificates with the County Clerk, San Francisco:

MEADOW VALLEY EXTENSION CO.—Lincoln county, Nev. June 28. Capital stock, \$600,000, in 6,000 shares. Trustees: L. Maynard, A. J. Bowie and Henry Janin.

BLACK CLOUD S. M. CO.—White Pine June 18. Capital stock, \$1,100,000, in 22,000 shares. Trustees: George Hearst, C. H. Pollard, J. W. Pearson, E. P. Peckham and E. J. Ryan.

The following have been recorded in the Secretary of State's office, Sacramento:

STOCKTON SHIP CANAL CO.—June 23. Directors: C. G. Hubner, S. Eldridge and T. K. Hook.

MANHATTAN QUARTZ M. CO.—Nevada county, Cal. June 23. Capital stock, \$300,000, in 3,000 shares. Trustees: T. W. Sigmourney, G. W. Baldwin, T. Watson, D. Watt and O. Maltman.

SAN FRANCISCO, OAKLAND AND ALAMEDA RAILROAD CO.—June 29. Consolidation of the S. F. and Oakland and the S. F. and Alameda Railroad companies.

Meetings, Elections, Etc.

CITY RAILROAD CO.—June 20. Directors: Robt. B. Woodward, Allen B. Gladding, M. P. Jones, Isaac Hyde, Jos. H. Moore, E. DeWitt, R. Kent.

MORNING STAR M. CO.—June 16. Trustees: O. H. Bogart, (President), S. A. Winn, N. C. Efford, L. Vesario, W. E. Dommert, A. G. Soule and D. Wmley. Secretary, H. Boyle.

SPRING VALLEY WATER WORKS.—June 18. Trustees: John Parrott, James D. Walker, N. Luning, C. E. McLane, Charles Mayne and Lloyd Tevis, W. F. Babcock, (President). E. M. Mills, Secretary.

FRONT STREET, MISSION AND OCEAN R. R. CO. June 18. Directors: N. D. Arnot, Henry Casbolt, Abner Dobie, Wm. Blackwood, Isaac Lankershim, R. H. Lloyd, Frank Tilman.

ALPHA M. CO.—June 20. Trustees: J. D. Fry, Thos. Sunderland, Louis Gerstle, William Sharon and A. K. P. Harmon.

Latest Stock Quotations.

AT THE S. F. STOCK AND EXCHANGE BOARD.

WASHOE.			
THURSDAY, JUNE 30, 1870.			
Bid.	Asked.	Bid.	Asked.
Alpha Con.	\$ 5	Gold Hill Q. M. S.	\$ 22
American	—	Hale & Norcross. 92	31
Belcher	7 1/2	Imperial	34 3/4
Calumet	—	Justice	—
Crown Point	6 1/2	Julia	20 1/2
Cole, Va.	—	Kentuck	29
Confidence	—	Lady Bryan	1
Chollar-Potosi	30 1/2	Occidental	12 1/2
Con. Virginia	10	Ohio	12 1/2
Danley	1 1/2	Oman	6 1/2
Empire	—	Savage	47 1/2
Eschscholtz	—	Sierra Nevada	10 1/2
Flower	—	Sag. Belcher	1 1/2
Gould & Curry	75	Yellow Jacket	38 1/2

WHITE PINE.			
Bid.	Asked.	Bid.	Asked.
Amador Con.	\$ 5	Noondy	7 1/2
Brodt	—	Orig. Hidden	1 1/2
Chloride Con.	—	Pocahontas	—
Eastworth	—	Pogoing & Otho	—
Hidden Tr. Con.	—	Silver Wave	5
Mammoth	75	Virginia	—

CALIFORNIA.			
Bid.	Asked.	Bid.	Asked.
Amador	\$ 220	Eureka	\$ 315
Golden Char't	\$ 14	Idaho	—
Rising Star	—	Silver Cord	—

San Francisco Prices of Copper Ores.

SAN FRANCISCO, June 30, 1870.

W. T. Atwood states the following as the approximate price at which copper ores can now be sold in this city. There is no sale for ores which assay less than 10 per cent.:

Per cent.	Per ton.	Per cent.	Per ton.
12 per cent. ore	\$24 00	18 per cent. ore	\$41 40
13 " "	26 65	" " "	44 65
14 " "	29 40	" " "	48 00
15 " "	32 25	" " "	52 60
16 " "	35 20	" " "	57 00
17 " "	38 25	" " "	61 00

Ores assaying above 30 per cent., \$2.50 per unit. Bars at the rate of 13c. per lb. for pure copper.

THE Beethoven Festival lately held at New York did not prove a financial success, and there is an acknowledged loss of \$40,000. Somehow New York does not seem to have very strong musical propensities. People there are too busy making money, to attend to such matters.

BLACK DIAMOND CUTTING TOOLS.—This substance is now used extensively in turning off grindstones, for which purpose it is found to answer admirably. Drills for glass are also made of it. We have before spoken of its use in mill-stone dressing.

TO MINERS, MILLMEN AND METALLURGISTS.—Kunstel's new work on the Concentration of all kinds of Ores, and the Chlorination Process, for Gold-bearing Sulphurets, Arseniurets, and Gold and Silver Ores generally, is the best and most complete work issued. It contains 120 diagrams, illustrating machinery, etc., which alone are of the greatest value. Price, \$7.50, postage paid. Published by Dewey & Co., publishers of the *Scientific Press*, San Francisco.

SCIENTIFIC PRESS.—The Mining and Scientific Press, which has been a faithful exponent of the scientific, mechanical and industrial interests of our western coast, entered upon its twentieth volume on the first of January, and at the same time adopted the shorter and equally comprehensive title of *Scientific Press*. This journal has, for some time past, maintained a department specially devoted to agricultural matters, and has filled it with useful and interesting information.—*Central Coast Gazette*, Jan., 1870.

Our Agents.

OUR FRIENDS can do much in aid of our paper and the cause of practical knowledge and science, by assisting Agents in their labors of canvassing, by lending their influence and encouraging favors. We intend to send none but worthy men.

Traveling Agents.

WM. H. MURRAY, California and Nevada.
S. H. HERRING—California.
THOMAS POTZER—California.
F. B. ALDERSON—Nevada.
J. M. WOLF—Oregon.

Resident Agents.

CENTREVILLE, Alameda Co., Cal.—L. G. Yates.
OAKLAND—W. H. Hardy.
SACRAMENTO—A. S. Hopkins, No. 70 J street.
JACKSON, Amador Co., Cal.—G. S. Andrews.
TRASKS CITY, Nev.—Thos. Starr.
CARSON CITY, Nev.—John G. Fox.
TREASURE CITY, Nev.—J. L. Robertson.
SHEPHERTOWN, Nev.—P. C. Reufrew.
BOISE CITY, Idaho—Lankin Bros.
SILVER CITY, Idaho—J. Caples.
HELENA, Montana—E. W. Carpenter.
BLACK HAWK, C. T.—Harper M. Orskold.
CENTRAL CITY, C. T.—Richards & Crane.
GEORGETOWN, C. T.—John A. Lafferty, Postmaster.
DENVER CITY, C. T.—Woolworth & Moffat.
CHATTANOOGA, N. T.—Robert Beers.
OKLAHA, N. T.—Barlow & Brothers.
PHILADELPHIA, PA.—Fitter, Quigg & Co.
LONDON—George Street, 30 Cornhill, E. C.
HUDSON & MENET, 41 Park Row, New York.
A. C. KNOX, City Soliciting and Collecting Agent.

Expense of Applying for Patent.

The Government fee, on filing an application for a patent in the United States, is fifteen dollars; and if the patent is allowed, twenty dollars additional is required. If rejected, the first fee of fifteen dollars is all that is demanded.

To the foregoing official fees must be added fees for preparing the various documents and expense of drawings. Our charge for preparing the documents for a case, presenting it to the Government, and attending to all business connected with it, is \$25 and upward. For cases demanding extra work and attention, only a reasonable fee in accordance with the services required, to do full justice to the case, will be charged.

Following is the list of Government fees, payable in currency:

On every caveat	\$10
On every application for a patent, for seventeen years	15
On every application for a design, for 3 yrs and 6 mos.	10
On every application for a design, for seven years	15
On every application for a design, for fourteen years	20
On issuing each original patent	20
On filing a disclaimer	10
On every application for a re-issue	30
On every additional patent granted on a re-issue	30
On every application for an extension	50
On the grant of every extension	50
On appeal to the Examiners-in-Chief	10
On appeal to the Commissioner from Examiners-in-Chief	10
On every appeal to the Judges of Circuit Court, D. C.	20

Inventors on the Pacific Coast, located at great distance from the Patent Office, of all others, should be careful to avoid inexperienced, dishonest, or otherwise unreliable and irresponsible agents.

Inventors having models in our possession must send written orders when they desire any particular friend to see them.

Self-Evident Facts.

Having had large experience, and gratifying success with the great variety of cases emanating on this coast, we feel confident of our abilities to assist inventors in patenting their inventions, saving them from vexatious delays, and from receiving worthless papers by reason of imperfect preparation of their claims before being sent to the Patent Office.

In early days but little preparation was needed, or but ordinary skill required to obtain a patent; but now, by reason of the multiplicity of inventions, and the numerous Acts of Congress, found necessary to protect the inventor while the patent lasts, and to do justice to the people after it expires, the utmost care and skill are requisite in managing cases and obtaining a patent that will be of real value to the Patentee, and stand the test of passing through the legal ordeal of an infringement suit.

The general practice of the Patent Office regarding the examination or issue of Letters Patent for inventions has not been materially changed for many years, yet there have been amendments added to the laws of 1861, 1863, and 1866, and which it is necessary for all parties managing an application to be conversant with. Old inventors invariably advise the employment of none but agents of responsibility and experience. As agents with such qualifications, we solicit honest patronage.

Dangers of Delay.

Situated so remote from the seat of Government, delays are even more dangerous to the inventors of the Pacific coast than to applicants in the Eastern States. Valuable patents may be lost by the extra time consumed in transmitting specifications from Eastern agencies back to this coast for the signature of the inventor, or by reason of return for amendment when addressed directly by the inventor to the Government.

By Telegraph.

In cases of immediate importance we can have their progress reported by telegraph, so that applicants know immediately the result of the examination and decision of the Patent Office. We also make examinations by telegraph regarding the patentability of inventions; examine patent assignments on record at Washington; obtain copies of patents or claims, and also derive other information desired instantly from the Patent Office.

DEWEY & CO.,
Patent Agents, San Francisco.

WILLIAM H. MURRAY, traveling agent and correspondent for the *Scientific Press*, of San Francisco has been in town during the week soliciting patronage for this paper. He is now in Cope District, where he will meet with encouragement from the intelligent miners, who are ever anxious to learn as well as teach. Mr. Murray's letters from the north will prove a valuable feature of the *Press*.—*Elko Chronicle*, June 6th.

San Francisco Metal Market.

PRICES FOR INVOICERS.

Jobbing prices rule from ten to fifteen per cent. higher than the following quotations.

THURSDAY, JUNE 30, 1870.

IRON.—Duty: Pig, \$9 per ton; Railroad, 50¢ per 100 lbs.; Bar, 1¢ per lb; Sheet, polished, 3¢ per lb; common, 1¢ per lb; Plate, 1¢ per lb; Pipe, 1¢ per lb; Galvanized, 2¢ per lb.	
Scotch and Eng. Pig Iron, 40 tons, \$31.00 @ \$32.00	
White Pig, 40 tons, 26.00 @ 30.00	
Refined Bar, bad assortment, 40 lbs., .03 @ .04	
Refined Bar, good assortment, 40 lbs., .04 @ .05	
Boiler, No. 1 to 4, .04 1/2 @ .05	
Plate, No. 5 to 9, .04 1/2 @ .05 1/2	
Sheet, No. 10 to 13, .04 1/2 @ .05	
Sheet, No. 14 to 20, .05 @ .05 1/2	
Sheet, No. 24 to 27, .05 @ .06 1/2	
COPPER.—Duty: Sheathing, 3¢ per lb; Pig and Bar, 2 1/2 ¢ per lb.	
Sheathing, 40 lbs., .26 @ .28	
Sheathing, Yellow, .20 @ .21	
Sheathing, Old Yellow, .10 @ .11	
Composition Nails, .21 @ .22	
Composition Bolts, .21 @ .22	
TR. PLATES.—Duty: 25¢ cent. ad valorem.	
Plates, Charcoal, 10, 40 box, 12.00 @ .—	
Plates, 10 C Charcoal, 10.00 @ 10.50	
Roofing Plates, 10.00 @ 10.50	
Banca Tin, Slabs, 40 lbs., .— @ .42	
STEEL.—English Cast Steel, 40 lbs., .— @ .15	
QUICKSILVER.—40 lbs., 7 1/2 @ 8	
LEAD.—Pig, 40 lbs., 10 @ .—	
Sheet, .10 @ .—	
Pipe, .11 @ .—	
Bar, .9 @ .—	
ZINC.—Sheets, 40 lbs., 10 1/2 @ .11	
BORAX, .35 @ .38	

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Quartz, Flour and Saw Mills,
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Steam Engine Builders, boiler Makers, Machinists,
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LEWIS R. MEAD.....Secretary.

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Hydraulic Pipe supplied at reasonable rates. In or-
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Plans, Drawings and Specifications.—The firm
is prepared to make out Plans and Specifications, receive
estimates, and superintend the Erection of any Machinery
that may be entrusted to their care.

To Inventors.—The firm is prepared to assist in de-
veloping the plans of those who have the ideas, but not the
practical experience necessary to put the same in form, by
making Drawings of their inventions, giving them the bene-
fit of their practical knowledge in the construction of Ma-
chinery, and attending to the manufacture and introduc-
tion of their inventions. 1v16qr

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MR. J. W. MAO, while a resident in New Zealand,
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arm and hand rendered useless, and accompanied with
continued excruciating pain. While in this state of suf-
fering, he got acquainted with a native of the country,
who applied to the parts affected a composition spread
on coarse canvas, the properties of which were so won-
derful that in a short time all the pain left him, the
swelling disappeared, his sinews relieved, and he was
able to resume his usual avocations. So effectual has
been the remedy, that to this day he has enjoyed per-
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complaint. Knowing the great blessing such a remedy
would be to those afflicted with this painful disease, he
with great difficulty and expense obtained this secret of
preparing the Plaster; and during the many years MR.
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Folsom street, now agent at Virginia City; E. Shenley,
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This invaluable Spiral Spring Bed combines all the
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resting on a bed of stronger springs, thus giving it
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spring beds, they require no upholstering, and, of
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faculty have pronounced it the best bed in use. It com-
mends itself to those who have examined and used it.
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AARON (CHAS. H.)—Treatment of Re-
bellious Silver Ores. 8 pp.; pamphlet. S. F., 1869.
Postage free. 25

BROWN (H. T.)—507 Mechanical Move-
ments. Dewey & Co's Scientific Press Edition, S.
F., 1869. The most complete publication of illus-
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Pig, American, No. 1 (cash).....	42 00	@	—
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Common.....	87 50	@	92 50
Re-dried.....	95 00	@	—
Rods.....	100 00	@	155 00
Horse-shoe.....	115 00	@	—
Hoop.....	125 00	@	180 00
Scroll.....	110 00	@	145 00
Nail-rods, per lb.....	8 1/2 @	—	9 1/4
Spring.....	9 1/2 @	—	—
Tire.....	9 1/2 @	—	—

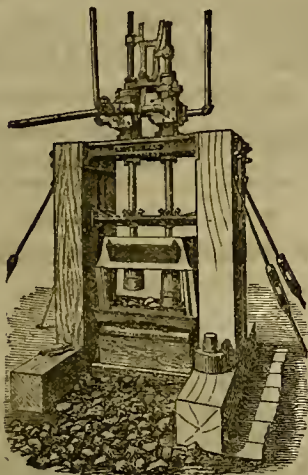
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Bars, best cast, warranted, per lb...	23	@	23 1/2
Sheet, best cast.....	23	@	—
Sheet, second quality.....	20	@	—
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Saw-plates, circular.....	27	@	—
Double-shear, warranted.....	32	@	—
Single-shear.....	13	@	—
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German, best.....	16	@	—
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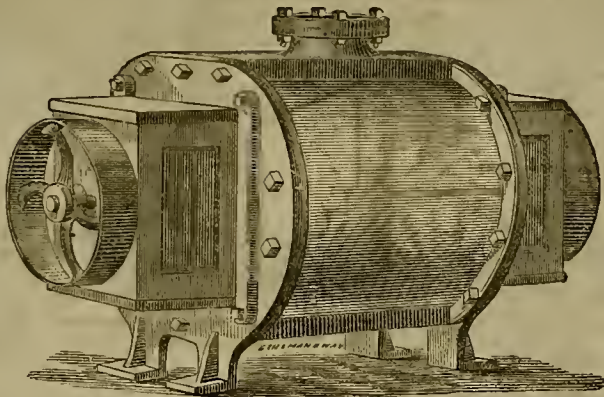
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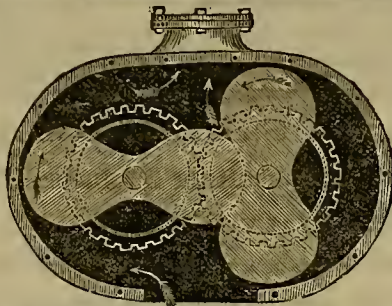
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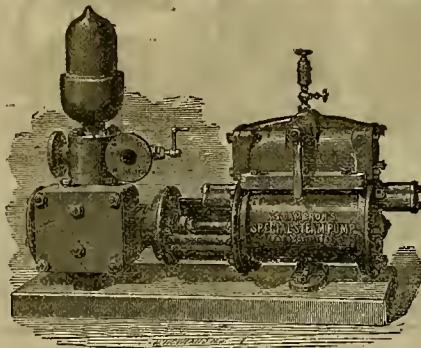
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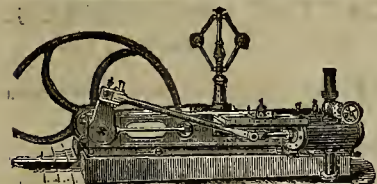
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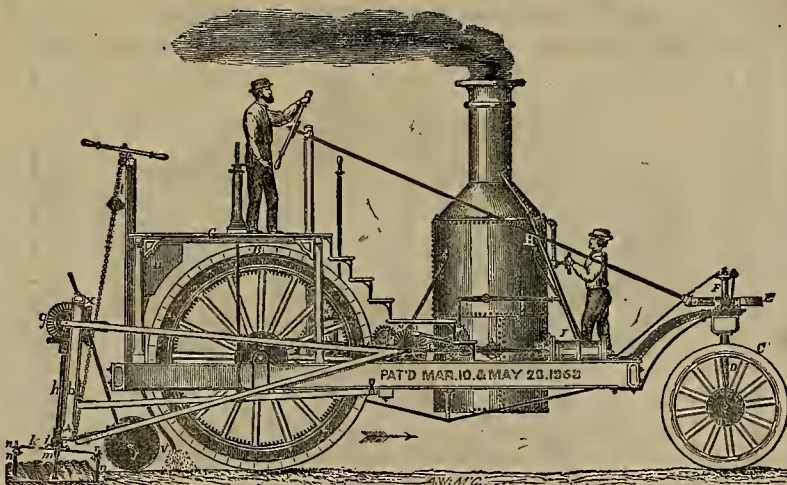
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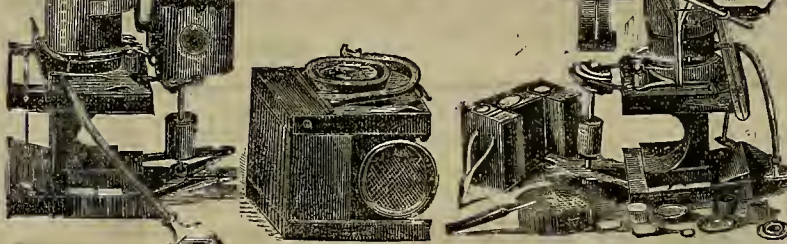
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Eagle Brass Foundry, 206 Fremont street, San Francisco 12th March, 1869.—Messrs. A. S. Hallidie & Co., 619 Front street—Gentlemen:—We have used and tested the Morgan Patent Plumbago Crucible, for which you are agents, and pronounce them superior to and cheaper than any Crucible used by us heretofore. GREENBERG & MOORE, Messrs. A. S. Hallidie & Co.—We have thoroughly and severely tested in every way the Morgan Patent Plumbago Crucible obtained by us from you, and find them superior to any we have yet tried, although we have used every pot obtainable in this market, we have none equal to the above, and concede your claims for them. We think they will average 45 pourings of brass.

GALLAGHER, WEED & CO., Assay Office of H. Harris, Silver City, Nevada, April 24, 1869.—Messrs. A. S. Hallidie & Co.—Gentle:—I received from you three Crucibles of the Morgan make, which I have used since their arrival, and tested by constant use. Since 1847, when in the New Orleans Mint, I have always preferred the Crucible of Dixon's make over Adams, Gautier, and Tanton, Mass. Yours I find to be not alone of more finished make, but to stand double or treble the work of Dixon's Crucibles. The No. 12—the smallest sent—has stood so far 32 meltings, and is as good and sound as when received. Your Crucibles do not scale off like others; and as they are forty per cent. cheaper, I do not see why they should not be preferred by all assayers on account of durability and cheapness. Yours respectfully, H. HARRIS. On hand and for sale by the Agents,

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Mining, Farming and Mechanic Arts.

BY DEWEY & CO.,
Patent Solicitors.

San Francisco, Saturday, July 9, 1870.

VOLUME XXI.
Number 2.

Hydraulic Nozzle.

When the California miner went to work to extract the precious metal from the deep placers, he had many difficulties to contend with. To bring water in sufficient quantities, often from a great distance and over a most unfavorable ground, was no small labor. But he went ahead, regardless of financial and engineering obstacles, and did not stop to discuss the possibility of the work until he had finished it. He accomplished many things which a better educated man would have hesitated long before undertaking. He committed many blunders and often reaped no benefit from his labors; but he did what he set out to do.

Hydraulic mining having become a settled and important fact, it remained only to perfect it in its details. One of the late improvements, designed to better utilize and more easily direct the tremendous force in the hands of the miner, is the so-called "Hydraulic Chief," a general idea of which will be obtained from the accompanying cut. It is a mechanical arrangement for giving the nozzle any required horizontal or vertical direction and holding it in any position without the necessity of much manual power.

The operator, standing at the end of the lever, can easily direct the stream to any point. He is further removed from the spot operated on and can more easily command a view of the work, than with the common nozzle. The pipe will stand firm when placed in any position. The inside construction is such that there is the least possible friction for the water, and no bolts, etc., to break the stream. There are other advantages which the hydraulic miner will readily see. Two sizes are made, throwing three-inch and six-inch streams.

This is certainly an improvement over the old ways where two men were required to do what one can now perform without much labor, danger or personal discomfort. The cut shows how the nozzle is moved in a vertical direction; it moves in a joint at the flange marked "Hydraulic Chief," in a horizontal direction. Any further information desired may be obtained by addressing Mr. F. H. Fisher, Nevada City, Cal.

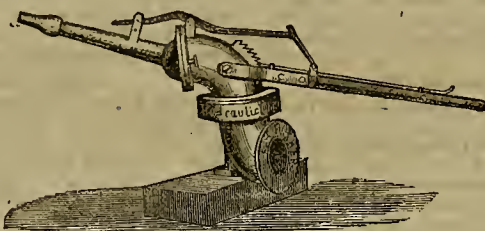
Mr. BALBACH, of San José, the inventor of the buggy spring lately illustrated in the PRESS, recently visited San Francisco for materials to put up buggies to fill his orders. He is positive that he has the best spring ever used, and that it will "take" wherever known. His enterprise deserves success.

TRAM RAILWAY.—The agent in California for the Tram Railway Company of Great Britain, whose system was illustrated in the PRESS of June 18th, is Mr. B. B. Lewis, of Alleghany, Sierra county.

THE Central Pacific Company have commenced work on the new bridge across the American river, near the site of the one burned last March.

Henderson's Direct-Action Steam Pump.

There are several features in this pump which are worth the attention of those interested in such matters. It is constructed

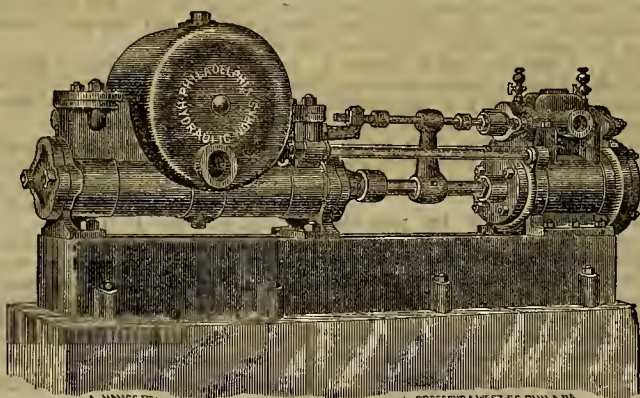


FISHER'S PATENT HYDRAULIC NOZZLE.

with the purpose of running regularly and quietly at any required pressure and speed. Its prominent feature is the steam balance valve, operated partly by the tappet, but

composition metal, either lift or ball, according to the work required.

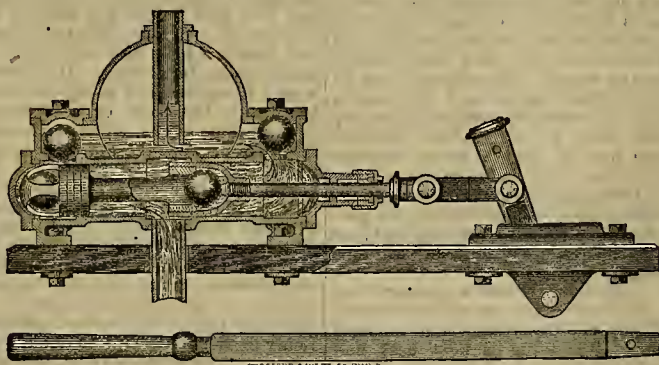
The pumps are models of simplicity and are so arranged that access to the pistons and valves is most easy. They have been



HENDERSON'S PATENT DIRECT-ACTION STEAM PUMP.

mostly by the exhaust steam which is admitted by the positive motion of the piston, so that it cannot fail, no matter how slow it may work. There is no dead point,

of their satisfactory performances. We have a table of the mean results of competitive experiments made with a Henderson and another pump. What the other



HENDERSON'S PATENT DOUBLE-ACTION FORCE PUMP.

but the engine will start at any part of the stroke. The pump is the same in both figures. The arrangement of the valves in the piston with a considerable mass of water between them is another feature peculiar to this pump, which conduces to its smooth working by preventing the jerk caused by the sudden stopping of the moving mass of water. The valve chambers are arranged with brass seats, to accommodate valves of vulcanized rubber or

was, we know not, and hence do not give the table; but it was said to have been chosen for its excellent workmanship. The result was fifty per cent. gain in favor of Henderson's pump. The manufacturers stand ready to guarantee their pump for any situation they may personally recommend. These pumps having been at work for some six years, their efficiency is well known. For further particulars address W. M. Henderson, Philadelphia.

The New Mining Bill.

We give, in another column, Mr. Sargent's new bill, as last amended, in relation to the sale of mineral lands, which the telegraph has announced as having passed the lower House, with an almost certainty of passing the Senate and becoming a law. This Act is amendatory of the one passed in July, 1866, which was limited to quartz mines. The bill as now amended does not change the law with regard to acquiring title to quartz mines, but extends the privilege to placer mines.

Under this, as under the old bill, no individual quartz miner can acquire more than one claim of 200 feet in length by location, and one by right of discovery; while no association can exceed the limit of 3,000 feet upon any one vein; but in extending the bill to the placer mines, as now proposed, any individual or association of placer miners may secure, as a minimum, ten acres or any increased number of acres up to 160, the exterior limits of which shall conform to the legal subdivisions of the public lands.

If a party wants less than a quarter section he must pay for the survey of the subdivision. Mining claims seldom terminate on the lines of the Federal surveys, to meet which difficulty two or more persons or associations may unite to get one patent, covering not more than a quarter section for each, and they can make their partition afterwards.

As the mines are open for purchase only to persons who have spent money upon them, the bill will operate to encourage the settlement of our mining counties and the development of their resources. The price per acre is fixed at \$2.50.

As this amendment consists merely in the addition of six new sections to the eleven contained in the old bill, it does not relieve miners of the onerous and useless expense and trouble in proving up titles, etc.

In addition to the expenses of proving title, surveying, advertising, etc., the claimant must also prove the expenditure of at least \$1,000 on the claim, and there is no provision in the bill to prevent a second party from coming within the proposed 160 acres of the first party and commencing work. In order to carry out the intent of the bill, some provisional protection should have been allowed. The bill, though good in the main, is not without its defects, which will be gradually developed by its practical working, and in due time amended.

REDUCTION WORKS AT SALT LAKE.—We see it stated that the Messrs. Woodhull Brothers of Salt Lake have commenced the erection of two smelting furnaces. It is said that the works will be ready about the end of two months.

A NEW OCCURRENCE.—We see it stated in a German paper that platinum has been found in the lead mines of Ibbenbüren in Westphalia. If true, this is a new and interesting occurrence of this metal.

Communications.

Notes from Idaho Territory.

[Written for the Scientific Press.]
Silver City.

Silver City, the county seat and largest town of Idaho Territory, is situated 6,250 feet above the level of the sea, on the sloping sides of Jordan Creek cañon, 180 miles north of Elko, 103 miles from Cope district, and 60 miles south of Boise City. Jordan creek runs southward and empties into the Owyhee river, which flows into Snake river, the large south fork of the Columbia. The town is prettily situated, and surrounded by high precipitous hills. On the east are the War Eagle Mountains and on the west the Florida Range. There is no doubt but these mountains contain a very large amount of the precious metals; rough and ragged as they look, they hold concealed treasures whose value is inestimable. These mines are not merely touched, and yet during the year 1869 Wells, Fargo & Co. alone shipped from Owyhee \$835,181.07 worth of bullion.

Around these mountains are heavy banks of snow, from 10 to 25 feet deep in places, where the drifts have collected. To catch the waters formed by the melting of this snow for the placer claims, the miners have erected ditches and flumes, thus turning to good account these forbidding features. But in other places there are beds of beautiful flowers, whose colors afford a strange contrast to the cold whiteness of neighboring localities.

Silver now has about 1,500 inhabitants. The houses are mostly of wood, but I see quite a number of fire-proof granite buildings of really fine appearance. There is a good public school; one Odd Fellows and two Masonic lodges exist, and an order of Good Templars, who own a neat hall. There are two assay offices, two banks, an express office, a foundry, several hotels and a theater. Nor must I forget the weekly newspaper, the *Owyhee Avalanche*, owned by Hill & Millard, which is independent in politics, ably conducted and a credit to the community it represents. To Mr. Hill I am indebted for considerable information about the country, which I have freely used in my notes. The climate is represented as very healthy; in summer it is delightful, but in winter snow falls to a great depth and the storms are violent.

Mountains—Mines, etc.

The Owyhee mountains are of granitic formation, and in some places rise to a height of 1,500 feet above the city. Rough and steep, in many places their bald summits stand out in bold relief. Red sand white fir grow in considerable abundance in the gulches, and native mahogany is plentiful on the slopes and peaks. The latter is used for fuel and the former is manufactured into lumber and shingles, there being three saw mills in operation in this vicinity.

From the summit of War Eagle, two and a half miles from Silver, we can get a magnificent view. Snake River Valley can be seen for two hundred miles as it stretches away to the east and west; the Boise Mountains are visible to the north and the lofty peaks of the Salmon River range still farther away to the northwest. The winding stream, the vast plain and the hazy mountains in the dim distance beyond—all form a landscape wonderful in its beauty and needing a master pencil for its description.

The gold and silver quartz mines of Owyhee form its principal resources. Placer diggings were discovered seven miles below this place in the spring of '63 by a party of prospectors from Boise Basin. In July of the same year the first quartz vein was discovered and named the "Whiaky." Since then hundreds of locations have been made and some of them quite extensively developed. The veins produce both gold and silver, in some the gold and others the silver predominating. I have been told by miners that in some places the rock of the mountains to the west and northwest of the city will assay \$3 to \$6 per ton; that all the gulches there are rich in gold; that horn silver has been found in the gulches; and that detached specimens of tin ore have been picked up.

Ida Elmore Mill.

The Ida Elmore mill, built by the Lincoln S. M. Co., is located on the west side of Golden creek, near the city. It has twenty stamps, twelve Wheeler pans and six large settlers. The 60-horse power engine (with 14-inch cylinder and 30-inch stroke) with its two large boilers, burning 5 cords of wood daily, was made at the well known Miners' Foundry of San Francisco and shows good workmanship. The mill runs through some 22½ tons of ore daily (from the Ida Elmore mine) and could crush more if necessary. The rock is soft and works easily. The cost of working the ore is \$7.50 per ton, and it is thought that this sum can be made to include the expense of mining, hauling, etc. There are 16 receiving tanks and all necessary improvements to make this a first-class mill. I saw here 4½ pounds of amalgam which had been obtained during the last few days. The ore is worked up to 87½ per cent. of the assay value. There is a large amount of tailings on hand—over 6,000 tons, which have been accumulating for some years past—which will yield \$12 to \$20 per ton. They have about the same amount of buildings as the Owyhee Co., and the two are gotten up in the best of style. The work done is most satisfactory. The owners are Col. D. H. Fogus, W. R. Carter and John M. Wilson, the latter acting, (and ably) as General Superintendent.

The Owyhee Mill.

The Owyhee mill, owned by the Owyhee M. Co., is located on the east side of Jordan creek. Mr. W. D. Walbridge is General Superintendent of the company, and Mr. J. M. Adams is Superintendent of the mill. Mr. Adams kindly conducted me through the mill, showed me the different points, and gave me the following notes: There are one Blake's crusher and 20 stamps of 650 pounds each, with an average fall of 8½ inches, making 68 drops a minute. The ore is crushed wet, and discharged through No. 5 screens. The machinery was manufactured by the Pacific Foundry, of your city, and is well made. There are three slum yards, with a capacity for 1,500 tons of alum, into which the battery water runs from the settling tanks. There are also 16 pans (10 Wheeler and 6 Varney), 8 settlers, 1 Knox pan (old style) for cleaning amalgam, 4 agitators, 2 Hungerford's concentrators, and Evans' patent rifles; 1 lathe and 1 Worthington force pump. All these are driven by a steam engine of nominally 85 horse-power, though much more is got out of it.

The ore crushed during the past six months came from the Poorman and the Golden Chariot. The former mine is owned by the Owyhee M. Co., and the latter by the Golden Chariot M. Co., and this ore is custom ore. The average yield of the Poorman ore during that time was \$30 a ton; of the G. Chariot ore, \$60 a ton. The per cent. of assay value, obtained from each, not including loss in alums (as they are saved and subsequently worked), was 94. The average per cent. of assay value obtained from G. C., including loss in alums, was 93; from Poorman, 90.

The capacity of the battery—running night and day—on G. Chariot ore is 38½ tons a day. The capacity of pans on G. Chariot ore, running each charge six hours, 33 tons a day, and the capacity increases as the time is shortened. Capacity of mill on Poorman ore, 60 tons a day, running the pans 4 hours, as there is a large loss of *bulk* in the slum. The average cost of working Golden Chariot and Poorman is \$7 a ton. The cost of working Poorman, \$7 a ton. After the tailings leave the mill they run over a double set of blanket sluices 250 feet long; and even the concentrations barely pay the expense of working, while the tailings, unconcentrated, are perfectly worthless. There are now 200 tons of Golden Chariot ore at mill, and 300 tons of Poorman.

I was very much pleased with everything about this mill. The whole machinery works finely, and the arrangements are most excellent. Everything is kept neat and tidy and in the most perfect order. There are rooms for chemicals and assaying, and under the very able management of Mr. Adams, who does all the assaying and analyzing, and who has been most successful in working the ores up to a high percentage.

Golden Chariot Mine.

The most productive mines of Owyhee are situated well up on War Eagle Mountain. Here close together are the famous Poorman, the Ida Elmore, the Golden Chariot, the Peck & Porter, and the Mahogany mines.

I was kindly taken through the Golden Chariot by the very obliging foreman, Mr.

W. H. Clark, who, by the way, has accepted a situation in the Amador mine, Jackson county, Cal., and whose successor, Mr. J. F. Cassell, has just arrived here. The shaft is down about 400 feet. At the bottom, in the fifth level, about sixteen feet to the south of the shaft, a rich body of ore has been struck which has caused considerable excitement. In places I was able to see free gold and large amounts of silver sulphurets. It looks splendid. For thirty feet north of the main shaft, in the fourth level, the ledge is from four to six feet wide, and elsewhere the width varies from one to four feet. The first, second and third levels are worked out, but on the fourth, stoping is being done on each side of the shaft. Sixty men are employed night and day extracting the ore. For blasting, giant powder is employed when sinking, but for ordinary work common blasting powder, from the California Powder Works. The rock is very hard, and in some few places it costs upwards of \$40 per ton to get it on the dump. There is a fine hoisting engine of over 15-horse power. The company can extract 350 tons monthly. They have the ore crushed for them, and pay \$14 per ton for milling, besides \$2 for hauling in the summer, and more in winter. There is some talk of erecting a mill near the mine, whereby not only will the expense of working be reduced, but it will also be possible to work much ore which does not pay now.

Ida Elmore Mine.

The Ida Elmore is on the same vein as the preceding. Mr. J. Schmidt, the foreman, did the honors here and piloted us about. The shaft is down 450 feet from the surface. There is a large tunnel, 1,250 feet long, running in a northerly direction to the Oro Fino mine, which drains the upper levels, but the water from the fourth and fifth levels is hoisted in large water buckets holding 150 gallons. The ore is of the same general character as that of the Golden Chariot. Some fifty miners are employed, and twenty tons of ore are raised daily. The hoisting engine is of 20-horse power, and the hoisting works are a little larger than the Chariot's. The dumps are full and the mill is well supplied.

These are the two principal mines of the district. Both are looking very well and giving strong evidences of permanency.

Fairview.

Near these mines is a small town named Fairview, from its position, which commands a view of the surrounding country for a long distance. Here there is a fine hotel, kept by Mr. A. D. Miller, also several stores and saloons. In summer this is a very pleasant place, but in winter the cold winds are too violent, and snow drifts up too high alongside of the house.

W. H. M.

[TO BE CONTINUED.]

Fossil Tooth from Table Mountain.

The following interesting description, by Prof. W. P. Blake, has been very kindly sent us by Mr. G. A. Treadwell, of Big Oak Flat, Tnolunne county, with permission to publish it:

The fossil tooth found by Mr. D. T. Hughes, 1,700 feet under Table Mountain, and 300 feet below the surface, is very interesting. I have carefully examined and compared it with specimens in the Smithsonian Institution. It proves to be a back lower molar of an equine animal of the genus *Hipparion*, or a closely allied genus. This genus is one of the connecting links between the *Paleotherium* and the horse.

The specimen closely resembles a fossil in the Smithsonian museum, from the Pliocene formations of the Niobrara river in Nebraska, not only in size but in the foldings of the enamel, and particularly in the posterior part of the tooth, but it differs enough, in several particulars, to justify the belief that it is a distinct species. Dr. Leidy does not attempt to determine, specifically, the specimen from Nebraska, but considers it closely related to, if not identical, specifically with, *Hipparion gratum*, possibly *Protolippus placidus*.

The size of the Table Mountain specimen, which is considerably worn by attrition in the gravel, is: Length, 11 lines; breadth upon the crown, 9 lines; breadth at the base, 10 lines; thickness, anteriorly, 4 lines, posteriorly, 2 lines.

This is an extremely interesting fossil for many reasons. It is an extinct form. It is the first of the kind discovered west of the Rocky Mountains. It adds to the list

*Described by Prof. Leidy in his work upon the Extinct Mammalian Fauna of that region, p. 319, pl. XIX, Fig. 7.

of the fauna of the period antedating Table Mountain—a list which includes the mammoth (*Elephas*, from Knight's Ferry), the rhinoceros, and an animal allied to the elk. I have believed that remains of man were also found under the lava; but upon this point, after diligent inquiry, I am satisfied that the evidence is insufficient. But we now add this fossil allied to *Hipparion*, and I regard it as another indication that the Table Mountain beds are Pliocene and homotaxial with those of the Bad lands of Nebraska.

As a link between the more modern genus, *Equus* and the *Paleotherium*, it has a general interest. Huxley regards the genus *Hipparion* as a good example of what he calls a "lineal type" in distinction to the "intercalary type." He says: "The genus *Equus* is represented as far back as the latter part of the Miocene epoch, but in deposits belonging to the middle of that epoch its place is taken by two other genera, *Hipparion* and *Hipparitherium* (or *Anchitherium*), and in the lowest Miocene and upper Eocene only the last genus occurs.

"In the *Hipparion* the teeth nearly resemble those of the horses, though the crowns of the grinders are not so long; like those of the horses, they are abundantly covered with cement. The shaft of the ulna, if reduced to a mere style, ankylized throughout nearly its whole length with the radius, and appearing to be little more than a ridge on the surface of the latter bone until it is carefully examined. The front toes are still three, but the outer ones are more slender than in *Hipparitherium*, and their hoofs smaller in proportion to that of the middle toe. In the leg the distal end of the fibula is so completely united with the tibia that it appears to be a mere process of the latter bone as in the horses. "In the horses, finally, the crowns of the grinding teeth become longer, and their patterns are slightly modified; the middle of the shaft of the ulna vanishes, and its proximal and distal ends ankylize with the radius. The phalanges of the two outer bones being left as the splints."

In conclusion, this eminent authority asserts his belief that the types of the *Hipparitherium*, of the *Hipparion* and of the ancient horses, constitute the lineage of the modern horses, the *Hipparion* being the intermediate stage between the other two.

Owen, in his Comparative Anatomy and Physiology of Vertebrates, gives figures of the teeth and bones of the leg of the *paleotherium*, the *hipparion*, and the horse, illustrating the transition from the first to the last by the gradual appression of the toes, leaving, at last, only the splint bone of the horse.

We may now more confidently expect to find in some of the still older formations of California, the remains of progenitors of *Hipparion* and relics of the *Paleotherium*. Fossil remains of the horse have been found in several localities; one, I remember, upon Mare Island, with teeth of *Elephas*, and another locality near Martinez. Some very large teeth have been dug out of the bitumen springs west of Buena Vista lake, in the Tulare valley; but it is probable that these are of the modern wild horse of that valley.

This addition to our knowledge of the fauna of the Table Mountain period makes it still more interesting to determine beyond any doubt whether stone implements, or any other evidence of the existence of man at that time, have been found under the lava of the mountain imbedded in such a way that no question can arise as to their existence in the deposits prior to the outflow of the lava. As the reported finding by Dr. Snell, or others, of stone implements under the lava cannot be verified by any one who has long resided near, and worked in the tunnels, I am disposed to conclude that Dr. Snell's relics may have been washed out of earth taken from the outer slopes or margins of the lava-capping, and that they are not as ancient as he believed them to be.

WM. P. BLAKE.

Washington, June 4, 1870.

NICKEL-PLATED STEAM ENGINES.—The exposed portions of engines may by nickel plating be furnished with a bright non-corroding surface cheaper and better than silver plating. The Brooklyn Nickel Plating Co. have thus plated a small vertical engine, and the idea seems likely to "take."

COMET MINE, YELLOW PINE.—Word comes from Los Angeles that for the purpose of securing capital sufficient for fully developing this mine and also for erecting smelting works, one of the owners has gone on to England.

Mechanical Progress.**Comparative Cost of Narrow-Gauge Railways.**

The gauge of the Festiniog railway in North Wales is termed the two-foot gauge, although really one foot eleven and a half inches. On the occasion of the recent visit of a Royal Commission to the railway, C. E. Spooner, C. E., read an elaborate paper giving a description and history of it. We find it in *The Engineer*, and quote a paragraph or two from the latter part: "I do not recommend for light railways so small a gauge as two feet; but I consider that two feet six inches is ample for all purposes. The large amount of traffic that can be done on lines of this kind is really surprising, particularly with the 'Fairlie engines'; in fact, I may say fully 75 per cent. of that which can be effected on a four feet eight and a half-inch gauge. I have no hesitation in saying that the narrow-gauge principle worked on the Fairlie system, having a permanent way well laid to two feet six inch gauge, with good iron rails, of not less than 55 pounds to the yard, or steel rails of 50 pounds, with proper rail fastenings, will last 20 years; the sleepers will require renewing in from eight to ten years. By the excessive weight thrown on one wheel of an engine on the standard gauge lines, the rails are crushed out and not worn out, as is the case on lines of the small gauge. The width of a single line in the clear should be nine feet six inches. A single line of railway in England of the above type, through an ordinary country, would not cost much more than one-half of a standard gauge line, of four feet eight and one-half inches; in a mountainous district the cost would be even less comparatively, consequent on the advantages that would be given by a narrow gauge in following the contour of the hill-sides, regardless of sharp curves, thus avoiding tunnels, viaducts, and heavy earthworks, which would be inevitable upon the larger gauge system."

MAKING CASTINGS UNDER PRESSURE.—At the late annual meeting of the Institution of Civil Engineers in London, Mr. Roebuck exhibited castings made by the process of Messrs. Smith & Locke, of Massachusetts, and a set of apparatus for making them. *Engineering* says of the castings: "These included reproductions in brass of elaborate dies, chased work, bas-reliefs, electrotypes from wood engravings, etc., all the examples having a finish as perfect as the models from which they were produced. The perfect 'face' upon these castings is indeed astonishing. It is intended to apply the system not only to producing castings in brass, but also in steel, and we understand that an attempt will shortly be made to employ it for the production of large castings in Bessemer steel, taken direct from the converter. Amongst the examples exhibited were some files cast in brass, and having the teeth as sharp as if they had been cut in the ordinary way. These were, of course, shown merely as samples; but similar castings are about to be made in steel by the process, and if these are successful, the effect will be to almost revolutionize the file manufacture. Indeed, the very low cost at which moulds, however elaborate, can be produced, the perfection of the castings obtained, and the fact that scarcely any skilled labor is required for their production, combine to render Messrs. Smith & Locke's process one capable of extensive application and of vast commercial value."

PROJECTILE ANCHOR.—Experiments were recently made at Portsmouth, England, with "Rogers' projectile anchor for life-saving purposes." An anchor weighing 128 pounds and carrying a one-inch whip line rove through a block, was thrown to a distance of 156 yards from the shore by means of an eight-inch mortar, with a charge of eight ounces powder. A hawser was rove by means of the whip-line, and a ship's launch with ten men hauled out over the spot.

UNIFORM MOTION WITHOUT FLY-WHEELS. Messrs. MacGeorge & Rigg have devised turning gear which consists of a small supplemental oscillating cylinder, which serves as a reservoir of pressure, absorbing the excess during the middle of the stroke, and giving it back again towards the ends.

Crosland's Three-Cylinder Engine.

This is a recently patented form of the compound engine. *Engineering* illustrates a specimen, of 60-horse power, now constructing. We quote from the description: "Mr. Crosland's engine is specially designed for working with steam of a high pressure, say, 150 pounds per square inch, this steam expanding from the first into the second, and from the second into the third cylinder successively. In the engine we illustrate the cylinders are respectively 9 inches, 18 inches, and 30 inches in diameter, the stroke in all cases being 2 feet, as the connecting rods are all coupled to one crank pin. The engine is run at 82½ revolutions per minute. The crank pin is 5 inches, 4½ inches, and 3½ inches in diameter at the three bearings respectively, and the main bearings of the crank shaft are 9 inches in diameter by 20 inches long. The steam pipe leading to the first cylinder is 2 inches, that connecting the first and second cylinders, 2½ inches, and that connecting the second and third cylinders, 4 inches in diameter. The valve gear is arranged at the back of the main framing, the motion being communicated to the slide valves through rocking shafts, while provision is made for adjusting the gear whilst the engine is running. The air-pump, which is 10½ inches in diameter, and 2-feet stroke, is placed in a line with the large cylinder, and is worked by a prolongation of the piston rod of that cylinder through the bottom cover. This arrangement gives ready access to the valves, etc. The cylinders are all steam jacketed, and efficient arrangements are provided for removing the condensed steam, and for the lubrication of the working parts. The framing is of strong and neat design, and the total weight of the engine, including the fly-wheel, is 34 tons. The arrangement of the cylinders gives a very equable turning power and thus renders the engine particularly adapted for mill purposes."

GAS AS FUEL FOR STEAM MAKING.—*Engineering* gives a paper read June 7th, before the British Association of Gas Managers, by G. Goddard, in which is mentioned a new arrangement, patented by Arthur Jackson, for generating steam by gas. We quote: "The invention consists of a vertical tubular boiler of very small dimensions; the tubes are not more than one inch bore, and are placed very close to each other, so that an enormous heating surface is obtained; beneath the tubes on a revolving plate are a number of atmospheric burners, each supplied with a cock, so that the heating power is completely under control and can be increased or diminished at pleasure. The space required for a four-horse power boiler is only 48 inches. The time occupied in getting up the steam to 40 or 50 pounds to the square inch is from 20 to 25 minutes. A very small quantity of gas is required to maintain the pressure of steam when the engine is at rest, and hence the value of the invention, where intermittent power is required—as in working hoists in warehouses, hotels, etc.—particularly as the full power may be almost instantaneously restored when needed. The average consumption of gas per horse power per hour is about 100 cubic feet."

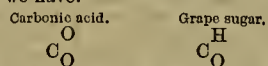
SAFETY SWITCH.—We find in the *London Mining Journal* of June 4th a notice of a new safety locking switch, the invention of Mr. John Brunton. "The motion of the cams which move the points brings up a block or wedge, which, when the motion of the lever is completed, effectually fixes the switch or point in its position; but before such movement of the points-lever can be made the pointsman must move the distance signal to danger, and block the line; and, further, the movement of the points-lever must be complete, and the switches locked or wedged before he can move the other signal-lever, and show the 'all right' signal to the train advancing to run into the branch line or siding."

HYDRAULIC "JIM CROW."—This is a simple and effective tool devised by Tangye Bros., Birmingham, for bending rails. It is very manageable, and, unlike the screw crow, can be unshipped instantly. It is used also for breaking heavy steel rails. By merely nicking the rail with a chisel, it may by the crow be easily and evenly broken off, and much time saved.

Scientific Progress.**Animal Combustion and Ordinary Combustion.**

We quote the following from an article by Liebig on the Source of Muscular Power,—translated for the *Bowdoin Scientific Review*:

"Carbonic acid is never produced in the living body by the union of oxygen with carbon. It is not, in the ordinary sense, a combustion product. In order to comprehend correctly the difference between the combustion process under a steam boiler and that in the animal body, the formation of organic compounds in plants must be considered. They are all formed from carbonic acid and from atoms of carbonic acid, more or less modified, which in the animal body undergo retrograde metamorphosis into the carbonic acid atoms, which were their source. By their formation, under the influence of sunlight, heat (or sun force) becomes fixed (*gebunden*), or, as we say, latent; by their disintegration it again becomes free, and the maximum amount is set free when the disintegration of these substances corresponds exactly to their formation. Take, for instance, as a starting point, carbonic acid with sugar in their simplest empirical formula; we have:



A glance at both formulas shows that the sugar is carbonic acid, in which one equivalent of oxygen is replaced by one equivalent of hydrogen. Carbonic acid is not destroyed by the formation of sugar; one of its constituents has been exchanged. In the decomposition of sugar into carbonic acid, not the carbon of the sugar is burned, but the replacing hydrogen, and since this hydrogen unites with oxygen in the animal structure to form water, the oxygen replaced in the plant and again supplied by the blood, is restored to its former place. Hence sugar can be burned in two different ways, and converted into carbonic acid—directly when it is made to combine with oxygen at a high temperature, or indirectly by the replacement of its hydrogen by oxygen at lower temperatures. The amount of oxygen is the same in both cases, for fifteen grammes of sugar, sixteen grammes of oxygen are required; but when the work of combustion, which requires the expenditure of heat, is unequal, the heat set free must also be unequal."

Coal Exposed to Air Deteriorates.

The *Scientific American* gives some observations of Dr. Richter upon this subject: "The absorption of oxygen does not cease at any time. If a current of air is passing over a coal heap, large quantities of carbonic acid will be given off; but where the air is quiet, the coal absorbs the carbonic acid and less change is manifest. The temperature of the air has much to do with the deterioration of coal, as warm weather greatly promotes the absorption of oxygen and the formation of carbonic acid. All engineers agree that the influence of moisture is very great. Water operates in various ways; it acts upon the iron pyrites, that in greater or less quantity accompanies all coal, oxidizes the iron, slakes the coal, and thus exposes greater surface to the action of the air, and heats up the mass, so as to promote oxidation. The sulphate of iron in turn oxidizes, and is again reduced by the coal; and it is thought that the green vitriol thus serves as a conveyance of oxygen to the coal, and occasions its combustion."

Prof. Wurtz quotes the article, and adds: "The present writer has long believed that the oxidation and slow combustion, so liable to pass into rapid combustion, of many coals in the air, was due almost, if not altogether, to a secondary agency of the contained pyrites, or rather of the ferric sulphate formed by its oxidation, which acts very appreciably upon the bituminous constituents. This view is a direct corollary from his own *Chemical Theory of Coal Genesis*. [See the *Press* for February 5th.—Ede.] According to this theory, coal together with the accompanying pyrites and ferrous carbonate (iron stones) was produced by metamorphoses of organic matters in water charged with ferrous sulphate. Hence strata containing iron in ferric forms, like red and brown sandstones, seldom carry coal. And when, the product of a ferrous epoch, coal is exposed to an oxidating atmosphere, like our own, ferric sulphate is produced, incompatible with the coal matter."

ARRANGEMENT TO SHOW ELONGATION OF A MAGNETISED BAR.—In a late lecture at the Royal Institution, Prof. Tyndall demonstrated the fact of such elongation by an apparatus described in the *Engineer*: "An iron bar is magnetised by an electro-magnetic helix which surrounds it. Its elongation is first augmented fifty-fold by means of a lever; and this motion is applied to turn the axis of a rotating mirror. From this mirror is reflected a long beam of light, which forms an index without weight. The reflected beam may be caused to print a circle of light upon a white screen, and this circle when the bar is magnetised suffers a displacement due to the elongation of the bar. This displacement may amount to a foot or more. Iron filings scattered on paper placed over a magnet, arrange themselves in lines, which Faraday calls lines of force. Along these lines the filings set their longest dimensions. When a bar is magnetised, its particles in the same manner try to set their longest dimensions parallel to the direction of magnetization; that is, in the direction of the bar itself. They succeed to some extent, and thus produce the lengthening of the bar. Magnetic oxide of iron may be suspended as a powder in water contained in a cylindrical vessel with flat glass ends. Let the vessel be surrounded by a coil of covered wire. Looking at a candle through the muddy liquid, and making the coil part of a voltaic circuit, the candle brightens at the moment the circuit is made. Breaking this circuit, dimness again supervenes. This is due to an arrangement of the particles of suspended oxide similar to that of the iron filings. They set their longest dimension parallel to the beam of light, and thus obstruct its passage less."

A FORMER CONTINENT BETWEEN NORTH AMERICA AND EUROPE.—Prof. J. S. Newberry, in his report on the Cretaceous and Tertiary Plants, says that the large number of identical miocene species leads to the inference that North America and Europe were connected by an intermediate continent. "If this inference should be confirmed by future observations, we should then see how the eocene tropical or entropical flora of Europe was crowded off the stage by the tropical flora of the miocene, which latter accompanying a depression of temperature, had migrated from America, while the eocene flora had retreated south and east, and is now represented by the living Indo-Australian flora, characterized by its *Hakea*, *Dryandra*, *Eucalypti*, etc., etc., which form so conspicuous an element in the eocene flora of Europe." Instances in which the miocene flora occurs on the McKenzie river, Disco Island, Iceland, and the Island of Mull are brought forward to show that this land connection must have occurred to the northward, and that the country was then in possession of a milder climate than now reigns in the same latitude.—*American Naturalist*.

THE CORNELL EXPEDITION.—Prof. Ch. Fred. Hartt, who is to lead the party, and who has already twice visited Brazil on scientific expeditions, describes, at the request of the editors of the *Cornell Era*, the plan of the one now in preparation. We quote a paragraph: "It is my wish on this expedition, with the aid of my large corps of assistants, to make a series of collections of marine animals and examine the coral reefs between the mouth of the Amazon and Pernambuco, with a view, amongst other things, of determining the relation of the marine fauna of Brazil to that of the West Indies, and to determine whether the great equatorial current which splits at Cape St. Roque, part flowing north, part south, has an influence on the distribution of the animals north and south of the Cape. * * The study of the geology and physical geography of Brazil is throwing unexpected light on the structure of North America—for the two Americas are repetitions of one another, and correspond not only in general form, but also in structure, so that we may trace a long series of homologies between them."

A NEW PHOTOMETER.—A photometer, invented by M. Nagant, is based upon the formation of a column of liquid, partially opaque, which may be drawn out until the length is such that the light from an illuminating body ceases to be visible through the liquid. The length of the column which completely obscures the light, starting from the point where the column is thinnest, gives a measure of the intensity of the light under examination.—*Chemical Abstracts*.

Mining Summary.

The following information is gleaned mostly from journals published in the interior, in close proximity to the mines mentioned.

California.

ALPINE COUNTY.

ITEMS.—*Miner*, June 25th: The shaft in the upper works of the Schenectady has been freed from water, and sinking will proceed. The lower tunnel is making rapid progress. . . . The Globe is said to be in funds and prepared to erect reduction works. . . . Exchequer Co., near the head of Indian creek, are to purchase the Pioneer mill near Markleville. . . . The two lodest in the Chicago Tunnel show promising quartz. . . . The fire clay used for the melting furnace at the Levisthan did not answer, and the trial run has to be deferred.

AMADOR COUNTY.

NUGGET.—*Ledger*, July 2d: Burt & Head, of Fiddletown, bought a nugget last week that weighed \$525.

CALAVERAS COUNTY.

PALOMO.—*Chronicle*, July 2d: The vein in the 300-foot level shows rock of extraordinary richness, and has widened to 24 feet between the walls. The Palomo will equal, if not surpass, the celebrated Hayward mine in extent and richness. The shaft is sunk 300 feet, a number of levels have been run, the rock from all of which has paid well. The lode increases in width and the ore in richness as the work progresses. We understand that \$3,000 was recently cleaned up after a run of eleven days, with sixteen stamps.

GOOD ROCK.—Mr. Poe, of the Buckeye mine at Independence, informs us that the rock he had crushed at the Petticoat mill paid \$50 per ton. He also had a lot of second-grade crushed in Harris' mill which netted \$24 per ton.

RAILROAD FLAT.—Correspondence of same: Several new claims have been opened. The Burr mill has been constantly running. At present it is crushing rock from the Bald Eagle and the Lewis mine.

EL DORADO COUNTY.

RICH.—*Placerville Democrat*, July 2d: The Pocahontas company, near Logtown, have struck a rich deposit during the past week.

GOLD DUST.—There has been shipped from this city during June, through Wells, Fargo & Co., \$52,394. Besides this there has been taken away by private hands about \$8,000, making a total of \$60,000.

GEORGETOWN.—Correspondence of same: The building of a ditch down this divide has taken a definite shape. I am informed that parties below have sent out men to make a preliminary examination and locate water rights in the mountains above here.

INYO COUNTY.

BULLION.—*Los Angeles News*, 2d: Eight hundred and eighty-two bars of silver and lead bullion, weighing 75,800 pounds, from the Owens river mines, were taken up by the steamer.

NEVADA COUNTY.

GOLDEN RULE.—*Transcript*, June 29th, This ledge, near Columbia Hill, was located last December. An incline was sunk forty feet, the average width being two and a half. The rock shows free gold, and has paid \$30 a ton. A controlling interest is now in the East, and Burns, Secretary, will start East to-morrow, to obtain means to develop the mine.

CHINESE.—On Kanaka creek, from the falls to Allegheny, they fairly swarm. Chinese miners are rapidly increasing on the Middle and South Yuba.

A Chinese company, on Selby Flat, are doing a good business.

We learn that there are over 300 Chinese working on Deer creek, divided into 20 companies. They work four to five months in the year, and the receipts of the different companies range from \$800 to \$3,000. Some own ground, but the majority are working on shares for white owners.

UNION GRAVEL CO.—Same of 30th: This Co., near Columbia Hill, commenced hydraulic mining in February, and have been cleaning up \$5,500 a month. The company obtain their water from the North Bloomfield Co., for which they give a percentage of the gross proceeds.

KENNEBEC.—This company, at Birchville, cleaned up their sluices on Monday and Tuesday, the yield being about \$5,000.

CONSOLIDATED.—Fidelity has made consolidation with Salathiel to secure a mill. The Salathiel engage to take down the mill and put it up on the Fidelity mine for a one-third interest in the same.

STAR.—Same of July 1st: The owners are putting in new batteries and making other improvements in their mill. They expect to have it running in two weeks.

LITTLE YORK.—Mining is reported brisk. Water holds out, and nearly all the claims that have fairly opened have paid well. The cement claims of Brown Brothers have been yielding immensely.

PITTSBURG.—On Wednesday, rock thrown out by a single blast was estimated to contain \$1,500 worth of gold. The gold shows plainly in the ledge, and it is not known how far the pocket may extend.

HARTNEY.—Grass Valley Union, July 1st: This mine has been idle for some time, though its owners have never abandoned it. A few days since a party of miners took out five tons of ore from the backs, and made a crushing. The five tons gave a yield of about \$475.

SULPHURETS.—Same of 2d: We saw at Finley's, yesterday, a cke of gold worth \$1,000, from 16 tons of sulphurets of the Wisconsin mine, worked at Hill's. The sulphurets were second-class, or light sulphurets, caught by Rawlins & Stephens' new machine.

PLACER COUNTY.

ITEMS.—*Stars and Stripes*, June 30th: Warren Reed had 48 tons of quartz crushed at the Empire mill last week, from which was realized \$456. . . . Murray, Clewman & Co. obtained at the rate of \$8 per ton from 2½ tons of rock. . . . S. Dwyer & Co. had four tons crushed which yielded over \$20 per ton. . . . Nineteen tons, from the claim of R. Gordon & Co., yielded \$307. . . . The Good Friday Co. had 5½ tons of refuse rock crushed at the Empire mill, which yielded at the rate of \$32 per ton.

SPLENDID YIELD.—Fred. Schnabel and James Dennis had six tons of rock from the Jack Bryant ledge worked at the Schnabel mill, from which they realized \$300, or \$50 per ton. They have plenty more of the same kind in sight.

SALE.—The Little Corkscrew claim, near Ophir, was sold on Tuesday for \$1,500 cash. Two months ago the price was \$250.

DAMASCUS.—The new tunnel of the Mountain Co. is nearly through, and when completed will measure a mile in length, all through solid bed-rock.

GOLD RUN.—The Miners' Ditch Co. stole a march on the other company, and located the water privilege on the South Yuba during the night. They are making a survey, and will soon commence a ditch bringing in an abundance of water.

STAR ON THE NORTH FORK.—Work will be commenced on the North Fork dam and ditch on the 6th of July. The dam will be 14 feet higher than the old one. Numerous claims, abandoned years ago, that will now pay well, have been taken up.

RATTLESNAKE.—Cor. of same: There is little doing in mining, with the exception of one claim that a Chinese company is starting in good shape. They are to get water from the Bear river ditch. John Duncan sold his discovery to a neighbor, who washed out with a rocker \$25 in one day.

NICE PROPERTY.—The *Herald* of July 2d speaks of the strike made by Schnabel as in the old McByron shaft, and says he owns the land, it having been patented as a farm years ago. He has 2,600 feet of the ledge.

PLUMAS COUNTY.

ITEMS.—*Quincy National*, June 25th: The Indian Valley Co. have struck a very extensive chimney of rich rock in the eastern end of the ledge. . . . J. B. Bachelder, of the Green Mountain ledge, near Round Valley, has gone below for machinery for a mill which he intends putting up near Arlington. . . . Bob Riddle and company, on Soda Bar, have commenced work in earnest. They have purchased the car and fixtures belonging to the Spanish Peak Co., and are running an incline into the flat.

NORTH FORK.—The Dutch Hill claims average \$5 per day. Ferguson & Wagner are making wages. They are bringing a ditch from Ohio creek, which will be 7½ miles in length. Mechlin's pay grit has averaged \$5 per car load. The Crumboys sold the Red Rock diggings to Mr. Davis, of Light's Cañon, for \$600.

SAN DIEGO COUNTY.

Los Angeles telegram, June 28th: One-third of the Washington mine in Julian District was sold for \$55,000.

The Los Angeles *News* of July 2d gives the following as the result of personal observation: The Washington is now idle. It is stated that Bickere has sold to J. T. Gower. Mr. Gower, with 13,000 pounds of rock, has gone to San Francisco. The Owens was discovered in February, and

1,000 feet located. The shaft is down 55 feet. A tunnel has been driven in to strike the shaft at a depth of 110 feet. One hundred and fifty tons of rock have been taken out. The ledge, 2½ feet wide, is well defined, and gradually widens. From this rock the proprietors have, in a mortar, pounded out in a single day \$117 of gold. In our presence 15½ tons of average rock went through the mill, yielding 42 ounces of retorted gold. No specimen rock was crushed. This mine was sold within 36 hours after the above result, and Kelly is now in San Francisco to receive the coin.

The San Diego No. 1, owned by Bailey, Chambers and others, has a shaft 60 feet deep, showing a ledge of 2½ feet. On the dump is 75 tons of rock, much of it showing free gold. The owners claim 1,600 feet. The Hayden was discovered March 4th. The owners, Calkins, Warren and others, have located 1,000 feet. The shaft is down 51 feet, and the dump contains 30 tons of milling rock.

The Good Hope claims a ledge of 2½ feet, and has out 75 tons. A tunnel will be driven in, striking the ledge at 200 feet below the surface. The above are the leads upon which the most work has been done. There are many other locations—some 150 in all. One of Wilson's 2-stamp mills is in active operation. Two more are to be erected. Wood and water are plenty, and rock can be milled cheaply. The only drawback is the attempt to extend the Cuyunmac grant over the mines.

SAN BERNARDINO COUNTY.

THE "JESUIT MINE" FOUND.—*Guardian*, July 2d: Mr. Stamps and party left the San Diego mines three months ago and commenced prospecting this way, taking the mountain ranges with little success, until upon arriving at the mountains of San Jacinto they discovered a small quartz vein three inches wide, but extremely rich. They commenced sinking, and at a depth of 12 feet it was 12 inches. An arastra was erected, and from 600 pounds of rock \$300 worth of gold extracted.

A short time ago some Californians found very rich silver float rock. Dr. Barton and Wm. McCoy, on Sunday last, in company with Chas. Clusker and Mr. Lisle, proceeded to the spot where the rock was found—40 miles easterly from San Bernardino. Clusker struck upon a trail and soon came upon a road, well graded and built of large stones. Following this up, an old shaft was found, partly filled in. The party proceeded to clear away the rubbish, and soon obtained a lot of ore, assaying from \$600 to \$1,000 per ton. This mine has been called the Jesuit, and another close by the Old Padre. A company has been formed, and the district named the San Jacinto. It is believed that this is the traditional mine of the Jesuit Padres.

SHASTA COUNTY.

BIG "SPECIMEN."—*Courier*, July 2d: Four weeks ago, three men from a lower county drove up here in a two-horse wagon containing a partial prospecting outfit. While buying an ax at Coleman's store, they heard some Portuguese talking about Spring creek, three miles from town, and the chances for striking diggings. They concluded to try their luck. They commenced on one of the bars pronounced worked out six years ago. The claim paid fair wages for a few days, but one day last week while one was shoveling gravel up from the bed-rock into the alnices, he took up on his shovel what appeared to be a small rusty boulder. As he was about to toss it aside, his attention was attracted by the unusual weight, and he proceeded to rub the rust off, when it gleamed forth a solid nugget of pure gold, which weighed 15 pounds 4½ ounces—worth \$3,200.

SIERRA COUNTY.

QUARTZ.—*Messenger*, July 2d: A rich quartz discovery is announced at Mount Pleasant, between Gibsonville and Newark. Specimens have been assayed which yielded \$2,000 to the ton.

CLEANED UP.—Ned Leonard cleaned up a few days since, after a run of 12 days, and realized \$1,000.

TRINITY COUNTY.

THE MINES PLAYED OUT.—*Journal*, July 2d: Thursday of last week George Van Maitre found a piece of solid gold weighing eight pounds avoirdupois, in his claim on Little Mule creek, near Minersville. He picked up 18 ounces beside the large piece the same week. J. W. Smiley came across a chunk of gold in his claim below McGillivray's, one day this week, that weighs 11 pounds.

YUBA COUNTY.

WILL INCORPORATE.—*Appeal*, June 29th: The company that have charge of the Dexter mine, in Brown's Valley, and

who have leased the Donnebrogue mill, are going to incorporate. The rock they are now crushing is said to be exceedingly rich.

SMARTSVILLE.—Same of July 3d: Eighty mining claims north of the Smartsville Hydraulic M. Co. have recently consolidated. One hundred and twenty claims to the south of these are taking measures to consolidate. It is intended to run one main tunnel from the Yuba river for a distance of 2,000 feet, and then branch off to the respective claims. The prospects in that section are thought to be more favorable than for many months.

Arizona.

RICH GOLD LEDGES.—The *Elko Independent* publishes a letter dated Martinez mining district, Camp Date creek, June 4th. The writer is endorsed by that journal as a reliable man, and experienced miner. We quote: "There are seven of the richest gold ledges in the world here, all of which have been discovered within the last month, viz: the Queen of Palmyra, Montezuma, Real del Monte, Cornucopia, Buena Vista, Mayflower, and Martinez. The Cornucopia runs 20 feet above the surface for a mile, with gold visible all over it. In the gulch under the ledge 50 cents to the pan is washed out by Mexicans. The ledge is 200 feet wide. The Queen of Palmyra is covered with native gold, and the surrounding dirt yields 75 cents to \$1 per pan. The Martinez was the first ledge discovered by some Mexican hunters. It is rich in gold, and covered with pyrites. Mayflower is full of little cells, crammed with gold as fine as the finest flour, which, by shaking the quartz drops out. One assay from this went \$65,000 to the ton. The Real del Monte crops out 12 feet, and can be traced 5,000 feet on the surface; is full of native gold, and has the honeycomb cells in the quartz filled with fine gold. Wood and water are abundant at the base of the mountain on which the mine is situated. The Montezuma is of the same character as the Martinez. The Buena Vista quartz is very rich. Four arastras have been built, and are turning out from \$3,000 to \$4,000 per week each. None but Mexicans in the district.

Colorado.

ITEMS.—*Central City Register*, June 29th: Jo. Watson has struck a large body of ore in the Brown mine, which yields six hundred ounces of silver per ton. . . . Hussey & Co. shipped \$9,000 worth of gold bullion yesterday. They say the gold yield is increasing steadily. . . . Snyder & Ellingham have sold their lien title to the Niwot property to Davidson and others. The very day of the sale an agent arrived with funds to pay off the company's indebtedness. The Eastern stock-holders will contest Davidson's right to the property. S. & E. have been making \$50 per day for a month out of the mine.

Idaho.

POORMAN.—*Avalanche*, July 2d: A force of 12 men are taking out 100 tons per week from the upper levels.

EMPIRE.—The shaft is 80 feet deep; from the bottom a drift is now in 30 feet, showing 20 inches of fine-looking silver-bearing quartz.

CHIPMUNK.—A Teutonic gentleman owns 500 feet, and has a shaft down 14 feet. The vein is of decomposed quartz only four inches in width, but very rich in gold, with considerable silver. About two tons worked at Trask's arastra yielded \$492. Besides this, nearly \$100 was panned out of the same ore.

The Skookum is above the Chipmunk. Since the 9th of May a shaft has been sunk 40 feet, and a drift started north. The vein is 16 to 20 inches in width, of decomposed quartz, and prospects rich in gold.

On the Mahogany, stoping continues, and considerable rich ore is being taken out. The Peck & Porter shaft is to be completed by the middle of this month. This will afford ventilation for both mines.

GOLDEN CHARIOT.—The fifth level exceeds all expectations. The ledge is fully three feet in width, with the mineral evenly diffused. Silver increases and gold decreases the deeper it is worked. An immense quantity of ore yet remains in the fourth level, and stoping has just commenced in the fifth.

ITEMS.—Rich ore coming out of the fifth level of the Ida Elmore. . . . Work commenced on the first extension south of Morning Star. . . . Messrs. Cogswell and Lacy started on Thursday to work the Pickens & Edwards mine at Cottonwood. Judge Robinson has an 8-foot shaft on his new discovery, showing a nine-inch vein. . . . We have seen some fine specimens of ore from the Keystone. McDaniel & Co. find a 2-foot vein in it.

DOWN THE CREEK.—Herold & Co. have done considerable hydraulic near Happy Camp, and have made good wages. Shuster & Co., in Blue Gulch, have quit piping and are cleaning up. Jordan & McDowell's claims are paying an ounce per day to the hand. The gravel is 10 to 12 feet deep and pays from the top down. They have refused \$3,500 for their diggings. Considerable prospecting has been done, proving that for ten miles below Wagontown, the creek will pay five to ten dollars per day to the hand.

LOON CREEK.—A friend writing from Oro Grande, June 16th, says that the water is very high, the flumes nearly all washed out, and no one at work.

Montana.

DANER'S BAR.—*Helena Gazette*, June 27th: The ditch will be completed and the water running in ten days.

ARGENTA.—Cor. of same: Green Campbell mill starts up again in three weeks. The tunnel is nearly finished. All the astras pay well, and none better than Charles Hinaman's. The Upper Silver Star mill was pounding rock from the Iron Rod lode. Wash. Stapleton's furnace has just been heated up with thirteen tons of metal. It will be kept in full blast all summer. The last run is from the Blue Wing, a very rich lode.

FRENCH GULCH.—Cor. of same: The mining is all done with four or five flumes, with the exception of two companies of Chinamen at the mouth of the gulch. On First Chance, Harris & Eckleson, also Dundee & Gardner, have had rock flumes. On Picayune the Swamp Co. cleaned up 23 ounces for one day's run. Lucky Gulch pays three companies about wages.

Nevada.

COPE DISTRICT.

ITEMS.—Elko Independent, June 29th and July 2d: Ore is being constantly shipped abroad from the Great Eastern. Shaft on the Mammoth is 30 feet deep and has yielded 200 tons of ore worth \$100 per ton. Thirty tons \$75-ore out in Belle of the West. Columbus ore runs from \$400 to \$500 per ton. McDonald & Buneman have the Diamond under bond and are at work on it. Four tons of Great Republic ore worked \$80 per ton. Argenta puts through 17 tons daily; proceeds \$7,000 per week. Besides this the first class ore is shipped abroad and returns from \$600 to \$1,200 per ton. Excelsior is owned by same proprietors with Argenta. So is the Pioneer. Shaft in Jane Arthur is 35 feet deep; 5 tons choice ore out. Virginia has a 75-foot shaft and a 4-foot vein. Mountain City mine has a 70-foot shaft and an 8-foot ledge. Six hundred tons on dumps worth \$65 per ton, and one thousand tons more of same kind in sight.

BRUNO CITY.—Cor. of Elko Chronicle, June 30th: Contracts have been entered into between the Mountain King, Miners' Rest and Chrysopolis companies and the Elko Smelting Works to furnish the latter forty to fifty tons of first-class smelting ore, and a force is now at work on each taking out the metal. The first run of the Elko Smelting Works will probably be made on Bruno ore.

HUMBOLDT.

BUENA VISTA DISTRICT.—*Silver State*, July 1st: Inskip mine has considerable ore out, and prospects are good. Silver Mining Co., on the Arizona ledge, is taking out large quantities of fine rock. The mill is running to its full capacity.

STAR DISTRICT.—Desoto mine is giving out fine shipping ore, besides quantities of second-class. American Basin mine promises to be first-class. Old Sheba is working 25 men and taking out ore, some of which will go \$600 per ton.

SACRAMENTO DISTRICT.—Rochester mine has a fine body of low-grade ore in sight. Harris is sacking splendid ore from a 4-foot ledge.

REESE RIVER.

MANHATTAN.—*Reveille*, June 29th: The mill is now fairly under way, and every part of the new machinery erected in connection with the new Stetefeldt furnace works smoothly. There are in front of the mill probably one hundred tons of ore, which will average \$500 per ton; small lots will work from \$1,000 to \$2,000 per ton; and there is not a pound that will work less than \$250 per ton.

WASHOE.

GOULD & CURRY.—*Enterprise*, July 3d: The ore-producing sections are confined to the upper works, from which 70 tons per day is extracted, most of which is from the El Dorado section. The principal work on the 1,200-foot level is in drifting north.

IMPERIAL EMPIRE.—Receipts from ore worked and sold for year ending May 31st, about to \$180,000.

OCCIDENTAL.—The lower tunnel will connect with the winze from the upper mine about the 14th inst. No increase of water. The erection of the new mill progresses at a satisfactory rate.

JUSTICE AND INDEPENDENT.—Work has been resumed with good prospects. Twelve tons per day are being extracted through an old tunnel.

CROWN POINT.—Daily yield 50 tons of low-grade ore from the upper levels. The winze from the 1,000-foot station is down nearly to the 1,100-foot level. The rock is rather hard.

SIERRA NEVADA.—Billion yield increased.

CHOLLAR POTOSI.—Less than the usual amount of ore extracted during the week owing to want of dump room. Every portion of the mine presents a favorable appearance.

YELLOW JACKET.—The cave which occurred in the 900-foot level on Tuesday last, and resulted in the death of four miners, somewhat retarded work during the week. The damage to the mine was slight.

VIRGINIA CONSOLIDATED.—The drift from the 500-foot station of the new shaft is progressing well, the water having decreased, and the rock is working favorably. It is in over 400 feet. From the upper mine 10 tons per day of good grade ore accumulates on the dump.

BECHER.—Daily yield 25 tons. The upper level resources show falling off. The principal yield is now from the seam above the 262-foot level, which shows improvement.

HALE & NORCROSS.—The daily yield is 235 tons, principally from the lower level.

OPHIR.—The southwest drift No. 2 at the 700 foot level has been cleared of obstructions. It is being driven ahead.

SUTRO TUNNEL.—The Sutr Tunnel was in last evening 1,310 feet, in blue clay and porphyry.

KENTUCK.—Daily yield increased to 40 tons, principally from the upper levels.

CALEDONIA.—Daily yield 40 tons, from the 200-foot level, and the winze has attained a depth of 45 feet. The ore is much improved at this point.

HOPE.—Daily yield 50 tons, keeping both mills running, also the Atlantic.

SACRAMENTO AND MEREDITH.—The work of mine and mill progressing satisfactory.

WHITMAN MINE, CONO.—An assay of ore from a number of points on the croppings yielded at the rate of \$29 per ton, and an assay of ore from a pile of assorted rock at the rate of \$344 per ton. Mr. Crocker, the present owner of the mine, has out over 100 tons of ore.

WHITE PINE.

REVIEW.—*News*, July 4th: Prospects slightly improve. The intrinsic value of our mines is bound in the end to offset the mischief done them at the start by the gutting process. A few weeks of active work, on a scale such as we are now assured of, will bring us out of our slough of despond. The splendid strike of a large, rich, body of ore, in the South Aurora last week, will help. Sales of several partially developed mines, consummated recently in Philadelphia, will also help. The sale of one-half the Eberhardt and all the other partnership properties here, has gone into effect; the drafts drawn, payable on the 1st of July, have been honored; and new life in all the properties will soon be the order of the day.

ITEMS.—The Stanford mill is running night and day on rock from South Aurora. Twenty-five days' run to June 30th, yielded \$57,604. Silver Wave and Silver Wedge are both prosecuting explorations energetically. The Silver Vault Tunnel Co. is in high spirits, and the Anchor Consolidated is in a fine ledge of good ore. The Bowie-Brown has been bonded for \$40,000. The White Pine furnace is in the 35th day of its run. The Co. are building an additional one. The Walsh furnace has been running for several days. The iron water-lining for the Alsop works has arrived. Weiland and the Rathburn smelting works are running on good ores from the western base of White Pine mountain. Voss works shut down. It is probable that the Dayton and Manhattan mills have been purchased by Governor Blasdel, and that in connection with the mills Stetefeldt furnaces will be erected.

BULLION.—The shipment of fine bullion, by Wells Fargo & Co. last week, aggregated \$28,884.64.—\$8,854.86 of which went to New York, and \$20,029.78 to San Francisco.

OUTSIDE DISTRICTS.—The new is satisfactory. Eureka bullion returns from New Jersey will be forwarded immediately. Astonishing developments are making in the Maryland mine, Pinto district. The Social and Steptoe Co. has shut down work

on the Gilligan mine, and is preparing to change its mill to a dry-crusher. It is the intention to erect furnaces on the Stetefeldt plan, and to roast all the ores.

New Mexico.

ELIZABETHTOWN.—Cor. of Santa Fé Post, July 2d: Since Saturday, both Humlung and Grönse Gulch are at work with moderate heads of water. The branch ditch will be finished this week. Dimick Bros. and Mr. Graham have within a few days found the vein in a new place, thirty inches wide and nearly vertical. The prospects are even richer than when first discovered. It is now valuable property.

Wyoming.

SNAKE RIVER.—*Cheyenne Advocate*, June 23d: Just as we go to press we receive intelligence of valuable gold deposits discovered at Gulch. Parties are taking out 13 ounces each, in nine days.

SWEETWATER.—Cor. of same: Work is commenced on the Young America in putting up hoisting works. The same on the east end of the Miner's Delight, by Sneath, Ogden & Co.

The Big Horn Co. are camped on the other side of Atlantic City in Smith's Gulch, and expect to leave for Camp Brown to-morrow. All are in good spirits.

Some of the gulch claims on Rock creek, Meadow Gulch and Strawberry are paying well. Three men took out over \$100 in two days on Strawberry from dry diggings, the dirt of which had to be taken a fourth of a mile in a wheelbarrow for water. Hoisting works on the Cariso are finished, and Mr. Roberts has commenced sinking the main shaft, the ledge improving every foot.

San Francisco Mining Stock Market.

For the period under review, the transactions in mining stocks have been limited, which is principally due to the interruption of business by the adjournment of the Board over the Fourth of July. In reference to the condition of the market during the past six months, which naturally presents itself at this time, we must remark a very great depression in those stocks embraced in the call list of the Board, and that the business of said Board has become more circumscribed—outsiders being less disposed to make ventures—and especially has this been the case the past few months, the dullness of mercantile business generally in no small measure contributing to this result. With regard to the present condition of the Comstock Lode, we note that a number of prominent claims are making very satisfactory returns, to which the present market rate of the stock does not seem to respond. In noting this apparently anomalous state of affairs, we must remember that the plethoric condition of the money market for years prior to the opening of the transcontinental railroad, and the feverish excitement about mines which pervaded the entire Pacific Coast, have brought everything to a more legitimate level, and business is not carried on in that hazardous and liberal manner so proverbial in our past history.

It is a source of mortification to know that the ores of White Pine and of Utah Territory are shipped to Newark, New Jersey, to be melted and refined, instead of coming to this place for the purposes named. It requires from twelve to fourteen days to reach Newark from White Pine, and only four days to reach San Francisco, and the freight is 50 per cent. less than to Newark, yet the preference is given to the latter place, even with the certainty of much loss caused by the jolting of the cars and the sifting through of pulverized ore. This strange anomaly arises from the want of sufficient smelting and reduction works in San Francisco, and should be rectified before it becomes chronic. That facilities should be furnished so very far from the specified mining regions, while this city, located on their very margin, should afford such limited advantages, is certainly a very great want of foresight on the part of our smelters and refiners.

From our carefully compiled record of the sales in the San Francisco Stock and Exchange Board, we give the following interesting figures for the first six months in 1867, 1868, 1869 and 1870:

MONTH.	1867.	1868.	1869.	1870.
January.....	\$7,684,322	\$8,698,934	\$7,964,734	\$3,857,789
February.....	3,303,320	9,716,596	6,918,644	3,139,433
March.....	4,034,293	11,471,530	6,254,145	6,082,596
April.....	5,533,016	12,335,304	7,266,211	5,972,748
May.....	7,551,855	10,162,356	6,991,913	4,538,765
June.....	6,864,765	9,075,082	6,536,337	6,649,730
Totals.....	\$31,113,307	\$51,513,121	\$42,601,984	\$29,847,511

It will be noticed that as compared with the sales during the first six months of 1869, there is a falling off of the present year of more than one-half; but it will be remembered that during the former period an extremely speculative disposition manifested itself during the spring months, swelling the sales to the large sum of \$51,513,121. During the first six months of 1866 the sales were over \$3,000,000 less than the above report for 1870.

CHOLLAR POTOSI.—Continues to sell largely, at rather an improved figure. During the week closing July 1st 1,360 tons of ore were taken from the mine, showing an average assay of \$63.40 per ton. The superintendent reports that the various stopes, now yielding ore, never exhibited a better quality, and each particular section at no time looked more promising. The drifts from the New Shaft also have an encouraging appearance, and up to the date of this report the ore in this section has been found in small lumps, though excellent in quality. A dividend of \$1 per share was paid on the 7th inst. Annual stockholders' meeting, July 11th.

BECHER.—Is not active at present. The bullion returns for the month of June aggregate \$36,048, being

the product of 1,682½ tons, equal to \$21.42 per ton. They are now extracting 25 tons of ore per day from the stopes above the 162 level, and from the stopes 65 feet above the 262 level. They are making a "raise" from the 262 level, south of the shaft, with the expectation of finding a new body of ore.

KENTUCK.—Continues dull of sale at former rates. For the week ending July 1st, 294½ tons of ore were extracted from the mine, yielding \$16.26 to the ton.—**CROWN POINT** sells at a moderate rate, at recent low prices. During the week ending July 1st, 358½ tons of ore were mined, yielding \$4.176 in bullion, equal to \$11.65 per ton.

GOULD AND CURRY.—has been less active, at tolerably well sustained figures. From the Superintendent's report for the week ending July 5th we take the following: In 7th station, crosscut No. 3, four feet have been made through very hard quartz. To the south drift from crosscut "A," 16 feet have been added, running through quartz, clay and porphyry. The south drift, 100 feet above the lower adit, has been extended eleven feet, showing quartz with a little ore. Twenty-one feet have been added to the Potosi drift on the El Dorado level—in quartz and clay. In the southeast drift of the middle adit, 39 feet have been made—quartz and clay; and in the north drift from the El Dorado southwest stope, 24 feet have been made, showing quartz and clay with a little ore. During the week ending July 4th, they extracted 396½ tons of ore, showing an average assay value of \$42.36 per ton.

HALE AND NORCROSS.—is meeting with rather slight sales. The ore extracted during the week ending July 2d amounted to 870½ tons, the entire amount coming from the upper mine. They are repairing the lower works, consequently did not extract any from that locality. A dividend of \$5 per share was paid on the 7th inst.—**OVERMAN** continues quiet. The bullion yield for the month of June is reported to be \$18,700.

OPHIR.—is more active at an advance. For the week ending July 5th we have the following report: In the southwest drift at shaft No. 2, they are getting some lively looking quartz, and the appearances are much more favorable for metal than anything met with in the drifts north. At shaft No. 3, the drift south from the main drift of the first station shows some improvement.

SIERRA NEVADA changed hands to a considerable extent at well maintained rates. The mine is reported to be looking well, however the last clean-up is not as satisfactory as expected. For the two weeks ending June 30th they extracted 600 tons of ore from the ledge and 460 tons from the gravel deposit. During the previous two weeks 810 tons were taken from the gravel deposit.—**EUREKA** (Cal.) disbursed a dividend of \$7.60 per share on the 7th inst.—**SAVAGE** will hold its annual meeting on the 21st inst.—*Commercial Herald*.

MINING STOCK QUOTATIONS, JULY 7, 1870.

WASHOE.			
Bid.	Asked.	Bid.	Asked.
Alpha Con.....	\$4	Gold Hill MO. \$22	\$23
American.....	5	Hale & Norcross. 57	58
Belcher.....	6	Imperial.....	36
Bullion.....	5½	Justus.....	37
Orwin Point.....	6½	Julia.....	—
Ole, Va.....	—	Kentuck.....	30
Lead Brn.....	—	Overman.....	67
Chollar-Potosi.....	32	Savage.....	38
Con. Virginia.....	9	Sierra Nevada.....	10½
Danay.....	—	Sgt. Belcher.....	5
Empire.....	—	Yellow Jacket.....	36½
Excelsior.....	—		
Flowers.....	—		
Gould & Curry.....	64		

WHITE PINE.			
Bid.	Asked.	Bid.	Asked.
Aurora Con.....	\$4	Noonday.....	1½
Brook.....	—	Orig. Hidden Tr. 6½	6¾
Colorado Con.....	—	Saville.....	—
Featherstone.....	—	Pokonip & O'Leary.....	—
Hidden Tr. Con.....	—	Silver Wags.....	—
Mammoth.....	80	Virginia.....	—

CALIFORNIA.			
Bid.	Asked.	Bid.	Asked.
Amador.....	\$222	Eureka.....	\$310
Golden Oar.....	\$14	Silver Oord.....	—
Rising Star.....	—		

Mining Shareholders' Directory—Meetings, Assessments and Dividends.

[Compiled weekly from advertisements in the SCIENTIFIC PRESS and other San Francisco journals.]

ASSESSMENTS.			
NAME, LOCATION, AMOUNT AND DATE OF ASSESSMENT.	DAY	DAY	DAY
American, G. H., June 13, \$3.....	July 18—Aug. 6	DELINQUENT, OF SALE.	
Belcher, G. H., June 8, \$4.....	July 11—July 30		
Cosala, Mexico, June 2, \$1.....	July 7—July 27		
Cordillera, Mexico, June 8, 60c.....	July 9—Aug. 1*		
Cherokee Flat, B. G., June 17, \$5.....	July 19—Aug. 9		
Cons. Virginia, Storey, July 6, \$1.....	Aug. 10—Sept. 1		
Excelsior, Argentina, June 22, 20c.....	July 30—Aug. 20		
Evening Star, No. 1, W. P., June 4, 5c.....	Aug. 4—Aug. 24*		
Featherstone, W. P., June 14, 20c.....	July 20—Aug. 11		
Gold Hill Quartz, G. H., May 16, \$20.....	June 20—July 11		
Hope Gravel, May 25, \$1.....	June 27—July 18		
Hall & Van Dyke Cons., June 7, 60c.....	July 23—Aug. 20		
Jennie A. Cons., W. P., June 20, 10c.....	July 25—Aug. 15*		
Julia, Storey Co., June 11, \$2.....	July 25—Aug. 15*		
Lutawana, W. P., June 2, 15c.....	July 14—Aug. 6*		
Mammoth, W. P., May 26, 20c.....	July 1—July 22		
Mineral City, May 12, \$1.....	June 15—July 22		
Mountain City, Elko Co., April 8, 50c.....	May 23—July 11*		
N. Bloomfield Gravel, June 20, \$5.....	July 23—Aug. 9		
Pogonip Flat, W. P., June 15, 3c.....	July 23—Aug. 3*		
Placer G. & C., Placer Co., June 11, \$2.....	July 20—Aug. 16*		
Segregated Belcher, G. H., May 30, \$3.....	July 1—July 22		
Tallulah, Sierra dist., May 10, \$2.....	June 25—July 18		
Virginia, W. P., May 14, 50c.....	June 21—July 9		
Wheeler, Pine Grove, June 28, 50c.....	July 30—Aug. 20		

MEETINGS TO BE HELD.

LATEST DIVIDENDS.—(Within Three Months).			
NAME, LOCATION, AMOUNT AND DATE OF DIVIDEND.	DAY	DAY	DAY
Chollar Potosi.....	Annual Meeting July 11		
Evening Star.....	Annual Meeting July 23*		
Globe.....	Annual Meeting Aug. 2*		
Ida Elmore.....	Annual Meeting Aug. 1		
Mountain City.....	Annual Meeting July 13		
Savage.....	Annual Meeting July 21		
Union.....	Annual Meeting Aug. 8		
Yellow Jacket.....	Annual Meeting July 18		

Farming and Gardening.

COMMUNICATIONS for this department are solicited from all parts of the Pacific States and Territories.

Grapes in the Foot-Hills—How to Make them Profitable.

The editor of the Marysville *Appeal* has recently been looking at the foot-hills in the vicinity of Brown's Valley and noting the facilities they present for grape-growing, etc. He found in almost every little valley, vineyards of from one to ten thousand vines, all of which are in a flourishing condition, though generally somewhat neglected. Some of the more extensive growers have erected machinery for the manufacture of wine, built cellars, etc. Two or three distilleries have also been constructed to obtain the further products of the grape; but these enterprises have not been found profitable, and the works are generally neglected and going to decay.

This lack of success in the manufacture of wine, etc., and the total want of a market for the fruit has brought about a general neglect of the vine itself, and is operating to discourage any further planting. Such a result may be expected from the course pursued.

Grape-growing is a very different thing from wine-making. The former may be carried on upon almost any scale, large or small, and requires very little experience, such only as may readily be obtained in one or two seasons. The latter, on the contrary, is one of the most difficult processes in the whole range of manufactures, and no one should expect to meet with success except he has been regularly brought up to the business, and made it his life study.

The Proper Way for Grape-Growers to Pursue is for all in a given neighborhood to either unite on the cooperative system, and erect, at some central point, extensive works, which should be placed under skilled management, where all may take their grapes and receive their pay from the net proceeds in proportion to the number of tons furnished; or secure at such central point the erection of works by capitalists who will buy of them their grapes at an agreed price.

It requires a large number of vines, in any given locality, to sustain a manufactory of a sufficient capacity to make the business profitable. Wine-making in California is no longer an experiment; and there is now but little difficulty in concentrating the requisite capital at any point, where grapes of the proper quality and in sufficient quantity can be obtained. Let growers about Brown's Valley, or any other neighborhood, give up the idea of small and independent manufacturing establishments, and devote their time and means to extending their vineyards, with proper care for the quality of the vines, and they will soon find themselves in a condition to command all the capital they need to make a good home market for their grapes. The reader will find the outline of an enterprise of the kind alluded to in another column, under the head of "An Important Vinicultural Enterprise." Similar enterprises are also in contemplation or progress in Nevada, Amador, and perhaps in other counties. The Anaheim Company in Los Angeles—an unquestioned success—is conducted on the same plan.

By pursuing such a course as here marked out, the foot-hills throughout the entire State, up to an elevation of 2,000 or 2,500 feet above the sea level, may be covered with vines with the fullest assurance of profitable returns. A large proportion of nearly all our mining counties may be thus improved, and from their present state of pecuniary depression may be elevated to the highest condition of

prosperity. The hills are the natural habitat of the vine—mountain grapes and fruit generally is everywhere in California superior to that raised in our great agricultural valleys. Wheat-growing may be overdone. The market for that product is comparatively limited and uncertain; but the product of the vine, when properly manipulated, is as sure of a market as is the hullaion from our mines. The cereals deteriorate with age; while the product of the vine improves at a rate which pays a fair interest on its original value. What we have here said is no mere theory, but sound, practical sense, already proven successful in a mercantile point of view.

An Important Vinicultural Enterprise.

We have already noticed the fact of the contemplated organization of a vinicultural association near Auburn, in Placer county. The *Stars and Stripes* of the 23d ult. says that the proposition is to purchase the Applegate ranch, about twelve miles above Auburn, which consists of 1,840 acres of land, upon which there are already 40,000 vines in bearing—15,000 just coming into bearing, and 75,000 cuttings in nursery, which are rooting finely. Of the bearing vines, there are 10,000 of the most choice varieties.

There is also upon the ranch 700 apple trees, 500 pear, 150 peach, 25 plum, 10 almond, 25 quince trees, and about 25,000 blackberry bushes, a nursery of 8,000 young fruit trees, several thousand mulberry trees, besides numerous ornamental trees and shrubs.

There is a good house upon the place, also cider and wine presses with tanks, barrels, etc., and a general assortment of farming implements, and a large tract of land in miscellaneous culture. It is proposed to set out 100,000 vines annually, until the 1,800 acres are covered. There is land enough and of the best quality to sustain fully one million vines. It is proposed that this place shall be purchased by the new organization, and be made the nucleus of the most extensive wine-making and distilling establishments in the State. The new Johnston distilling process is to be employed. The vineyard is located directly upon the line of the Central Pacific Railroad, and at an elevation of 2,000 feet above tide water.

In addition to working up the grapes raised upon the place, it is also proposed that the works shall be of a capacity sufficient to work up all the grapes which may be produced by outside parties in that vicinity. Careful estimates show that the company can afford to pay for grapes delivered at the works, at the rate of \$20 per ton—a price which will afford more than twice the profit which can ordinarily be realized from wheat culture.

There is here presented the groundwork and start of one of the most promising enterprises on the coast. It is much wiser and better to encourage home enterprises of this kind than to send our money abroad for that which we can profitably produce at home. It is also better to employ and encourage the investment of home capital than to go abroad for it, and thus divide our profit with foreigners.

CURIOUS RESULTS OF STRAWBERRY EXPERIMENTS.—Col. Wilder, the well-known pomologist, who is now on a visit to this State, has probably experimented in the field of strawberry culture more than any other man. In a recent letter to the *Gardener's Monthly*, giving some of the results of his seedling and crossing experiments—curious and otherwise—he says: "But what will you say to the fact that some of the crosses of varieties by the Hautbois are regular mules?"

The farmers of the Sacramento Valley are now in the midst of their harvest. The wheat yield is generally turning out better than was anticipated a few weeks ago.

The Miracle of Plant Growth.

Having described and delineated the marvels of a seed, the mode of its fructification and the conditions under which it may be vivified into active life, we now propose to enter into a brief examination of the "miracle of growth."

All growth, either animal or plant, is made up of vesicles or cells more or less minute. This is one among the many interesting revelations of the microscope. In the orange the cells are so large that they may be distinctly studied with the naked eye. The cells of the apple, tomato or potato may be studied with a very small magnifier. Some microscopic plants of the lower orders consist of single cells; many others of that class, as yeast, the



FIG. 1.



FIG. 2.

mould upon damp walls, cheese, etc., also mushrooms and sea weeds, and the rust and other lights which affect the farmer's crops, are made up of two or three or at most of a very few cells.

These cells are of various forms—round, square, oval, irregular, etc. Fig. 1 represents groups of different yeast cells; Fig. 2, the cells of an apple; Fig. 3, a section of a potato top, the cells of which increase outward like a tree.

The Structure of the Cell.

By the aid of the microscope we are also able to learn something of the internal structure and growth of the cell. Fig. 4 represents a single cell of an artichoke magnified about 230 times. The straight enclosing lines represent a section of the walls of the cell. These cells are filled with a somewhat viscid liquid, termed



FIG. 3.

protoplasm, by which the process of further cell growth is carried on, and near the center of which may be observed a round body, somewhat denser than the surrounding liquid, and from which lines of similar density are seen to radiate. This is called the nucleus of the cell. At the center of this body is seen still another nucleus just forming. This latter, when examined with a high magnifying power, is seen to contain a great number of minute granules floating in the contained protoplasm. This



FIG. 4.

protoplasm forms the circulating sap of the plant, which in the living part thereof is constantly at work building up new cells, in many-celled plants, and in adding to the number of the plants in single-celled growth. Thus cells are produced one from another, and that action is what we call growth.

This work of cell-building or plant growth may truly be termed a miraculous one—one that surpasses all human philosophy. The following eloquent extract upon the "Miracle of Plant Growth," from the pen of Rev. Edward White, of London, England, will well repay for a perusal in this connection:

Suppose we could watch the grain of corn beneath the soil, when it begins to strike, with an enormous microscope, so that the grain should appear ten thousand times larger than it is, so that we could perceive the movement of the small particles which compose it, we should then see the swelling of the germ that lies hid in the damp earth, and the gradual shooting out of those filaments which are to form the root and blade. It grows larger every day, and requires, therefore, new

substance. But whence comes this substance? From the air, from the water, from the earth. Air particles, water particles, earth particles, have been drawn from around, under the stimulus of the sunbeams and the warmth of the earth's bed, and they have been changed into corn-root and corn-leaf particles, and have become alive, full of a power of drawing and changing other particles from the earth and air in the same manner. It is as wonderful as if an iron seed had struck out and had gathered from around lumps of clay, or pieces of wood, changed them into iron, steel, and copper, and built them up into the form of a steam engine with its complicated metallic fixtures and appurtenances. All is incomprehensible. This, then, is most wonderful—the gathering of the new materials, and change of the air, water, gas, and the earth's flint and salt into the substance of a wheat stalk with its straw and chaff and flour.

But more wonderful still is that other miracle, the arranging of the new particles in a pattern according to a plan, and that plan the plan of an organized structure, loaded at the top with food for mankind.

... Suppose we could see this process magnified so that the particles should seem as large as marbles... if a million variously colored marbles could be thrown upon the ground, and we should see them building themselves up into the pattern of a tree—its stem, its leaves, its flowers, its fruit, we should say, as we watch the process, why, they are alive, and each of them seems to have sense, to know where to go and where to stay, as if each one comprehended the whole pattern, and saw where his place ought to be. But no; they cannot have this sense. When soldiers form in line, or in square, in wedge, in circle, in echelon, or move quickly or slowly, according to command, this is because each man is intelligent, each unit has a mind. But each of these marbles surely has not a mind; yet it acts as if it had; takes up its place, or moves according to the necessity of the general plan of the flower. How is this?... There must be some power distinct from the force possessed by each particle, and superior to all, which directs the movements of each, so as to bring out the predestined figure, as the general in command directs the movements of every soldier on the field. What is this power? You say it is life; yes, that is a beautiful word—but it means nothing, unless it means pattern-forming mind. These wonders conduct us by a very short process of reasoning to a spirit of life which is a spirit of thought, of order, and of power—the all-pervading Spirit of God, who "maketh the grass to grow upon the mountains," who "so clothes the grass of the field," and who thus "openeth His hand and satisfieth the desire of every living thing." It is not, then, a piece of poetry, but profoundest truth, when we say that it is God who "giveth food to all flesh," and whose "mercy endureth forever." He who gave the manna gives the corn. And he who would not acknowledge God in nature would not have acknowledged Him even if he had seen the manna lying like a broad wreath of driven snow around the camp of Israel.

STRAWBERRIES AND ONIONS.—From eighteen acres of strawberries, newly planted, Mr. Gamhart, of San José, cleared last year \$1,500. This year the spring frosts nearly destroyed the first crop; but he will realize about \$3,000. He irrigates very thoroughly, and says that it will pay to irrigate for strawberries. Mr. G. is also raising a fine crop of onions among his strawberry plants, which, he maintains, will be a clear profit. This is the same gentleman whose success in silk-growing is elsewhere noticed in our columns to-day by our agricultural correspondent.

OUR FRUIT MARKET is fast approaching its glory. The fragrant and tempting consignments from the country are a delight to all, and especially to our Eastern visitors. In addition to the small fruits, we have already the apricot in profusion. Apples are beginning to make their appearance, while the luscious peach is also coming in, fresh and juicy, to be quickly supplemented by pears and apples in abundance. The grape, too—California's fruit, *par excellence*—must not be forgotten. It will soon be here, in all its purple freshness, to crown the market.

GRASSHOPPERS are damaging the crops in Powder River Valley, Oregon.

Agricultural Notes from the California Press.

The gopher law, passed by the last legislature, appears to be working well for the destruction of gophers and squirrels. The destruction of these vermin in Alameda, San Mateo, Santa Clara and Contra Costa counties, has already been immense. Up to the 13th of last month hounties had been paid upon the scalps of 672 gophers and 46,700 squirrels in the latter county alone. The Alameda Farmers' Club recommends the following methods of poisoning these vermin as more efficient than any other:

Take two teacups full of wheat, place in a vessel and cover with water, then boil until the water is all absorbed; take a common size bottle of strychnine and pulverize the contents well; take the wheat while warm, make a layer, then add a layer of strychnine, a layer of wheat, and so on, until all is used; to this add brown sugar to well sweeten it; then a little flour or cornmeal; mix all up so as to form a paste. To each squirrel hole put three or four grains only of the wheat.

SUGAR BEET CULTURE.—The interest in the sugar beet growing is constantly increasing. Numerous parties are preparing to enter upon this culture. All fears of any possible failures in the enterprise of making sugar from beets in this State seem to have been set aside. The *Monterey Republican* says that Flint, Bixby & Co. will plant 1,000 acres with beets, and erect a mill, near San Juan. The *Pajaronian* gives some good reasons why the sugar beet culture ought to do well in the Pajaro Valley. Some experiments there have resulted in a yield at the rate of 174 tons to the acre! It is claimed that the expense of cultivating beets there need not exceed \$20 per acre. This, at \$2 per ton—certainly a very low price—would give a net yield to the acre of \$328. This yield may have been an exceptional one, and probably was, as it was confined to a few rods of ground only; but we can afford to divide it by two, or even four. It at least adds another illustration to the extraordinary possibilities of this State in the culture of roots generally—a part of husbandry sadly neglected here, and to which we shall take an early opportunity to refer at length.

CURRENT SLIPS—DECEPTION.—Complaint is made by several fruit-growers, at and about Haywards, that they have been badly deceived in the purchase of currant slips. It appears that some two years ago a large number of slips were purchased, at a high price, on the representation of their being the "cherry currant;" but which on coming to bearing, this season, turned out to be nothing but the common red currant. Thus two years' of cultivation have been added to the expense of purchase, to say nothing about the vexation, delay, etc.

AN INDIGENOUS PICKLE.—A correspondent of the *Petaluma Journal* speaks of the marsh camphire (*salicornia herbacea*) as growing in the salt marshes about Petaluma creek. This plant is largely used in the Eastern States and Europe for pickling. It makes a pickle equal to a crispy bean, and is much prized. The plant is leafless, with cylindrical, pointed branches. The proper season for gathering is early in the spring. It is now getting to be tough and wiry.

CHERRIES IN THE MOUNTAINS.—The *Nevada Transcript* says that John Thirwell, of that city, has sold this season \$100 worth of cherries grown on three trees at his place. One of the three trees produced \$50 worth. Mr. Rogers has also sold several hundred dollars worth from a few trees on his place, producing early varieties.

DRYING UP.—Many of the artesian wells in Santa Clara county sunk for irrigating purposes are said to have dried up, but that the vines and fruit trees which they were intended to moisten have become so

well and deeply rooted that they now stand in but little or no need of irrigation, so that the loss of water works no serious injury.

GREAT YIELD OF WHEAT.—It is stated that Mr. Gasbar, of Knight's Landing, has just harvested 70 tons of wheat from twenty-one acres; and that from land which has produced full crops for six or seven successive years. This is certainly a most extraordinary yield—111 bushels to the acre. Has that yield been exceeded?

The crops in the foot-hills, according to the *Folsom Telegraph*, this season bid fair to be larger and better than ever before known. The wheat, rye, barley and hay crop never has been better, and the vineyards and orchards are in splendid condition.

QUICK WORK.—The *Marysville Appeal* says that Mr. S. Rice, of Sutter county, recently cut, threshed, and took to Marysville, forty-seven acres of wheat—all the same day!

Silk Growing in Santa Clara County.

Mr. L. Gambert, of East San José, has recently been awarded a premium of \$250 by the State for his silk plantation. He has 5,000 trees planted as standards, besides 10,000 more in nursery, two and three years old, valued at \$10 and \$15 per hundred. He cultivates the Italian variety, called the *Moretti*, which he claims to be the best for silk. He has been breeding silk-worms for the past two years. His wife has charge of this department and has met with the most encouraging success. Much credit is due to Mrs. Gambert for the attention and interest given to this enterprise. Her example is a worthy one. Seventy ounces of eggs, worth \$8 per ounce, was the product of last year's "experiment." The lady did all the work of feeding and tending them herself. This year they are hatching 3½ ounces of eggs, that will yield about 140,000 worms, and which in turn will produce 460 ounces of eggs worth \$3.60.

One hundred and fifty female cocoons will produce an ounce of eggs. As one-half are always of the opposite sex, it is reckoned at 300 cocoons for an ounce. Mr. G. says that his worms are all of the best French variety.

He will depend upon orders from Europe for a market, and intends to ship the cocoons, which he says will bear transportation with perfect safety. The Japanese varieties, he says, will not do so well, and are not worth one-third as much as the French worms, which will produce the strongest and the best silk.

At the time of my visit, there was a fine lot of new cocoons perfected, and more worms busy coiling themselves in shingles of silk; while some tiny ones, just hatched, clustered thickly upon the tender leaves spread for their pasture.

A New Hatch of Worms

Is fed upon the tenderest leaves. The tip ends of growing side shoots are clipped from the trees for this purpose. After they get stronger, larger leaves are used, while the full-grown worms require the strongest food.

The worms are fed upon shelves, arranged as appears convenient. The leaves are systematically strewn upon these in the form of a ring or wreath, about a foot in diameter. This method is found to be the best for cleanliness and ventilation. While feeding, the worms all keep upon the top of the leaves. By running a wire fork through and raising the top of the pile, with the worms, the refuse beneath may be quickly removed. Cleanliness and ventilation are considered very essential to success.

Other Silk Growers.

There are several other parties in Santa Clara county engaged in the culture of mulberry trees, and silk worms, more or less extensively. It is maintained that the favorable conditions of climate there are unequalled anywhere. A climate subject to sudden radical changes of dampness and dryness, of heat and cold, etc., is not favorable. But even temperature—neither too moist nor too dry, is essential. I am constrained to think that there are sheltered places among the coast ranges of hills superior in this respect to any that can be found elsewhere.

S. H. HERRING.

What I Know of Farming—No. 25.

More about Apple-trees.

In my opinion, apple-trees, in most orchards, are planted too far apart and allowed to grow taller and spread their limbs more widely than is profitable. I judge that a pruner or picker should be able to reach the topmost twig of a tree with a ten-foot pole, and that no limb should be allowed to extend more than eight feet from the trunk whence it springs. Our autumnal equinox occurs before our apples are generally ripe for harvest, and, finding our best trees bending under a heavy burden of fruit, its fierce gales are apt to make bad work with trees as well as apples. The best tree I had, with several others, was thus ruined by an equinoctial tempest a few years since. Barren trees escape unharmed, while those heavily laden with large fruit are wrenched and twisted into fragments. And, even apart from this peril, a hundred weight of fruit at or near the extremity of limbs which extend ten or twelve feet horizontally from the trunk, tax and strain a tree more than four times that weight growing within four or five feet of the trunk, and on limbs that maintain a semi-erect position. I diffidently suggest, therefore, that no apple-tree be allowed to exceed fifteen feet in height, nor to send a limb more than eight feet from its trunk, and that trees be set (diamond-fashion) twenty-four feet apart each way, instead of thirty-two, as some of mine were. I judge that the larger number of trees (72 per acre) will produce more fruit in the average than the larger but fewer trees grown on squares of two by two rods to each, that they will thrive and bear longer, and that not one will be destroyed or seriously harmed by winds where a dozen would if allowed to grow as high and spread as far as they could.

Every apple-tree should be pruned each year of its life: that is, it should be carefully examined with intent to prune if that be found necessary. It should be pruned with a careful eye to giving it the proper shape, which, from the point where it first forks upward, should be that of a tee-cup, very nearly. I have seen young trees so malformed that they could never bear fruit enough to render them profitable. And the pruning should be so carefully, judiciously done from the outset that no wood two years old should ever be cut away. With old, malformed, diseased, worm-eaten, decayed trees, the best must be done that can be; but he who, pruning a tree that he set and has hitherto cared for, finds himself obliged to cut off a limb thicker than his thumb, may justly suspect himself of lacking a mastery of the art of fruit-growing.

Sprouts from the root of an apple-tree remind me of children who habitually play truant or are kept out of school. They not merely can never come to good, but they are a nuisance to the neighborhood and bring reproach on the community.

The apple-grower should never forget that every producer needs to be fed in proportion to his product. If a cow gives twenty quarts of milk per day, she needs more grass or other food than if she gave but two quarts; and an acre of orchard that yields a hundred barrels of apples per annum needs something given to the soil to balance the draft made upon it. Nature offers us good bargains, but she does not trust and will not be cheated. When she offers a bushel of corn for a bushel of dirty salt, shell, lime, or wood ashes, a load of hay for a load of muck, we ought not to stint the measure, but pay her demand ungrudgingly.

And now a last work on insects.

My township (Newcastle) is said to have formerly grown more apples per annum than any other township in the United States; its apple-trees are still as numerous as ever, but their product has fallen off deplorably. I estimate the average yield of the last three years at less than a bushel per annum for each full-grown tree; I think a majority of the trees have not borne a bushel each in all these three years. Unseasonable frosts, storms, etc., have borne the blame of the barrenness—perhaps justly, if we consider only immediate causes—but the caterpillar and other vermin are, in my view, our more potent, though remoter, afflictions. Not less than four times within the last sixteen years have our trees been covered with nests and worms; and I have seen whole orchards stripped of nearly every leaf till they were as bare (of everything but caterpillars) in July as they should have been in December. After the scourge had passed the trees reclothed themselves with

leaves, but they grew old under that visitation faster in one year than they would have done in ten of healthy fruit-bearing; and they are now prematurely gray and moss-covered because of the terrible infliction.

I lay down the general proposition that no man who harbors caterpillars has any moral right to apples—that each grower should be required to make his choice between them. Slovenly farmers say, "O there is so many of them that I cannot kill half so fast as they multiply." Then, I say, cut down and burn up the trees you can best spare, until you have no more left than you can keep clear of worms.

If it were the law of the land that whoever allowed caterpillars to nest and breed in his fruit-trees should pay a heavy fine for each nest, we should soon be comparatively clear of the scourges. In the absence of such salutary regulation, one man fights them with persistent resolution, only to see his orchard again and again invaded and ravaged by the pests hatched and harbored by his careless neighbors. He thus pays and repays the penalty of others' negligence and misdoing until, discouraged and demoralized, he abandons the hopeless struggle, and thenceforth repels the enemy from a few favorite trees around his dwelling, and surrenders his orchard to its fate. Thus bad laws (or no laws) are constantly making bad farmers. The birds that would help us make head against our insect foes are slaughtered by reckless boys—many of them big enough to know better—and our perils and losses from enemies who would be contemptible if their numbers did not render them formidable, increase from year to year. We must change all this; and the first requisite of our situation is a firm alliance of the entire farming and fruit-growing interest defensive as to birds, offensive toward their destroyers, and toward the vermin multiplied and shielded by the ruthless massacre of our feathered tribe.—*Horace Greeley.*

AN AMERICAN AGRICULTURAL WRITER COMPLIMENTED.—X. A. Willard, one of the editors of the *Rural New-Yorker*, has been honored with an invitation to contribute an article on American butter factories, for the *Journal of the Royal Agricultural Society of England*, of which the Prince of Wales is President. John Bull is not often wont to go out of his own dominions to seek for information, especially on agriculture. This request is considered quite complimentary, and besides Johnny pays well—two guineas per note page of manuscript.

THE GRAPE CULTURE.—The number of grape vines under cultivation in this State during the year 1868 was set down, officially, at 22,405,580. The increase for 1869 and 1870 must very materially swell this already large reported aggregate.

San Francisco Market Rates.

Wholesale Prices.		THURSDAY EVENING, July 7, 1870.	
Flour, Extra, 48 lbs.	100	2 25	100
Do. Superfine, 48 lbs.	100	2 25	100
Corn Meal, 100 lbs.	100	1 50	100
Wheat, 100 lbs.	100	1 50	100
Oats, 100 lbs.	100	1 50	100
Barley, 100 lbs.	100	1 50	100
Beans, 100 lbs.	100	2 50	100
Potatoes, 100 lbs.	100	1 50	100
Hay, 100 lbs.	100	1 50	100
Live Oak Wood, 4 cord.	100	9 00	100
Beef, extra, dressed, 100 lbs.	100	12 50	100
Sheep, on foot, 100 lbs.	100	2 50	100
Hogs, 100 lbs.	100	8 00	100
GROCERIES, ETC.			
Sugar, crushed, 48 lbs.	100	14 00	100
Do. Hawaiian, 48 lbs.	100	11 25	100
Coffee, Costa Rica, 48 lbs.	100	19 00	100
Do. Rio, 48 lbs.	100	19 00	100
Tea, Japan, 48 lbs.	100	75 00	100
Do. Green, 48 lbs.	100	60 00	100
Hawaiian Rice, 48 lbs.	100	8 00	100
China Rice, 48 lbs.	100	8 00	100
Coal Oil, 1 gallon.	100	14 00	100
Candles, 100 lbs.	100	20 00	100
Overland Butter, 48 lbs.	100	20 00	100
Ranch Butter, 48 lbs.	100	20 00	100
Indian Butter, 48 lbs.	100	20 00	100
Cheese, California, 48 lbs.	100	10 00	100
Eggs, 1 dozen.	100	22 50	100
Lard, 100 lbs.	100	15 00	100
Ham and Bacon, 48 lbs.	100	15 00	100
Shoulders, 48 lbs.	100	9 00	100
Retail Prices.			
Butter, California, fresh, 48 lbs.	100	35 00	100
Do. pickled, 48 lbs.	100	20 00	100
Do. Oregon, 48 lbs.	100	20 00	100
Cheese, 48 lbs.	100	20 00	100
Honey, 48 lbs.	100	40 00	100
Eggs, 1 dozen.	100	20 00	100
Lard, 100 lbs.	100	18 00	100
Ham and Bacon, 48 lbs.	100	15 00	100
Shoulders, 48 lbs.	100	9 00	100
Potatoes, 48 lbs.	100	2 00	100
Tomatoes, 48 lbs.	100	2 00	100
Onions, 48 lbs.	100	2 00	100
Apples, No. 1, 48 lbs.	100	4 00	100
Pears, 48 lbs.	100	10 00	100
Plums, dried, 48 lbs.	100	10 00	100
Oranges, 48 lbs.	100	50 00	100
Lemons, 48 lbs.	100	75 00	100
Chickens, 48 lbs.	100	10 00	100
Turkeys, 48 lbs.	100	10 00	100
Soap, Pale and C. O.	100	10 00	100
Soap, Castile, 48 lbs.	100	15 00	100

Scientific Press.

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Saturday Morning, July 9, 1870.

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Notices to Correspondents.

C. E. G., Carlin.—There is almost no demand for antimony in this market and it is not quoted. It is worth perhaps 8 to 10 cents. If your ledge will work 80 per cent. of metallic antimony, it will probably pay you and at the same time astonish us. Stibnite, sulphuret of antimony, the common ore, holds about 73 per cent. of metal. The rare oxides hold as much as 84 per cent.

CROWQUILL.—Will appear next week.

Guess Again.

We see that the arrival of a cargo of "tin clippings" for a copper mine at Hog Hill, Calaveras county, has set the people of Stockton at work cudgelling their brains as to the purpose for which this article is intended. Many bright ideas have been etched out, and are recorded in a Stockton paper, whose article on the subject is now going the rounds. It is for manufacturing bronze, or bell-metal, or Britannia, or various other alloys of copper and tin, or else (brightest and best) it is to form an ingredient of the flux of some mysterious smelting process.

There is considerable ingenuity shown in these conjectures, and not a small degree of originality. As people there are so fond of guessing, will not some one give them another chance for further interesting conjectures, by insinuating that "tin clippings" are composed principally of iron? This will open another field for inquiry.

WAR IN EUROPE.—There are symptoms of an approaching conflict between France and Prussia. Spain wants to have a Prussian prince as King. This is unpleasant to France, but is favored by Prussia. France threatens that there will be an unpleasantness if Prussia does not stop. If a war does occur, it will be a hot one.

THE LAST MEXICAN FLAG which floated in this city when acquired by the United States has been presented to the Society of California Pioneers, by Don Rafael Pinto, at the time referred to a Custom House officer.

Eureka District, Nevada.

We have lately received a call from Mr. Jos. Corwin, of this district, and have been shown a private letter from another gentleman now engaged in smelting at Eureka, Nevada. From these two sources we have received considerable information which will be of interest to many of our readers. Eureka is situated about 70 miles from Palisade station on the Central Pacific Railroad. The general formation is limestone and sandstone, with deposits, some very large, of carbonate of lead. The ore is represented as much richer than the base metal ore of White Pine, and the facilities for smelting are said to be very fine, plenty of wood and water, splendid sandstone and marl for the furnaces. The district contains perhaps about a thousand inhabitants, and the town some six or seven hundred.

One of the most noted mines here is the Champion, owned by Messrs. Bateman and Buel. This is represented as an immense body of ore. Next to this is the Buckeye, which has been bought within a few days by a San Francisco company (the Eureka Consolidated?). This is consolidated with the Champion and with Buel's smelting works, and has the brightest of prospects. It is stated that \$100,000 was given for the mine, and \$12,000 paid Bateman and Buel for their share (one-half) in the furnaces.

There are six smelting works at Eureka: The Buel, which has two furnaces, each working daily thirteen tons of ore, and producing about seven tons of bullion, holding \$140 to \$180 in silver, and \$120 to \$160 in gold. For a long time the average was \$300 per ton. The owners (or part owners) of these works bought the Champion mine for \$20,000. The Philadelphia Company have two iron furnaces, which has not yet started. Robbins has an iron furnace, with fire-proof brick lining, which was put in operation about the middle of May. McCoy's furnace has recently been put in operation, and is run by Mr. McGee and Mr. Carpenter, formerly of the Alsop works at White Pine. The Wilson furnace, transferred to Goodwin, has been running on ore from the Jackson mine and doing well. McNevin's furnace is not yet finished.

The ore at the town is principally smelting ore, but there is good milling rock in the district. Mr. Corwin brought us some specimens of his ledge at Secret Cañon, about eight miles from the town. Here Messrs. Paige and Corwin have a ledge, which, according to what we have seen, must be rich. The rock is considerably decomposed, and on one piece there was a large number of small, but fine, crystals of chloride of silver. There is also an abundance of what appears to be argentiferous fahl ore, mixed perhaps with other ore. There seems to be scales of chalcophyllite on the specimen, besides other interesting minerals. Mr. Corwin showed us certificates of working results at the Manhattan mill, Austin. Three lots of from 6,500 to 21,000 pounds yielded respectively \$525, \$538 and \$555 per ton. Mr. C. has now brought a lot to this city for treatment, and has promised to give us the results of the assay and of the workings as soon as obtained.

At Pinto, in Eureka district, the ore is represented as differing from that of Eureka and of the last locality, being an intermediate class, so to speak.

WE are informed that Mr. A. P. Klint, of the Museum of the Natural History of the Netherlands, H. Van der Heust, and Z. A. Drechsler, now in this city, are about to start on a trip up the Columbia river, to Alaska, etc., collecting specimens for the above named museum.

PETROLEUM EXCITEMENT.—Another oil excitement exists at West Hickory, Penn., and there is a rush thither.

Our Home Industries.

Manufacture of Preserves.

California is noted for the abundance and excellence of its fruits. It might then surprise a stranger to find so large an amount of preserved fruit in our State. But this amount has been gradually decreasing, and, it is believed, our home manufactures will, in a year or two, drive the imported article entirely out of this market, if not from others.

We have previously spoken of establishments engaged in this business. This week we visited the house of P. D. Code & Co., 621 and 623 Front street. Mr. Code, who has been engaged in the business for years—at Hamilton (Canada West), at Chicago, and at Corinth—was formerly on Stevenson and on Jessie streets. This spring, however, he enlarged his business, took in another partner, and removed to his more favorable location on Front street.

In the upper story of this building are the rooms for making the cans, putting on the labels, etc. The labels are made at the East, and are very neat specimens of art. In the story below, in the rear, is the room where the culinary operations are carried on, and whence a most delicious fragrance was issuing at the time of our visit. Here are two copper kettles for boiling the jellies, and a large tank or vat where the tin cans holding the vegetables, etc., are kept in boiling water. The steam used in the kettles and tanks is generated in a boiler just outside of the building, and thence conducted to where it is used; finally the extra steam is condensed and furnishes hot water for washing purposes. In the cellar we saw a large number of barrels and casks for the pickles.

The number of workmen here employed varies from ten to sixty, according to the season of the year. The firm is able with the present accommodations to turn out now a hundred dozen cans of jelly and three or four thousand cans of preserved fruit and the like daily.

One of their great specialties is lemon jelly. The making of this has been worked up carefully by Mr. Code, and our organs of taste have convinced us that this product is a great success. Unfortunately not enough of the lemon is brought into the market here, so that their supply is at present rather limited; but they are taking steps to procure a sufficient amount in the future. Another specialty is the green turtle put up by P. M. Scooffy, of Guaymas, and for which Messrs. Code & Co. are agents. All the fruits and vegetables are carefully selected before they are put up, and only the best ingredients are used.

Our preserve manufactures are directly subservient to the agricultural interests in so far as they open a larger market for fruits, vegetables and the like. There can be no doubt of the greater extension of this business with the greater advantages our State offers, and as we ship now fresh fruits to Eastern cities, so it is probable that ere long we shall ship the preserved article.

Foundry Works—The Miners'.

The Miners' Foundry is now engaged in the construction of four of Sevrance and Holt's Diamond Drills. These drills are attached to 15-horse power portable engines, and are constructed of a size to bore from two to six-inch holes, at depths from 100 to 2,000 feet, either perpendicular, for artesian wells, or horizontal, or at any desired angle for prospecting purposes.

One of the drills now being built as above, it is expected, will be sent to the new Harpending mines, in New Mexico; one is going to Mount Diablo, to be employed to bore some 500 feet to strike and prospect a coal seam, which it is expected to find at a given point; a third will go to

San Rafael to be employed in sinking artesian wells; the fourth will be retained, for the present, at the Miners' Foundry, in this city, where it will be open to the inspection of such parties as may be curious or interested in examining into the principles and mechanism of this new drill.

This drill will be held in readiness for any employment in this city or neighborhood. One of these drills is now employed in White Pine, and another at Carson Hill, near Angel's Camp, Calaveras county.

In addition to this work at the Miners', we noticed large quantities of miscellaneous work underway, among which we may mention an order for three miles of gas-pipe for the Salem, Oregon, Gas Works. This foundry has also just shipped an engine, pump and hoisting works for a mining company in Sierra county, which is to be employed at the end of a tunnel 1,700 long, to raise water and gravel up an incline 140 feet.

They also shipped, a few days since, an engine, boiler and casting for a smelting furnace to be erected at Oreana, where work is again to be commenced; also, by the last down steamer, a small prospecting mill for the new mines recently discovered near San Diego. Foundry work in San Francisco is very dull at the present time, but the Miners' Coöperative Association seems to be getting a fair amount of what is being done.

Starch Manufacture.

We have now a starch factory in this city. There has existed one in our immediate neighborhood—at Oakland—for some time. But the only one in San Francisco is the San Francisco Starch Works, situated at the corner of Eighth and Brannan streets. This commenced operations only on the first of last month, and they have not as yet put any of their productions in the market. Indeed they have not yet fairly begun on the patent process, which, they claim, shortens and cheapens the manufacture considerably, while producing a superior article. They intend adding to the buildings and increasing their capacity until they are able to produce three tons of starch daily. The firm is W. J. Lavery & Co.

LATBOBE, EL DORADO COUNTY.—On the ranch of Mr. W. W. Faber, and about one and a half miles from the Placerville and Sacramento railroad, is a ledge from which we were this week shown some very fine gold specimens. The ledge runs north and south and dips about 45 degrees to the east. It is supposed to be a continuation of the Sugar Loaf ledge, about a mile off, where the vein has been worked and ore enough extracted to keep a 5-stamp mill running. Indeed, five more stamps are to be erected shortly. The specimens which Mr. Faber showed us were taken from this shaft at a depth of 65 feet. Here the vein is 16 inches wide, while at the surface it was only 6 inches wide. One of the pieces of rock was exceedingly rich and very fine. Mr. F. has a patent from the United States for his land. The finding of this ledge is but one of the indications of how little we yet know of our mineral resources.

THE FIRE AT CONSTANTINOPLE was much more disastrous than the first reports gave reason to think. The fire, which originated in a wooden house, spread quickly over a very large extent of ground. Some ten thousand houses are said to have been destroyed, and the loss of property is estimated at \$25,000,000. The high wind prevailing caused the flames to spread so rapidly that there was a fearful destruction of life, some one thousand (or, as other accounts say, two thousand) men, women and children being burned to death. The fire commenced at noon, June 5th, and lasted till the next morning.

A Full List of Patents Issued to Pacific Coast Inventors.

[FROM OFFICIAL REPORTS TO DEWEY & CO., U. S. AND FOREIGN PATENT AGENTS, AND PUBLISHERS OF THE SCIENTIFIC PRESS.]

FOR THE WEEK ENDING JUNE 28TH.

BELT-BUCKLE.—Israel Alexander, San Francisco.

SEAT FOR VEHICLES.—Porcius Festus Dean, Watsonville, Cal.

CLOTHES-PIN.—George K. Farrington, Alcatraz Island, Cal.

MEDICAL COMPOUND.—George C. Furber, Yreka, Cal.

PLUTINO MACHINE.—Mary P. Carpenter, San Francisco.

REISSUE.

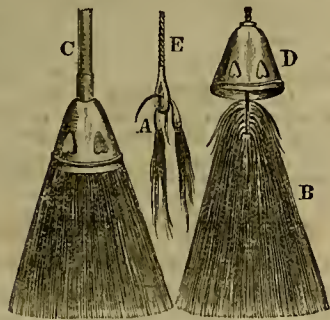
COTTON-GIN.—John C. Du Bois, Millerton, Cal., assignee of John Du Bois.—Patent No. 20,051, dated April 27th, 1858.

NOTE.—Copies of U. S. and Foreign Patents furnished by DEWEY & CO., in the shortest time possible (by telegraph or otherwise), at the lowest rates. All patent business for Pacific coast inventors transacted with greater security and in much less time than by any other agency.

A Patent Broom.

There is now in our office a broom, which the natural curiosity of our visitors leads them to take up, examine and try, and which invariably causes very complimentary comments as to its elasticity and efficiency. This is the so-called "Silver's Elastic Broom." It is a simple device for rendering elastic, durable and easily renewable a very common article of the household.

The essential parts of this invention will be understood from the accompanying cut. They are the cap, D, which is quite re-



markable as a piece of mechanical ingenuity, being stamped from a single piece of brass, and hence without seam; and the wrought-iron loop, E, which screws into the handle. In making the broom, the stalks of the broom corn are slightly moistened, then shaved and placed in the loop, as shown at A. By shaving the stalks thin a large broom can be made, and a light one by leaving them thick. When a sufficient number have been placed in the loop, the cap, D, is put on, and the loop screwed into the handle. The complete broom (with the ferrule on the handle) is shown at C.

By this arrangement the easily-broken twine and wire of the common broom are not necessary, and much greater durability in these and other obvious points is secured. The metallic parts will last for years, and when the brush is worn out it can be replaced at a trifling cost. People in the country, where they can raise their own broom corn, can easily refill them themselves. Those in cities, where broom factories exist, can have them refilled at a very small price. The method of constructing the broom gives it great elasticity; and hence while it lasts longer it will sweep with less effort, and, therefore, wear the carpet much less than the common article.

This invention has received the first premium at several State fairs, and testimonials from many sources. A comparison of the one sent us with the common article previously used in our office, was favorable in every respect to the "Silver broom."

The right for California and Nevada is owned by D. B. Rickey & Co., 111 and 113 Davis street, S. F., where any further information may be obtained.

The Solar Spectrum.

Modern investigations have revealed the interesting and quite remarkable fact that there are invisible, as well as visible, rays proceeding from the sun. For many years—a century or more—after it was known that the prism would separate the rays of light, it was supposed that there were but three prismatic colors—red, yellow and blue; and that these, by overlapping, formed the intermediate colors—orange, green and violet. It finally came to be admitted that the three latter were also primary colors—making six in all; white and black not being recognized as colors, for the reason that white reflected all the colors without separating them, while black absorbed them all.

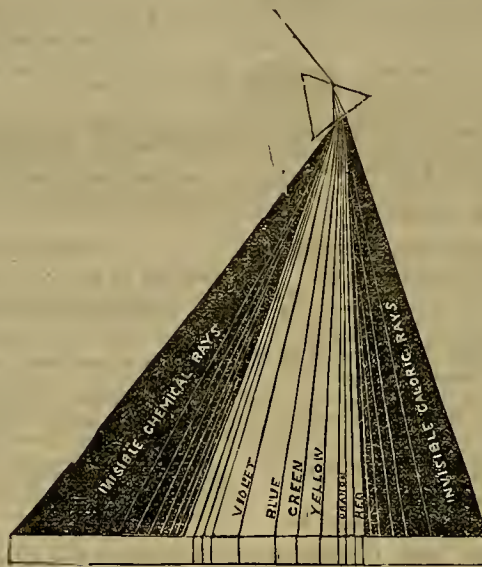
Newton was the first to explain the cause of the colors of the spectrum—showing that white light, which showed no color, was thereby divided, as it were, into six

The New Mining Bill.

An Act to amend "an Act granting the right of way to ditch and canal owners over the public lands, and for other purposes."

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the Act granting the right of way to ditch and canal owners over the public lands, and for other purposes, approved July twenty-six, eighteen hundred and sixty-six, be, and the same is hereby, amended by adding thereto the following additional sections, numbered twelve, thirteen, fourteen, fifteen, sixteen and seventeen, respectively, which shall hereafter constitute and form a part of the aforesaid Act.

SECTION 12. And be it further enacted, That claims usually called "placers," including all forms of deposit, excepting veins of quartz, or other rock in place, shall be subject to entry and patent under this Act, under like circumstances and conditions, and upon similar proceedings, as are provided for vein or lode claims: Provided, That where the lands have been



parts, each part having a definite, fixed color, and hence that there must be that number of different kinds of rays coming from the sun.

Later experimenters, in endeavoring, by the use of the thermometer, to find out whether there was any difference in the temperature of the different rays or colors, very unexpectedly discovered not only that such difference did exist, but that there were other rays, separated by the prism, some of which were more refracted than the violet, and others less than the red. These rays were, however, invisible—that is, not colored. It was, moreover, discovered that the rays most refracted (shown in the engraving above the violet) were probably chemical rays, and totally devoid of heat; while those least refracted (shown below the red) were merely calorific, without color or chemical action. In fact, it was by noticing that chemical action without heat took place in the one, while heat without chemical action was developed in the other that these rays were discovered.

By passing a thermometer slowly downward, through the series of rays, as herewith shown, no effect will be perceived upon it until it enters the violet, when in its further passage it will continue to rise higher and higher, until it leaves the bounds of the invisible, calorific rays, represented in the lower portion of the engraving, where it again relapses to the average temperature of the room in which the experiments are being conducted. The chemical rays commence with the blue, extending upwards. The calorific commence with the violet and extend downward. Thus there are three spectra—chemical, luminous and calorific.

THE average daily consumption of Cochituate water in Boston the last year was 15,080,400 gallons, being an increase over the previous year of 301,233 gallons.

previously surveyed by the United States, the entry in its exterior limits shall conform to the legal subdivisions of the public lands, no further survey or plat in such case being required, and the lands may be paid for at the rate of two dollars and fifty cents per acre: Provided further, That legal subdivisions of forty acres may be subdivided into ten-acre tracts; and that two or more persons, or associations of persons, having contiguous claims of any size, although such claims may be less than ten acres each, may make joint entry thereof: And provided further, That no location of a placer claim hereafter made shall exceed shall conform to the United States surveys, one hundred and sixty acres for any one person or associations of persons, which location and nothing in this section contained shall defeat or impair any bona fide pre-emption or homestead claim upon agricultural land, or authorize the sale of the improvements of any bona fide settler to any purchaser.

SEC. 13. And be it further enacted, That where said person, or association, they and their grantors, shall have held and worked their said claims for a period equal to the time prescribed by the statute of limitations for mining claims for the State and Territory where the same may be situated, evidence of such possession and working of the claim for such period, shall be sufficient to establish a right to a patent thereunder this Act, in the absence of any adverse claim; Provided, however, That nothing in this act shall be deemed to impair any lien which may have attached in any way whatever to any mining claim or property thereto attached prior to the issuance of a patent.

SEC. 14. And be it further enacted, That all ex parte affidavits required to be made under this Act, or the Act of which it is amendatory, may be verified before an officer authorized to administer oaths within the land districts where the claims may be situated.

SEC. 15. And be it further enacted, That registers and receivers shall receive the same fees for services under this Act as are provided by law for like services under other acts of Congress; and that effect shall be given to the foregoing Act according to such regulations as may be prescribed by the Commissioner of the General Land Office.

SEC. 16. And be it further enacted, That

so much of the Act of March third, eighteen hundred and fifty-three, entitled, "An Act to provide for the survey of the public lands in California, the granting of pre-emption rights, and for other purposes," as provides that none other than township lines shall be surveyed where the lands are mineral, is hereby repealed. And the public surveys are hereby extended over all such lands: Provided, That all subdividing of surveyed lands into lots less than one hundred and sixty acres may be done by county and local surveyors at the expense of the claimants. And provided further, That nothing herein contained shall require the survey of waste or useless lands.

SEC. 17. And be it further enacted, That none of the rights conferred by sections five, eight and nine of the Act to which this Act is amendatory, shall be abrogated by this Act, and the same is hereby extended to all public lands affected by this Act; and all patents granted on pre-emption of homesteads allowed, shall be subject to any vested and accrued water rights, or rights to ditches and reservoirs used in connection with such water rights, as may have been acquired under or recognized by the ninth section of the Act of which this Act is amendatory; but nothing in this Act shall be construed to repeat, impair, or in any way affect the provisions of the "Act granting to A. Sato the right of way and other privileges to aid in the construction of a drainage and exploring tunnel to the Comstock ledge in the State of Nevada," approved July 25th, 1866.

REDUCTION WORKS AT CHICAGO.—It is proposed to organize a company to build reduction works at Chicago for the smelting of ores from Chicago's "adjacent territories." At least a writer in *The Arts*, a young monthly published in that city, tries to show that the erection of such works is "eminently essential," and that "immense profits and emoluments (are) to be derived by the projection upon a small outlay of capital." We read the article in question in strange perplexity at the sonorous assemblage of meaningless words, and the jumble of places and ideas. When we turned the page, however, and saw the name of Julius Silversmith attached to the tail of the article, we understood the matter fully. Chicago's worst enemy cannot but rejoice at its latest accession, and hope that Julius may raise his company. J. S. has been exploding himself all the way from San Francisco to New York, and is now on the hack track to Chicago. He appears to be a second edition of the "Wandering Jew."

AN IMPORTANT STEP.—By telegraph from Marysville to the San Francisco papers this week, we learn that eight mining claims, north of the Smartsville Consolidated Hydraulic claim, have consolidated, and one hundred and twenty, south of these, are taking steps with the same object. Such a consolidation will be attended, without doubt, with the same beneficial results. For a long time it has been proposed to run a drainage tunnel to the Yuba river, but no one company could undertake the job. This will now be possible, and many other good results will follow. The same account tells us that the Smartsville Consolidated cleaned up \$80,000 from a 60-days' run. There are riches inestimable yet to be gathered from this section.

TIMBER RESOURCES OF PUGET SOUND.—The *Overland Monthly* for July gives some interesting statistics on this point. It seems that, in 1869, 130 million feet of long lumber, 28 million latbs, 3½ million shingles, 2,000 spars and 275,000 feet of piles, were exported from that region, the aggregate value being \$2,067,000. This trade is in its infancy as yet; but when the Northern Pacific Railroad is finished, then it will become a mighty business, and the forests will melt away like the mist.

On the Central Pacific Railroad, during the first four months of this year, 5,043 passengers were carried East and 9,052 were brought West. This shows a gain for the coast of 4,000, or 1,000 per month.

PROF. HITCHCOCK ON THE CALAVERAS SKULL.—Prof. H. writes to the N. Y. *Mineral Journal*, that although there is no doubt of the genuineness of the specimen, and no doubt that it is associated with pliocene fossils and must be very old, still that "the California pliocene is not necessarily older than the drift or glacier deposits of the East and of Northern Europe. There was no drift-period in California—as, for some reason, the glaciers did not extend much west of the Missouri river. Hence, the flora and fauna of the pliocene continued to live on beyond the drift-period into the alluvial. An example is afforded by the big trees which grew east of the Rocky Mountains, in the miocene and pliocene. In the East they became exterminated on account of the glacial cold; in California, the animals and plants continued to live on—some of them to the present day. Hence, it is no criterion of antiquity greater than that of the glacial period, to say that a human skull came from the California pliocene. It may not be 6,000 years old. The Table mountain beds are all of older date."

ANALYSIS OF ALKALINE DEPOSITS.—Samples of alkaline soil of the Great Desert along the line of the Central Pacific, says the *Sacramento Record*, were collected by M. Zacharias and sent to Prof. S. MacAdam, of Edinburgh, who gave the following as the results of his analysis: Soluble in water—principally chloride of sodium (common salt), sulphate of soda, with traces of potash and magnesium salts—67.81. Soluble in acid—principally carbonate of magnesia, with phosphates and oxide of iron—14.23. Insoluble matter—sand and clay—17.95.

FINE BARLEY.—Mr. Managh, ten miles above Yuba City, has a field of 250 acres of barley, which he is confident will yield at least 100 bushels to the acre.

NEW VOLUME, JULY 1, 1870.

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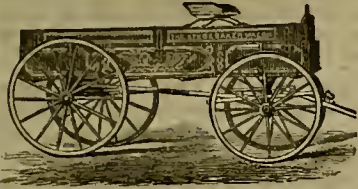
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For the benefit of those who live at a distance from the city, we give below a brief description of a few of the valuable Patents which we have in our office. It may be well to state here that no Patent is received by us for negotiation until it is first endorsed by reliable experts, to whom each is subjected for acceptance or rejection. We treat all patents alike, recommending only where true merit is found in the invention.

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P. DAVIS' WIRE AND PICKET FENCE.

Although about two hundred different styles of fences have been invented and patented in the United States within the past ten years, yet this Fence, for GENERAL FARM USE, stands at the head of the list. This is a Virginia invention, and the actual cost of the Fence complete in that State is less than fifty cents per rod. Three men can put up six hundred yards per day. You men who are idle, why hang about the city talking hard times when you can make from five to eight dollars per day building this Fence? We will make a present of ONE FARM RIGHT in each county on the Pacific coast to farmers who will erect one hundred rods of the fence in good style within thirty days after the privilege is granted. We wish to employ several working men to travel in this State and Oregon. Price of territory, and circular with full description of fence, sent on application.

RYAN'S NEW METHOD OF MAKING WHEELS.

To make indestructible iron wheels with little labor and at small cost, is the object of this invention. The hub and spokes are all made out of a single piece of iron. It is first forged down at the ends to the thickness required for the spokes, leaving a hub in the center. The ends are then split into four or more strips each, as shown in the cut above. A represents the hub; B, C, D, E, when spread to their proper position, form the spokes to one-half the wheel. When the other half is split and spread in a similar manner, the spokes are then rounded and shoulders formed on them ready to receive the tire or rim. It is claimed that the great amount of labor and expense heretofore required in making wrought-iron wheels is obviated by this novel mode of construction. There probably never has been a wheel made that is so durable as the Ryan Wheel, and yet the method of construction is so simple that it can be made by any ordinary mechanic in a common blacksmith shop. All territory west of the Rocky Mountains for sale in States or counties. Thomas Ryan, of Scott's Bar, California, is the inventor. Sample wheels, and the iron from which they are made, can be seen at our office, 314 Bush street, San Francisco.

A PAYING BUSINESS—FOR SALE.—The entire interest in a valuable Patent for the Pacific Coast; with Horses, Wagons, Goods, Machinery, etc. A business that any one can engage in, and although new, is already paying large profits.

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By the MECHANICS' INSTITUTE and the STATE AGRICULTURAL SOCIETY for the superiority of our products over all others.

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Which combines all the force of other strong explosives now in use, and the lifting force of the BEST BLASTING POWDER, thus making it vastly superior to any other compound now in use.
 A circular containing a full description of this Powder can be obtained on application to our Office.
 16v20-3m JOHN F. LOHSE, Secretary.

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Light Brahma and White Leghorns.

We are now booking orders for a few trios of the above named fowls, bred from choice imported stock. Will commence delivering in July. All orders filled in rotation, as received.
 A few clutches of eggs for setting from the above named breeds.

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 20v20-3m

The Scientific Press is devoted specially to matters of machinery, inventions and processes pertaining to the development of mines, and gives free and full discussions of such matters. Terms, \$4 per year.—White Pine News, May 4th.

DESIGNS AND PLANS

— FOR THE —

NEW CITY HALL

— OF —

SAN FRANCISCO.

Office Board of City Hall Commissioners, southeast corner of Sacramento and Montgomery streets, San Francisco, June 22, 1870.

The Board of City Hall Commissioners hereby give notice that they will be prepared to receive at their office, on or before the FIRST DAY OF NOVEMBER NEXT, designs and plans for the new City Hall of San Francisco.

The Commissioners, in order to obtain the very best design and plan, invite the fullest competition among architects, and to this end have resolved to offer the following premiums:

First—For the design and plan selected and adopted\$2,500
 Second—For the second best design and plan..... 2,000
 Third—For the third best design and plan..... 1,500
 Fourth—For the fourth best design and plan..... 1,000
 Fifth—For the fifth best design and plan..... 600
 The premiums payable in City Hall warrants.

As a guide to architects in the preparation of the designs and plans, the Commissioners have prepared a pamphlet containing full instructions and suggestions, as well as the terms and conditions upon which the premiums will be awarded.

Pamphlets can be had on application at the office of the Commissioners.

Any design or plan in which the requirements of the Board, as set forth in the printed instructions, have not been reasonably complied with, will be rejected from the competition.

P. H. CANAVAN, Chairman,
 JOS. G. EASTLAND,
 CHAS. E. McLANE,

City Hall Commissioners.

26v20-4m



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 No. 4—Wholesale.....FREE.

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 25v20-6m ROCHESTER, N. Y.

Reading for the Hour.

A Market-Place Fifteen Hundred Years Ago.

In the market-place at Athens surged an eager crowd. Fishermen in red caps and short tunics, held up from their movable tanks squirming fish, announcing, with loud cries, that it was now full moon and their wares were at the best. Peddlers darted about with samples of their goods; young girls, offering flowers, wreaths and fillets, wandered between the long lines of wagons, which, while the mules were feeding behind, captivated the eye with lemons, peaches, figs and vegetables. From other wagons the contents of pressed wine-sacks spouted into receiving vessels. Around the colossal statue of the Market-Hermes, meat and sausage hawkers cried their wares, arranged in pillars and festoons, to numerous customers. Among these the rich slaves were the most vociferous—for here, if anywhere, the weight of the purse decided that of the man. While the slave, his purchases finished, turned homeward with a full basket on his head, the poor citizen stole away with his scanty bit under his mantle, lucky if a hole therein did not disclose a full-blooded Athenian's humiliation. Farther on, workers in stucco, and glaze merchants stood between rows of their merchandise, often finished in the most artistic manner. Still farther away, around the triumphal arch raised to commemorate the defeat of Cassander's horsemen, were glittering booths where costly cloths from Asia and the Isles, incense and ointment from India and Arabia, jeweled ornaments and articles to suit every extravagant taste, attracted well-dressed purchasers of either sex.

Without any errand other than to swell the throng and appease their curiosity, young fops elbowed their way through the chaffering groups, now nodding at some fair maid, now criticising the slave-girls exposed for sale, who offered freely to the view every form of female beauty from the blushing Syrian to the dark Ethiopian. Here among a hundred other foreign merchants in the variegated mass might be seen the lively, slender Alexandrian; the coarse-limbed Illyrian in his humble woollen mantle with its red border; men from the boundaries of Persia, easily recognized by their shaggy cone-shaped caps, flowered coats and roomy trousers tied above the ankle; the proud Spaniard with bright mantle of woven bombast; the long-bearded Jew in a dark caftan lined with skins; the luxurious half-Hellen from Asia with perfumed locks, gold rings in his ears, and tunic sweeping to his feet.

Now the hell of the market-policeman sounded through the din, and in a few moments all the booths were taken down, all the wagons harnessed, and the many-colored multitude swallowed up in the mouths of Piræan street, Ceramicus, and the other avenues leading on either side from the Acropolis. Immediately afterward, the arms of a number of city slaves were in motion, polishing the stone pavement of the market, while water-carts crossed and recrossed, pouring forth a fine dewy rain, soon drunk up by breezes from the sea.—*The Last Athenian.*

NEWSPAPERS.—The following statistics are credited to an advertising agent: 5,319 newspapers, and of these 550 are dailies, are published in the U. S. and British America. New York has 32 dailies and over 100 papers in all. Philadelphia has 200. Boston stands third in the list. The largest paper is the *Independent*; the largest daily, the *N. Y. Journal of Commerce*. G. W. Curtiss is the best paid editor, and Theodore Tilton the next. Over \$76,000,000 are invested in newspaper property.

A STRANGE WOMAN.—There comes a story from New York, of a woman who, twenty-one years ago in a fit of anger, declared she would never again speak to her husband. She has kept her word. The pair live together peacefully as man and wife. The husband is kind and attentive and converses with his wife by talking at her to one of his children. The man who believes this story can treat the crowd.

WHAT IS IT?—A telegram from Los Angeles says that that place has adopted a street-grading system similar to that of San Francisco. Poor, stupid Los Angeles!

Abnormal Potato Growth.

EDITORS SCIENTIFIC PRESS:—The article which appeared in the last number of the *SCIENTIFIC PRESS* under the caption of "Singular Freak of a Potato" recalled to my memory a circumstance of a similar character which I experienced in Liverpool, about a quarter of a century ago (the year succeeding the memorable potato famine in Ireland). Owing to the calamity just named, fears existed that a deficiency of tubers for seeding purposes would occur. This fact, combined with an opinion which prevailed, that seed from fresh untainted lands would be preferable, a considerable quantity of tubers were imported from the north of Spain, and, after arrival, were deposited in a close, rather damp, dark cellar. A portion of the importation was sold for seed, but the home supply being found more abundant than anticipated as the seeding season progressed, the demand for the foreign "spuds" slackened, and, as far as my recollection serves me, I was informed that for the last six weeks of that period no purchasers appeared, nor had the cellar been opened during the interval noticed.

When the cellar was rented (about the latter end of May) the potato heap, comprising about two tons, presented a singular and, to the vegetable physiologist, an interesting spectacle. Some of the tubers, perhaps to the amount of one-fourth, were in the condition of damp rotten potatoes; but by far the larger part exhibited appearances analogous to that given in the engraving accompanying the article, and the center heap was found at a very high temperature—ranging from 100° Fah. in the exterior to about 120° in the interior. The interior of these abnormal growing potatoes were also shrivelled, as in the New York instance. I drew the attention of the Royal Agricultural Society of England to the phenomena by sending a box of specimens. At an interview with W. H. Stevens, author of the "Book of the Farm," that gentleman informed me that he had observed similar instances on two or three occasions; it would therefore appear to be an occurrence though rare, still one that has several precedents.

The subject, however, is one that rather merits inquiry and discussion, and if no other of your readers chose to notice the subject, I will, if I can find spare time, perhaps offer a few suggestions as to the exciting cause of this singular mode of development. **THOMAS ROWLANDSON.**

NEW YORK JOURNALISTIC SUCCESSES.—James Gordon Bennett, who began the *Herald* with \$200 or \$300 borrowed money, in an Ann street cellar, writing on a board, is now worth \$5,000,000.

Manton Marble, who, ten years ago, was a task writer on the *Evening Post* at \$25 a week, is at present sole owner of the *World*, valued at least at \$500,000, and has an income of \$75,000 a year.

Henry J. Raymond, at the time of his death, was worth \$300,000, and made every cent of it out of the *Times*.

Horace Greeley, with all his carelessness of, and indifference to money, could be sold out for \$150,000, though he made his entry in the metropolis a poor printer's boy, with all his fortune in a small bundle of clothes swung on a stick.

James and Erastus Brooks have estates valued at more than \$150,000 each, all made from their earnings as owners of the *Express*.

Robert Bonner, not long since a printer at the case, making with very hard work \$30 a week, boasts of possessing \$200,000 worth of horses, has an annual income from the *Ledger* of nearly \$100,000, and would not sell his popular weekly for \$1,000,000.

Henry C. Bowen, after failing as a merchant, turned his entire attention to the management of the *Independent*, and realizes \$90,000 to \$100,000 a year from it.

MILK AT VIENNA.—A correspondent of the *Bulletin*, writing from Vienna, Austria, comments on the purity of the milk he found there, and says that the government inspectors test the article in the milkman's hands and severely punish any attempt at fraud. Moreover, the cow stables are kept with great care and the animals well tended and fed. This is one of the benefits of a monarchical government. He who prefers the freedom of our country must, we fear, put up with an inferior article of milk.

New Books.

MRS. HILL'S NEW COOK BOOK. A Practical System for Private Families, in Town and Country. With Directions for Carving, etc.; together with many Medical and Miscellaneous Receipts, extremely useful in Families. By Mrs. A. P. Hill. New York: Carleton, Publisher. 1870. 8vo; pp. 426. For sale by Bancroft.

It is a custom in Germany in many of the smaller towns for the young ladies to take practical lessons in cooking at the hotels and like places. Thus in this and other ways cooking is made an important part of the education of the female sex. Such a course, however, would be considered "dreadful" in our beloved country, and the little knowledge which a girl acquires is generally through publications. Hence the number of "cook books," of which the above is one of the latest and best. It contains a very large amount of information, which is made quite minute for the benefit of the young and inexperienced house-keeper. In many books a considerable amount of knowledge on the part of the reader is taken for granted. This error is avoided here. There are also instructions about carving, etc., receipts for all sorts of things, meats, vegetables, cordials, pickles, the dairy, cookery for invalids, medicines, directions for making soap, removing greases, cleaning ware, etc.

THE AGRICULTURAL AND OTHER RESOURCES OF CALIFORNIA. By Titus Fay Cronise. With Twenty-one Illustrations. A. Roman & Co., S. F.

Although much has been said and written concerning our State, California is still a *terra incognita* to the majority of people. We have several books containing information as to our resources, prominent among which is the excellent work by Mr. Cronise; but these are not read by the masses. To disseminate everywhere a knowledge of what we have in this country, in an available form, is the object of the present pamphlet of eighty pages. It is filled with matter of interest both to Californians and others. Especially adapted is it for those who desire to settle as farmers, on our broad lands. Here is told where lands may be found, what their quality is, and how they may be obtained, with some interesting facts as to costs, etc. Moreover, the mechanic and the miner will find much instructive matter, and there are facts of interest to all. The reputation of Mr. Cronise's large work is a guarantee of the reliability of his present pamphlet.

GUILTY OR NOT GUILTY. The True Story of Manhattan Well. New York: Carleton, Publisher. For sale by Bancroft, 721 Market street, S. F.

The avowed object of this book is to "enforce the literal truth of the three words, 'founded upon fact,' which [do not] appear upon the title page." The work is the description of the life of a young girl, whose death in 1799, in New York, created a great sensation. For this murder one Levi Weeks was tried, but acquitted, as there was a break in the chain of the testimony against him. The accused was defended by Alexander Hamilton, Aaron Burr and Edward P. Livingston. The story is well written, and although terminating in a tragedy, is by no means sensational. It pretends to give the true history of the case.

LIFE AT HOME, or the Family and its Members. By Wm. Aikman, D. D. 12mo, pp. 249. S. R. Wells, Publisher. For sale by A. Roman & Co., S. F.

This book is written with the object of calling more attention to the way in which family life more congenial and the family ties less stronger than they are in many cases. It contains many suggestions which are well worth reading and pondering over. The following strikes us as particularly apt with regard to San Francisco life: "The family must have a home, and the hotel or the boarding-house can never give it. To have a home which is not all a name, you must have a door which shall open to yours as to no other hand, a threshold upon which you step as the drawbridge to your castle, a house over which you may go with the unthought consciousness that it is yours alone. Its halls must not be the thoroughfare of a hundred passers, and your rooms your only domain."

THE PACIFIC MEDICAL INSTITUTE, which suspended operations several years ago, has been recently reorganized, and the introductory lecture was delivered on Tuesday evening by Dr. H. Gibbons, at the chapel of the City College.

The Income tax was not abolished, as first reported, but reduced.

WALKING STONES.—The following is credited to the *Seaside Oracle*: They have walking stones in Australia, and as we are informed, they have traveling stones in Nevada. Here is a description: They were almost perfectly round, the majority of them as large as a walnut and of an iron nature. When distributed about upon the floor, table or any other level surface, within two or three feet of each other, they immediately begin traveling toward a common center, and there huddling up in a bunch, like a lot of eggs in a nest. A single stone removed to a distance of three and a half feet, upon being released, at once started off with wonderful and somewhat comical celerity to join its fellows; taken away four or five feet, it remained motionless. They are found in a region that, although comparatively level, is nothing but barren rock. Scattered over this barren region are little basins, from a few feet to a rod in diameter, and it is in the bottom of these that the rolling stones are found. They are from the size of a pea to five or six inches in diameter. The cause of these stones rolling together is doubtless to be found in the material of which they are composed, which appears to be loadstone or magnetic iron ore.

THE FOURTH has been celebrated in the regular time-honored manner. We are happy to learn from the daily papers that no other city in the Union ever had such an exhibition of patriotic enthusiasm as ours. We knew in advance that this would be so, and we don't hesitate to add that throughout the whole State there were bigger processions formed, more powder burned, and more liquor drank than in all of the other States combined!

Our city seems to have been very lucky with regard to injury done by fireworks. From the East come reports of more or less extensive conflagrations, but in this last respect, Gold Hill seems to have outdone all other places, taking its size into consideration. There over forty houses on both sides of Main street were destroyed. The material and machinery of the *People's Tribune* were entirely ruined. If this thing continues up at Washoe, there will be but little left to burn in a short time.

INSECTS AS FOOD.—It is said that the poor in the city of Mexico eat large quantities of certain dark colored cakes which resemble brown bread to some extent. These cakes are made of the small eggs of certain kinds of water-hugs, which are collected by placing reeds and other aquatic plants along the borders of the lake near the city; these being soon coated with eggs about the size of mustard seeds. These eggs are dried in the sun and then pounded up into meal. The hugs themselves are caught for food for birds and poultry.

SELF-TAUGHT.—Many men are said to be self-taught. No man was ever taught in any other way. Do you suppose a man is a huckster, to be hung on the wall of knowledge and pumped full? Man is a creature that learns by the exertion of his own faculties. There are aids to learning, of various kinds; but, no matter how many of these aids a man may be surrounded by, after all, the learning is that which he himself acquires. And whether he be in college, or out of school, every man must educate himself. And in our times and our community every man has the means of doing it.—*Beecher.*

MUSICAL BATTERY.—Some one suggests, as the result of the grand musical festivals with choruses and artillery accompaniments, the getting up of a battery of guns of different sizes and cast from different metals, so as to produce the various notes of the scale. He thinks a tune can be played on this as well as on a chime of bells.

COPE DISTRICT LETTER.—In W. H. M.'s letter from Mountain City, published in our issue of June 25th, the name of the Superintendent of the Argenta S. M. Co. should have been printed T. J. Reilly, instead of Kiely.

TWENTY-FOUR YEARS AGO.—Twenty-four years ago last Thursday, the American flag was first raised on these shores. Sometime we of the Pacific coast will celebrate this day.

STEIGER'S LITERARISCHER MONATSBERICHT.—With the May number this literary periodical, the only one published in the German language in the U. S., commenced its second volume. It contains a list of new German publications, besides many exceedingly interesting literary notes and articles. In the account of the "Growth of the Book and News Trade in the United States," we find a condensed history of the firm of Bancroft & Co. of this city, and throughout its pages we meet with most readable matter. Any one desiring the periodical can obtain it, free and prepaid, by addressing Steiger's Literarischer Monatsbericht, 22 and 24 Frankfort street, New York. The proprietor, we must not forget to add, offers a prize of \$800 for the best historical sketch of the intellectual vigor and progress of the German population in North America, more particularly treating of the influence of the German-American Press on the development of American institutions.

NEW WORK BY KUSTEL.—"Roasting of Gold and Silver Ores, and the extraction of their respective metals without quicksilver." Under this title Dewey & Co., of the Scientific Press, San Francisco, will soon publish an excellent work by Guido Kustel. The reputation of the author renders unnecessary any further recommendation of the work, which, it is said, will be a clear and complete treatise on these subjects, which are of so much interest at the present time. Miners and others will find it of great value. The various methods and furnaces employed in roasting, and chlorination and lixiviation with the different manipulations and apparatus, will be fully described, and amply illustrated, together with remarks on the various advantages and disadvantages of each process, and their special application on this coast.

We would be glad to see fifty copies of this work in the hands of those having charge of and interested in mining operations in Alpine. Kustel is on the right track, as time will show.—*Alpine Miner, Silver Mountain, Cal.*

The above work contains 120 pages, and the price is \$2.50 coin or \$3 currency.

TO MINERS, MILLMEN AND METALLURGISTS. Kustel's new work on the Concentration of all kinds of Ores, and the Chlorination Process, for Gold-bearing Sulphurets, Arseniures, and Gold and Silver Ores generally, is the best and most complete work issued. It contains 120 diagrams, illustrating machinery, etc., which alone are of the greatest value. Price, \$7.50, postage paid. Published by Dewey & Co., publishers of the Scientific Press, San Francisco.

LAYNES' ELEMENTS OF COMPOSITION.—This is a valuable book of 166 pages, containing plain and simple instructions in the art of composition. It should be read by all intelligent persons who desire to write or speak English correctly or eloquently. Printed and sold by Dewey & Co., Scientific Press Office.

MULLER'S Brazilian Spectacles are just the thing for people fond of reading whose eyesight is beginning to fail. His great skill as an optician enables him to suit all conditions of sight. It is Muller who supplies the city with opera glasses. *

GLITTERING TEETH.—Not only does SOZONANT impart the whiteness of the purest porcelain to the teeth, but its polish, too. They glisten after being brushed with it, like the inner surface of an ocean shell, and the effect of this peerless dentifrice is to render the enamel as hard and indestructible as adamant.

SAVE and mend the pieces, use "SPALDING'S GLUE."

DR. HARTMANN, Physician, Oculist and Medical Electrician, cures all diseases of the eye, such as Granulated Eye Lids, Inflammation of the Eye, Opacities of the cornea, cured permanently. Also, Paralysis, Rheumatism and all Nervous and Chronic Diseases, and all Female Complaints. 314 Bush street. 26-27-28.

TREATMENT OF REBELLIOUS SILVER ORES, by Charles H. Aaron—a pamphlet of eight pages of concise reading, of practical value to parties interested in the subject. Printed and sold by Dewey & Co., at this office, for 25 cents, post paid.

HAVING had numerous applications to purchase the right to manufacture CHAMPAGNE MEAD (the great temperance drink), we will state that we are now prepared to sell State and County Rights on reasonable terms.

KENTON, Gass & Co. San Francisco, July 10, 1870 27-21-3m

TO FARMERS.—Stevens & Bro's Egg Boxes, holding 30 dozen, supplied free of charge, by John Gray & Co., No. 210 Clay street, San Francisco, to all customers. The eggs are kept cool and free from moisture and mould, and are in no danger of being broken, and require no re-counting. 20-20-3m

PHOTOGRAPHY.—For CABINET PHOTOGRAPHS, or Enamelled Cards, of the very best quality, you must go to the NEW YORK GALLERY, Nos. 25 and 27 Third street, San Francisco. Every picture warranted to give satisfaction. 10-18 6m B. F. HOWLAND.

THOMAS O'NEIL Ornamental Glass Cutter, No. 10 Stevenson street, up stairs. Stained, Ground and Ornamental Cut Glass to order on reasonable terms. 14-20

BOILER FELTS saves twenty-five per cent. of fuel. BERRY & PLACER'S MACHINERY DEPOT, No. 114 California street. 1-21-3m

CONTINENTAL Life Insurance Co., 302 Montgomery street, corner of Pine.

New Mining Notices.

Evening Star No. 1 Silver Mining Company.

Location of Works: White Pine County, State of Nevada.
Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the first day of June, 1870, an assessment of five (5) cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary, at the office of the Company, Room 5, No. 302 Montgomery street, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on Saturday, the second day of July, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the twenty-fifth day of July, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

Office, Room 5, No. 302 Montgomery street, San Francisco, California. J. H.

POSTPONEMENT.—This day for deemed stock delinquent on the above assessment is hereby postponed until the first day of August, 1870, and the sale thereof until the second day of August, the fourth day of August, 1870. By order of the Board of Trustees.

W. H. WATSON, Secretary.

Mining Notices--Continued.

Cordillera Gold and Silver Mining Company.

Location of Works: Chihuahua, Mexico.
Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the eighth day of June, 1870, an assessment of fifty (50) cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary, at his office, No. 321 Washington street, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on Saturday, the ninth day of July, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the first day of August, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

HENRY B. REED, Secretary.

Office, 321 Washington street, San Francisco. July

Office of Eclipse Consolidated Mining Company.

Company, 210 Battery street, San Francisco, June 20th. The Annual Meeting of the stockholders of this Company will be held on Saturday, July 23d, 1870, at twelve o'clock, M., for the election of Trustees for the ensuing year and the transaction of any other business that may be presented.

Office, 210 Battery street, San Francisco. July 25-4w

Jennie A. Consolidated Mining Company.

White Pine District, Nevada.
Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the twentieth day of June, 1870, an assessment of ten (10) cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, Room 37 New Merchants' Exchange, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on the twenty-fifth day of July, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the fifth day of August, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

J. M. BUFFINGTON, Secretary.

Office, Room 37 New Merchants' Exchange, California street, San Francisco. July 25

Latawana Mining Company--Near Hamilton City, White Pine, State of Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the second day of June, 1870, an assessment of fifteen cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, at 614 Merchant street, Room 26, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on the fourteenth day of July, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Saturday, the sixth day of August, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

A. MARTINON, Secretary.

Office, 614 Merchant street, Room 26, San Francisco, California. July

Office of the Placer Gold Mining and Canal Company.

Location of Works: Township No. Six (6), County of Placer, State of California.
Notice is hereby given, that at a meeting of the Trustees of said Company, held on the eleventh day of June, 1870, an assessment of two (2) dollars (\$2) per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary, at the office of the Company, No. 204 Montgomery street, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on Tuesday, the twenty-sixth day of July, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Tuesday, the sixteenth day of August, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

S. HALEY, Secretary.

Office of Company, No. 204 Montgomery street, San Francisco, California. July 18

Pogonip Flat Silver Mining Company.

Location of Works: White Pine, Nevada.
Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the fifteenth day of June, 1870, an assessment of three (3) cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, No. 1 Express Building, northeast corner Montgomery and California streets, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on the twenty-third day of July, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the eighth day of August, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

T. J. OWENS, Secretary.

Office, No. 1 Express Building, northeast corner Montgomery and California streets, San Francisco. July 25

Block Tin and Solder Wire, broom wire, piano covering wire, etc., manufactured by Joshua Gray, 437 Brannan street. 24-19-3m

New Advertisements.

Thursday Evening.

Owing to the time necessary to mail the present large edition of the SCIENTIFIC PRESS, we are obliged to go to press on Thursday evening—which is the very latest hour we can receive advertisements.

IMPORTANT BOOK!

Now in Press.—Roasting of Gold and Silver Ores, and the Extraction of their Respective Metals without Quicksilver. By G. Kustel, Mining Engineer and Metallurgist; Author of "Nevada and California Processes of Silver and Gold Extraction," and "Concentration of all Kinds of Ore."

Illustrated by numerous engravings. Published and sold by Dewey & Co., proprietors SCIENTIFIC PRESS, San Francisco.

This Book will contain 120 pages and be issued about July 16, 1870. Price, \$2.50, coin.

REDUCTION IN FARE

FROM
San Francisco to New York

BOSTON,

THE CHICAGO, BURLINGTON AND MISSOURI RIVER RAILROAD.

NEW YORK.....\$138 00
BOSTON.....139 25

Ticket Office, No. 208 Montgomery Street.

24-20 SAM. A. LEWIS, Agent.



NO ENJOYMENT WITHOUT HEALTH.—Of all the property we own in the world, that which demands the greatest care is our own bodies. Better lose houses, lands, balances in the bank, anything that represents wealth, than the strength, vigor and elasticity of the physical frame. The dyspeptic, the bilious sufferer, the nervous invalid, cannot enjoy the gifts of fortune. Happily, however, dyspepsia, biliousness and nervous debility are removable evils. TARRANT'S EFFERVESCENT SELTZER APERIENT is a specific for them. It renovates the stomach, improves the appetite, cleanses the bowels, regulates the liver, calms the nerves, and disinfects the depraved fluids.

SOLD BY ALL DRUGGISTS.

MARAVILLA COCOA.—For Breakfast.—The Globe says: "Various importers and manufacturers have attempted to attain a reputation for their prepared Cocos, but we doubt whether any thorough success has been achieved until Messrs. Taylor Brothers discovered the extraordinary qualities of 'Maravilla' Cocoa. Adapting their perfect system of preparation to this finest of all species of the Theobroma they have produced an article which supercedes every other Cocoa in the market. Entire solubility, a delicate aroma, and a rare concentration of the purest elements of nutrition, distinguish the Maravilla Cocoa above all others. For homopaths and invalids we could not recommend a more agreeable or valuable beverage." Sold in packets only by all Grocers, of whom also may be had Taylor Brothers Original Homopathic Cocoa and Soluble Chocolate, Steam Mills—Brick Lane, London. 5-20-1y

A VALUABLE BOOK FOR INVENTORS AND ARTISANS.—Dewey & Co., publishers of the SCIENTIFIC PRESS and Patent Agents, have just issued a neat little volume of over five hundred well executed cuts of the principal mechanical movements known. These useful representations of the various appliances of power are printed side by side with explanatory notes, which makes the subject clear to every reader. Such a book should be in the hands of every mechanic, and form part of every public school library. It is a handy book, and cheap enough for every farm, shop and factory. Sent to any address from the SCIENTIFIC PRESS office, postpaid, for \$1.—New Age.

Railroads and Steamers.

Central Pacific Railroad.

Time Schedule, July 4, 1870.

EASTWARD.		Express Train Daily.	Emigrant Train Daily.	Passenger Train Sunday.
San Francisco	Leave	8:00 A. M.	7:00 P. M.	4:10 P. M.
Oakland	"	8:30 A. M.	"	4:40 P. M.
San Jo. o	"	8:55 A. M.	"	5:10 P. M.
Stockton	"	9:20 A. M.	"	5:40 P. M.
Sacramento	Arrive	2:00 P. M.	7:40 A. M.	8:15 P. M.
Sacramento	Leave	2:10 P. M.	9:10 A. M.	10:00 P. M.
Marysville	Arrive	4:00 P. M.	1:15 P. M.	"
Yreka	"	6:45 P. M.	"	"
Colfax	Leave	5:00 P. M.	4:00 P. M.	"
Reno	"	1:15 A. M.	5:45 A. M.	"
Winnemucca	"	2:10 A. M.	6:15 A. M.	"
Battle Mountain	"	2:40 A. M.	6:45 A. M.	"
Carlin	"	3:10 A. M.	7:00 A. M.	"
Elko	"	4:40 P. M.	12:30 P. M.	"
Red Bluff	"	1:30 A. M.	7:45 A. M.	"
Ogden	Arrive	6:00 A. M.	5:15 P. M.	"
WESTWARD.		Express Train Daily.	Passenger Train Sunday.	Emigrant Train Daily.
Ogden	Leave	6:00 P. M.	"	5:00 P. M.
Red Bluff	"	10:42 P. M.	"	1:30 A. M.
Elko	"	3:45 A. M.	"	7:15 P. M.
Carlin	"	10:15 A. M.	"	9:15 P. M.
Battle Mountain	"	1:25 P. M.	"	3:05 A. M.
Winnemucca	"	4:05 P. M.	"	9:40 A. M.
Colfax	"	1:00 A. M.	"	11:51 A. M.
Colfax	"	5:45 A. M.	"	12:50 A. M.
Orico	"	5:30 A. M.	"	"
Marysville	Arrive	11:25 A. M.	2:30 P. M.	2:30 P. M.
Sacramento	Leave	11:45 A. M.	7:00 A. M.	7:30 P. M.
Stockton	"	1:40 P. M.	8:45 A. M.	"
San Jose	Arrive	2:30 P. M.	12:45 P. M.	"
Oakland	"	5:30 P. M.	12:10 P. M.	"
San Francisco	"	6:00 P. M.	12:40 P. M.	9:30 A. M.

"Local Trains."

From	From	From
SAN FRANCISCO.	OAKLAND.	BROOKLYN.
B 5:50 A. M.	B 5:40 A. M.	B 5:30 A. M.
B 8:00 " "	B 7:55 " "	B 7:45 " "
9:00 " "	8:00 " "	7:50 " "
D 10:00 " "	9:00 " "	8:50 " "
D 11:00 " "	10:00 " "	9:50 " "
D 12:00 P. M.	11:00 " "	10:50 " "
D 3:00 " "	2:00 P. M.	2:50 P. M.
4:00 " "	3:00 " "	3:50 P. M.
5:15 " "	4:00 " "	4:50 P. M.
6:30 " "	5:20 " "	6:10 " "
B 11:30 " "	6:40 " "	7:30 " "
FROM		FROM
SAN FRANCISCO.	ALBANY.	HATFIELD.
B 7:20 A. M.	B 5:25 A. M.	B 4:30 A. M.
C 6:00 " "	B 7:30 " "	B 7:00 " "
BE 9:30 " "	C 9:00 " "	C 8:30 " "
CE 11:30 " "	B 9:25 " "	B 9:00 " "
1:30 P. M.	C 11:25 " "	C 11:00 " "
3:30 " "	1:55 P. M.	1:55 P. M.
6:00 " "	4:25 " "	3:55 P. M.

B Sundays excepted. C Sundays only.
D To Oakland only. E To Alameda only.
A. N. TOWNE, Gen'l Supt. C. P. R. R.
T. H. OGDEN, Gen'l Pass'gr Agent, Sacramento.

SHORT ROUTE.



The following time will take effect
Sunday.....April 24, 1870.

GOING NORTH--DAILY (SUNDAYS EXCEPTED).			
New World	Trains	Trains	Trains
Leaves	Arrive at	Arrive at	Arrive at
S. Francisco.	Callista.	Sacramento.	Marysville.
7:30 A. M.	11:45 A. M.	11:20 A. M.	1:00 P. M.
4:00 P. M.	7:15 P. M.	8:20 P. M.	9:30 P. M.

ON SUNDAYS.			
8:30 A. M.	12:20 P. M.	12:45 P. M.	5:00 P. M.

GOING SOUTH--DAILY (SUNDAYS EXCEPTED).			
Trains	Trains	Trains	New World
Leave	Leave	Leave	Arrives at
Marysville.	Callista.	Sacramento.	S. Francisco
5:00 A. M.	6:45 A. M.	8:15 A. M.	10:30 A. M.
1:15 P. M.	2:45 P. M.	3:15 P. M.	7:30 P. M.

ON SUNDAYS.			
10:15 A. M.	3:40 P. M.	2:30 P. M.	6:45 P. M.

TICKETS for sale at 313 Montgomery street, or on board steamer New World. R. S. MATTHEWS, Superintendent. L. C. FOWLER, General Freight and Passenger Agent. N. B.—Branch Office of Western Union Telegraph Company, Front and Vallejo street wharf. Vallejo, April 24, 1870. 13-20-1y

Pacific Mail Steamship Company.—For New York, via Panama. PRICES GREATLY REDUCED. Leave what ever of First and Bremen streets punctually at 11 o'clock A. M. on the 3d and 15th of each month (except when either date falls on Sunday, then on Saturday preceding), for PANAMA, connecting, via Panama Railroad, with one of the Company's splendid steamers from ASPINWALL for NEW YORK.

July 15.....COLORADO.

All steamers touch at Acapulco; the steamer of the 2d is expected to touch at San Jose de Guatemala; steamer of the 18th touches at Manzanilla.

For Japan and China.—Steamers leave on the 1st of every month, punctually at noon, for YOKO. HAMA and HONGKONG, connecting at Yokohama with the Company's Branch Line for SHANGHAI, via Higo and Nagasaki.

August 1—GREAT REPUBLIC, Captain Doane. Apply at the Pacific Mail Steamship Company's office, corner Sacramento and Leidesdorf streets. 13-20 ELDRIDGE & IRWIN, Agents.

Globe Gold and Silver Mining Company.

NOTICE OF ANNUAL MEETING.—Location of Mine and Works: Monitor District, Alpine County, California. Notice is hereby given, according to law, that the ANNUAL MEETING of the Stockholders of the Globe Gold and Silver Mining Company will be held on Tuesday, the 24 day of August, 1870, at 4 o'clock, P. M., of that day, at the office of the Company, No. 461 Bryant street, the object of the meeting being to elect Trustees for the ensuing year, to serve till their successors shall be duly elected and qualified; also, to act upon a proposition to remove the office of the Company to Monitor; and for the transaction of such other business as may come before it. By order of

J. WINCHESTER, President.
B. SHAW, Secretary pro tem.
Dated San Francisco, June 30, 1870. July 21m

San Francisco Metal Market.

PRICES FOR INVOICES.

Jobbing prices rule from ten to fifteen per cent. higher than the following quotations.

IRON.—Duty: Pig, \$30 per ton; Railroad, 50c per 100 lbs.; Bar, 1 1/2% per lb; Sheet, polished, 3c per lb; common, 1 1/2% per lb; Plate, 1 1/2% per lb; Pipe, 1 1/2% per lb; Galvanized, 2 1/2% per lb.	
Scotch and Eng. Pig Iron, 30 ton.....	\$31 00 @ \$32 00
White Pig, 30 ton.....	28 00 @ 30 00
Refined Bar, good assortment, 30 lb.....	04 @ —
Refined Bar, good assortment, 30 lb.....	04 @ —
Boiler, No. 1 to 4.....	04 1/2 @ —
Plate, No. 5 to 9.....	— @ 04 1/2
Sheet, No. 10 to 13.....	04 1/2 @ 05
Sheet, No. 14 to 20.....	05 @ 05 1/2
Sheet, No. 24 to 27.....	05 @ 05 1/2
COPPER.—Duty: Sheathing, 3 1/2% per lb; Pig and Bar, 2 1/2% per lb.	
Sheathing, 30 lb.....	— @ 26
Sheathing, Yellow.....	20 @ 21
Sheathing, Old Yellow.....	10 @ 11
Composition Nails.....	21 @ 22
Composition Bolts.....	21 @ 22
TR. PLATES.—Duty: 25 cent. ad valorem.	
Plates, Charcoal, 12, 30 box.....	12 00 @ 10 50
Plates, 10 Charcoal.....	10 00 @ 10 50
Roofing Plates.....	10 00 @ 10 50
Banco Tin, Slabs, 30 lb.....	— @ 42
STEEL.—English Cast Steel, 30 lb.....	— @ 15
QUINCEY'S—30 lb.....	— @ 65
LEAD.—Pig, 30 lb.....	7 1/2 @ 8
Sheet.....	11 @ —
Pipe.....	11 @ —
Bar.....	9 @ 9
ZINC.—Sheet, 30 lb.....	10 1/2 @ 11
BORAX.....	35 @ 38

Machinists and Foundries.

FULTON

Foundry and Iron Works.

HINKLEY & CO.,

MANUFACTURERS OF

STEAM ENGINES,

Quartz, Flour and Saw Mills,

Hayes' Improved Steam Pump, Brodie's Improved Crasher, Mining Pumps, Amalgamators, and all kinds of Machinery.

N. E. corner of Tehama and Fremont streets, above Howard street, San Francisco. 3-47

THE RISDON

Iron and Locomotive Works.

INCORPORATED.....APRIL 30, 1868.
CAPITAL.....\$1,000,000.

Corner of Beale and Howard Streets,
SAN FRANCISCO.

Steam Engine Builders, Boiler Makers, Machinists, Foundrymen, and Manufacturers of Car Wheels equal to the best imported, and guaranteed equal to Eastern Wheels.

Directors: Lloyd Tevis, Wm. Alvord, S. F. Batterworth, Joseph Moore, Chas. E. McLane, Wm. Norris, John N. Risdon.

JOHN N. RISDON.....President.
JOSEPH MOORE.....Vice President and Superintendent.
LEWIS R. MEAD.....Secretary.

UNION IRON WORKS,

Sacramento.

WILLIAMS, ROOT & NEILSON,

MANUFACTURERS OF

STEAM ENGINES, BOILERS,

CROSS' PATENT BOILER FEEDER AND SEDIMENT COLLECTOR.

WILCOX'S PATENT WATER LIFTERS,
Duabars' Patent Self-Adjusting Steam Piston

PACKING, for new and old Cylinders.
And all kinds of Mining Machinery.

Front Street, between N and O streets,
16-17 RICHMOND CITY

PACIFIC FILE WORKS,

No. 53 Beale Street, bet. Market and Mission,
SAN FRANCISCO.

J. C. THIVING & CO.,
SUCCESSORS TO T. G. DUMING & CO.

Files Re-cut and warranted as good as new, with a saving of fifty per cent. REAPER AND MOWER SECTIONS MADE TO ORDER. The only establishment on the Coast. Orders from the country promptly attended to. 2nd First Premium awarded at the State Fair, 1867. 2v17

WM. W. CANTY, JNO. BUSH, F. PRETORIUS, JNO. CONNELL.
MINERS' CO-OPERATIVE BOILER SHOP.

228 FREMONT STREET,
Between Howard and Folsom, San Francisco.

ALL KINDS OF —
High and Low Pressure Boilers Built.
SHEET IRON WORK, ETC., ETC.
Repairing promptly attended to.
17-20-6m WM. W. CANTY, Manager.

THOMPSON BROTHERS,

EUREKA FOUNDRY,

129 and 131 Beale street, between Mission and Howard
San Francisco.

LIGHT AND HEAVY CASTINGS,
of every description, manufactured 24v16ar

ESTABLISHED 1851.

PACIFIC IRON WORKS,

First and Fremont streets,

SAN FRANCISCO,

IRA P. RANVIN. A. P. BRAYTON.
GEO. W. FOGG, Superintendent.

Steam Engines and Boilers,

MARINE AND STATIONARY,

IRON AND BRASS CASTINGS,

Mining Machinery of Every Description,

And all other classes of work generally done at first-class establishments, manufactured by us at the lowest prices, and of the best quality.

Particular attention paid to Jobbing Work and Repairs.
N. B.—Sole Agents for sale of HUNTOON'S CELEBRATED PATENT GOVERNOR.
18v20-3m (GODDARD & CO.

McAFEE, SPIERS & CO.,

BOILER MAKERS

AND GENERAL MACHINISTS,

Howard st, between Fremont and Beale, San Francisco.

Five of Tubular Boilers, with plain circular or spiral courses. Upright Flue or Tubular Boilers, Locomotive and Marine Boilers, and Wrought Iron Tanks of every description.

Hydraulic Pipe supplied at reasonable rates. In ordering, give the quantity of water to be supplied, height of the fall, and total length of pipe, so as to enable the firm to determine the diameter of the pipe and thickness of iron to be used.

Repairs.—Boilers, Smoke Stacks, Pipes, etc., put in repair with promptness.

To Boiler Makers and Machinists in the Interior.—The firm is prepared to furnish estimates of Boilers, supply new Heads, drilled and punched, and attend to the selection and forwarding of Iron for Boilers, Pipes and other purposes.

Plans, Drawings and Specifications.—The firm is prepared to make out Plans and Specifications, receive estimates, and superintend the Erection of any Machinery that may be entrusted to their care.

To Inventors.—The firm is prepared to assist in developing the plans of those who have the ideas, but not the practical experience necessary to put the same in form, by making drawings of their inventions, giving them the benefit of their practical knowledge in the construction of Machinery, and attending to the manufacture and introduction of their inventions. 1v16f

MACHINERY

—AT—

GREATLY REDUCED RATES.

Miners' Foundry & Machine Works,

235 TO 245 FIRST STREET,
SAN FRANCISCO.

This Establishment is now working upon the
CO-OPERATIVE PLAN,

And are thereby enabled to manufacture
MACHINERY, CASTINGS & BOILERS
AT EASTERN PRICES.

And better adapted to the wants of the Pacific States.
Ascertain our prices before purchasing. 8v20q

NELSON & DOBLE,

AGENTS FOR

Thomas Firth & Sons' Cast Steel.



MANUFACTURERS OF
Sledges, Hammers, Stone Cutters', Blacksmiths' and Horse-Shoers' Tools.
13 and 15 Fremont street, near Market, San Francisco.
10v14ar

CALIFORNIA BRASS FOUNDRY,

No. 125 First street, opposite Minon,

SAN FRANCISCO.

ALL KINDS OF BRASS, Composition, Zinc, and Babbitt Metal Castings, Brass Ship Work of all kinds, Spikes, Sheathing Nails, Rudder Braces, Hinges, Ship and Steamboat Bells and Gongs of superior tone. All kinds of Cocks and Valves, Hydraulic Pipes and Nozzles, and Hose Couplings and Connections of all sizes and patterns, furnished with dispatch.

PRICES MODERATE. 18v14ar
P. GALLAGHER. J. H. WEED V. KINGWELL

CITY IRON WORKS COMPANY,

CLERC & CO.,

IRON FOUNDERS,

Steam Engine Builders and Makers of all kinds of Machinery.

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Scientific Discovery.

THE GREATEST EVER MADE,
Having baffled the Ingenuity of Chemists and Physiologists for Ages Past.

DR. CROWLY'S EMERALD HAIR BALM.

No EXAGGERATION, but a stern reality, verified by the unimagined.

Dear Doctor: I feel much pleasure to inform you that your "Emerald Hair Balm" has caused the growth of hair on my head—having only used one of your bottles, although I had been bald for twenty-five years. You are quite at liberty to use this information as you please. Yours truly,
JOHN STAPLETON,
California street, San Francisco.

To W. J. Crowley, M. D., No. 20 Montgomery street,
San Francisco. 1v21-1m

HIBBERD, SANBORN & CO.,



South Point Mills, Berry Street,
Between Third and Fourth, San Francisco. Orders from the country promptly attended to. All kinds of Stair Material furnished to order. Wood and Ivory Turners. Billiard Balls and Ten Pins. Fancy Newsels and Malsters.

Greatest Discovery Ever Made.

MR. J. W. MAO, while a resident in New Zealand, was so afflicted with the RHEUMATISM, that for years he was completely crippled and unable to attend to business. The symptoms were of the worst type—knees painful and swollen, with sinews contracted; shoulder, arm and hand rendered useless, and accompanied with continued excruciating pain. While in this state of suffering, he got acquainted with a native of the country, who applied to the parts affected a composition spread on coarse canvas, the properties of which were so wonderful that in a short time all the pain left him, the swelling disappeared, his sinews relieved, and he was able to resume his usual avocations. So effectual has been the remedy, that to this day he has enjoyed perfect health, without the slightest return of his former complaint. Knowing the great blessing such a remedy would be to those afflicted with this painful disease, he with great difficulty and expense obtained the secret of preparing the Plaster; and during the many years MR. MAO has applied these Plasters in New Zealand, Tasmania, New South Wales, and this city, their effect has been marvelous, giving to the most painful and long-standing cases sure and certain relief. The most incredulous will be convinced by referring to these persons: B. W. Owens, 405 Front street; F. B. Alderson, Traveling Agent for Dewey & Co., 414 Clay street; James Flynn, 519 Mission street; Michael Gorman, No. 6 Front street; Mrs. W. S. Wright—late of Gilmore House—513 Folsom street, now agent at Virginia City; E. Shenley, corner Montgomery and Filbert streets; W. M. McLeod, Depository American Tract Society, 557 Market street, and a host of others, who all bear testimony to the unparalleled healing powers of J. W. MAO'S (rightly termed Magic) Plaster, for the cure of Rheumatism, Gout, Weak Loins, Tender Feet and Neuralgia. J. W. MAO may be consulted at his office, rooms Nos. 34, 35 and 36, 128 Kearny street, San Francisco, between the hours of 9 to 12 A. M., 2 to 4 P. M. and 7 to 9 P. M. 18v20-3m

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WHOLE WORLD being judges—as they are the LAST, so they are BEST! Why? Because the WEED

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DR. ABORN

Has Consented to Remain on the Pacific Coast a while longer.

He can be consulted until the 10th of September, as follows: At the Anzeria House, San Jose, from the 1st to the 31st of July; at 22 Kearny street, San Francisco, from the 1st to the 5th of August; at the Yosemite House, Stockton, from the 5th to the 31st of August; and again at 22 Kearny street, San Francisco, from the 1st to the 10th of September.

Card from Wm. Hoskins, Notary Public, Oakland.

Dr. Aborn—I take pleasure in bearing testimony to your skill and Treatment for Catarrh and Bronchial Affection, having been under your treatment the past ten weeks, and find myself nearly cured. As you are about leaving for San Jose, I cheerfully recommend you to all similarly afflicted.

Oakland, June 3, 1870. WM. HOSKINS.

No Painful Operations.

Dr. Aborn does not subject his patients to any painful or unpleasant operations. His treatment is mild, and safe for the most delicate child. The afflicted are hereby informed, that after the first visit, for many of the diseases which he makes a specialty, they can take the treatment home and use it until cured, without pain or interruption to their usual avocations.

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Hon James A. Johnson, M. C., Lieut. Governor Holden, Charles N. Fox, Esq., S. O. Houghton, Esq., Gen. E. F. Beale, Melville Cottle, Esq., Wm. Hoskins, Esq., Messrs. Wm. B. Cooke, H. M. Jones, Henry Orman, Jr., J. H. Hardwick, Perry Dyer, J. S. Carter, Hubert Burges, and many other prominent citizens of California, have willingly given their cards to the public, testifying to the efficacy of Dr. Aborn's treatment. Many cures have been effected by the Doctor within a few days, and a number of those cures were of many years standing, and had resisted all the ordinary modes of treatment. The usual success attending Dr. Aborn's treatment should inspire new hope of speedy recovery even in the most hopeless cases. 1v21-2m

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U. S. and Foreign Patent Agents, Scientific Press Office, 414 Clay street, San Francisco.

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We shall adhere to the following rates for advertising in the SCIENTIFIC PRESS from this date:

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GIANT CEMENT.

A most extraordinary and universally needed article for mending Furniture, Crockery, Glassware, Marble, Meerschaum Pipes, Ornaments, etc.; also splicing Leather Belting and patching Boots and Shoes. This Cement possesses extraordinary merit, and is in every way a first-class article. Every can is its own testimonial. Also, MINERS' RUBBER CEMENT, for mending Rubber Boots, Shoes, Belting, Coats, and Hose without stitching! Easily applied, never failing, and perfectly waterproof. Both Cements are put up in TIN CANS ONLY, with full directions. Take no other. GIANT CEMENT and MINERS' RUBBER CEMENT are kept by Druggists and Dealers throughout the country. Country Dealers can be supplied by ordering from any house here or in Sacramento with whom they deal, or by sending direct to us. Send for Circulars and Price List to Giant Cement Manufacturing Co., 419 Washington street, San Francisco.

MINERS' RUBBER CEMENT.

MINERS' RUBBER CEMENT.

I. O. O. F.

THE NEW AGE,

A WEEKLY JOURNAL OF SIXTEEN PAGES.

The "Official Organ" of the I. O. O. F. on the Pacific Coast.

Is devoted to Odd Fellowship, the ARTS and SCIENCES and GENERAL LITERATURE; and as a family paper is not surpassed by any journal in the United States. Subscription price per year by mail, \$5. Delivered in the city, per month, 50 cents. Office, "Old Fellows" Hall, 337 Montgomery street, San Francisco. 19v19

New York Metal Market.

[CORRECTED WEEKLY FROM THE AMERICAN ARTISAN.]

NEW YORK CITY, Saturday, June 25, 1870.
IRON.

Pig, Scotch, No 1 (cash), per ton..	\$37 50	@	\$42 00
Pig, American, No 1 (cash).....	42 00	@	—
Pig, American, No 2.....	38 00	@	39 00
Swedish, ordinary sizes.....	140 00	@	155 00
Common.....	87 00	@	92 50
Re-fused.....	95 00	@	—
Rods.....	100 00	@	155 00
Horse-shoe.....	115 00	@	—
Hoop.....	125 00	@	180 00
Scroll.....	110 00	@	145 00
Nail-rods, per lb.....	8 1/2	@	9 1/4
Spring.....	9 1/2	@	—
Tire.....	9 1/2	@	—

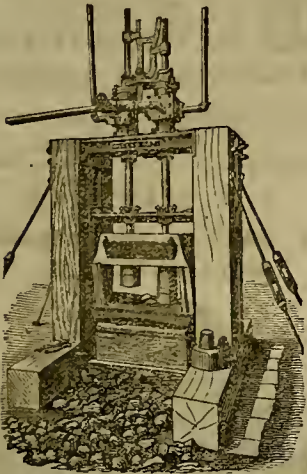
STEEL.

Bars, best cast, warranted, per lb.....	23	@	23 1/2
Sheet, best cast.....	23	@	—
Sheet, second quality.....	20	@	—
Sheet, third quality.....	18	@	—
Saw-plates, circular.....	27	@	—
Double-shear, warranted.....	19	@	—
Single-shear.....	19	@	—
Montague & Co. (cast bars).....	18	@	—
Machinery, round.....	16	@	—
German, best.....	16	@	—
German, goat.....	13 1/2	@	—
German, eagle.....	12	@	—
Blister, warranted.....	16	@	—
Blister, common.....	15	@	—
Jessop & Sons, common.....	17	@	—
Double-rolled.....	26 1/2	@	—
Stout as shapes.....	26 1/2	@	—

Machinery.

THE WILSON

Patent Steam Stamp Mill.



This extraordinary Mill, now so justly popular in the East, is now offered to the miners of the Pacific Coast. Having been in operation now for about eighteen months, the Company feel confident that the

WILSON STEAM STAMP MILL,
For Durability, Efficiency,
AND ECONOMY OF WORKING,
HAS NO EQUAL.

The Wilson Steam Stamp Mill is the only Steam Mill that has had the severe ordeal of practical working, and proved itself eminently successful. It is now in operation in several of the Eastern States and Territories, and gaining an enviable popularity. The whole machine is so simple as to be readily understood by the most ordinary minds. In fact, its simplicity is its durability. The expense of crushing rock or cement with this Mill is less than one-half the expense of any other Stamp Mill, and less than one-half the cost. For further particulars inquire of

A. RICKNELE, Agent,
Nevada City, California,
Or of THE WILSON STEAM STAMP MILL CO., 328 Walnut street, Philadelphia, Pa.

Notice.—All persons are hereby warned not to manufacture or use any Steam Stamp Mills that are an infringement on the Wilson Patents, as they will be prosecuted to the utmost rigor of the law.

F. R. WILSON,
20719-4f Supt. W. P. S. S. M. Co., Philadelphia.

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Machinery Broker.

Engines and Boilers for Sale.

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Chemical Ore Reduction Company,

"ROCKET" QUARTZ CRUSHER,

And Anti-Incrustation Powder, for Steam Boilers.

No. 433 CALIFORNIA STREET,

(14 MERCHANTS' EXCHANGE). 23720

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Compound Hydraulic Engines,

STEAM ENGINES,

FOROE PUMPS AND AIR PUMPS.

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16730-3m

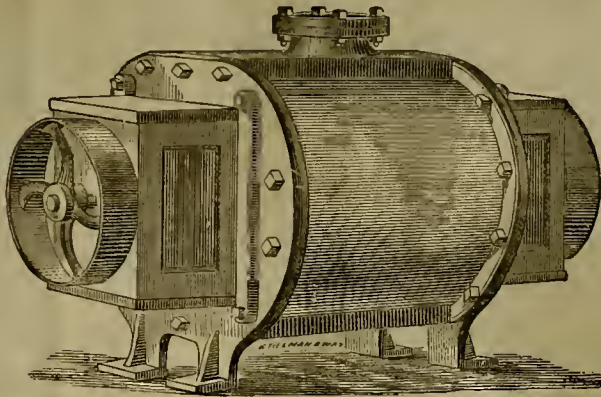
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ROOT'S PATENT FORCE BLAST ROTARY BLOWER.

MANUFACTURED BY KEEP & BARGION,

At the Globe Iron Works, Stockton, California.

Awarded the First Premium at the Paris Exposition.



Patented Nov. 1st, 1864; July 24, 1866; and Oct. 9, 1866.

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Smelting,

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Steamships.

REQUIRES

Fifty Per Cent.

LESS POWER

Than any Blower

Now in use.

One of these Blowers may be seen on exhibition at W. T. Garratt's Brass Foundry, corner of Mission and Fremont streets. They are also in use at the Almaden Quicksilver Mine; Gridley's Foundry, Gold Hill, Nevada; Aetna Iron Works, San Francisco, and many other places.

CAUTION.—Purchasers will find it to their advantage to apply direct to the Stockton Agency, as certain parties, not authorized to manufacture the Blower, have put in the market machines of inferior construction, which do not answer all the requirements of the genuine article.

Quartz, Saw and Grist Mill Irons, Steam Engines, Horse Powers, High and Low Pressure Steam Engines, Steamboats and Propellers, made at short notice.

For circulars and further information, address

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4v163m

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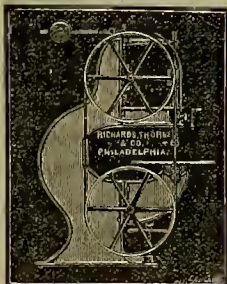
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Improved Patent Band Saw Machines,

Of various sizes, weighing from 1,000 to 5,000 pounds, for Scroll Work, Re-sawing, and Curvilinear Work. Also

BAND SAW MILL MACHINERY,

FOR LOG SAWING OF ANY DEPTH.

Address for Circular,

RICHARDS, THORNE & CO.,

PHILADELPHIA, PA.

VARNEY'S

PATENT AMALGAMATOR

These Machines Stand Unrivalled.

For rapidly pulverizing and amalgamating ore, they have no equal. No effort has been, or will be, spared to have them constructed in the most perfect manner, and of the great number now in operation, not one has ever required repairs. The constant and increasing demand for them is sufficient evidence of their merits. They are constructed so as to apply steam directly into the pulp, or with steam bottoms, as desired.

This Amalgamator Operates as Follows:

The pan being filled, the motion of the muller forces the pulp to the center, where it is drawn down through the aperture and between the grinding surfaces. Thence it is thrown to the periphery into the quicksilver. The curved plates again draw it to the center, where it passes down, and to the circumference as before. Thus it is constantly passing in a regular flow between the grinding surfaces and into the quicksilver, until the ore is reduced to an impalpable powder, and the metal amalgamated.

Sellers made on the same principle excel all others.—They bring the pulp so constantly and perfectly in contact with quicksilver, that the particles are rapidly and completely absorbed.

Milners are invited to examine these pans and settlers for themselves, at the office, 229 Fremont street, San Francisco.

Mr. S. H. HERRING, agent for the Scientific Press, has called upon us, and is now in town. He informs us that the Press is rapidly increasing its circulation. We are pleased to hear it, for it is a journal that all should read. Valuable to farmers as well as miners, mechanics and others.—Pajaronian, June 10th.



BULL'S HEAD STOCK MARKET,

JUNCTION OF

Hayes, Ninth and Market Streets.

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DIXON & STRATTON,

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Work Oxen always on hand.

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GOOD BARN, SHEDS, CORRALS, Etc., Etc.

Auctions Weekly. 21v20

Oil Cake Meal.

THE BEST FEED KNOWN FOR LIVE STOCK.

We desire to call attention to Oil Cake Meal, which we are now manufacturing. No description of feed so greatly promotes the health of animals as Oil Cake Meal, and we urgently request all engaged in the dairy business, raising and fattening stock, or wool growing, to give it a trial, feeling confident that they will find it of very great value. By those who have used it thoroughly, ONE pound is pronounced to be equal to two pounds of Corn Meal, and in the United States Government Report of the Department of Agriculture for 1863, it stands in the following relation to other feeds as to the percentage of flesh produced from a hundred pounds of feed, viz: Indian Corn Meal, 11 per cent.; Barley Meal, 13 per cent.; Oat Meal, 18 per cent.; Oil Cake Meal, 22-24 per cent. For life-sustaining properties to all stock exposed to sudden changes of weather or over-driving, it has no equal.

For MILCH COWS it is particularly valuable, increasing the quantity of milk and improving its quality to a far greater extent than any feed known. A suitable quantity for them at the commencement is one quart in the morning and one quart at night, either alone or with any other feed; generally mixed with the mash of bran, slops, roots, or cut feed of any kind. It improves it to soak it for six or eight hours, the effect being to increase its bulk two or three times. The quantity can be increased gradually, according to the effect produced—ordinarily not exceeding three or four quarts per day.

For BEEF CATTLE it has fattening properties which cannot be found in any other feed—the beef always being more tender and juicy, and of a much finer quality than when fattened on any other feed, and no feed known will so quickly prepare animals for market as Oil Cake Meal.

For HORSES a small quantity given daily promotes their health, and is especially valuable for them when chilled or injured from over-driving. It is one of the best remedies known for Horses subject to the Heaves or Rheumatism, and greatly increases the cleanliness and evenness and glossiness of the hair.

For SHEEP there is no article of food known that produces such fine mutton or so promotes the growth of wool. A small quantity given to chilled Cattle or Sheep will keep them alive and greatly increase their warmth and vitality.

At present price (\$25 per ton) it is the cheapest feed in market. It is now selling in New York at \$42 per ton gold; at \$50 per ton in England, where it has been proven for a long time to be in every respect the most profitable feed known for stock of all kinds—one ton being fully equal to three tons of bran.

The increasing demand for this meal from those on this coast by whom it has been thoroughly tested, has induced us to increase our facilities for its manufacture, and we are now fully prepared to furnish it in quantities as may be desired. For sale by the Grain and Feed Dealers, and at the manufactory, King street, near Third. All orders will receive prompt attention. Address—

Pacific Oil and Lead Works,

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26v20-1am3m

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" JULIA.....CAPT. E. CONCKLIN.

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B. M. HARTSHORNE,

President.

13v12



Time Tests the Merits of all things.—For thirty years PERRY DAVIS' PAIN KILLER has been tested in every variety of climate, and by almost every nation known to Americans. It is the almost constant companion and inestimable friend of the missionary and the traveler, on sea and land, and no one should travel on our Lakes or Rivers without it.

It is a speedy and safe remedy for burns, scalds, cuts, bruises, wounds and various other injuries, as well as for dysentery, diarrhea, and bowel complaints generally, and is admirably suited for every race of men on the face of the globe.

Be sure you call for and get the genuine Pain Killer, as many worthless nostrums are attempted to be sold on the great reputation of this valuable medicine.

23 Directions accompany each bottle. Price 25 cents, 50 cents, and \$1 per bottle. Sold by all medicine dealers. 26v20-1m

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August 2, 1869.

THOMAS MOONEY, President.

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MANUFACTURERS OF

JELLIES, JAMS, PRESERVES, PICKLES,
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Canned Fruits and Vegetables of superior quality.

621 and 623 Front Street,
Between Jackson and Pacific, San Francisco. [16p]

RIDER'S

Automatic Cut-off

Vertical Engines

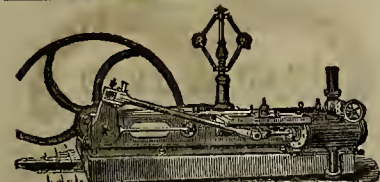
Manufactured by the

Albany St. Iron Works,

NEW YORK.

These Engines are simple, compact and durable, and in point of economy of fuel and space are excelled by none, and are cheaper than any other first-class cut-off Engines in the market. Descriptive pamphlets and price lists mailed free on application to the proprietors, HENDRICK & RIPLEY, Corner Albany and Washington Sts., New York.

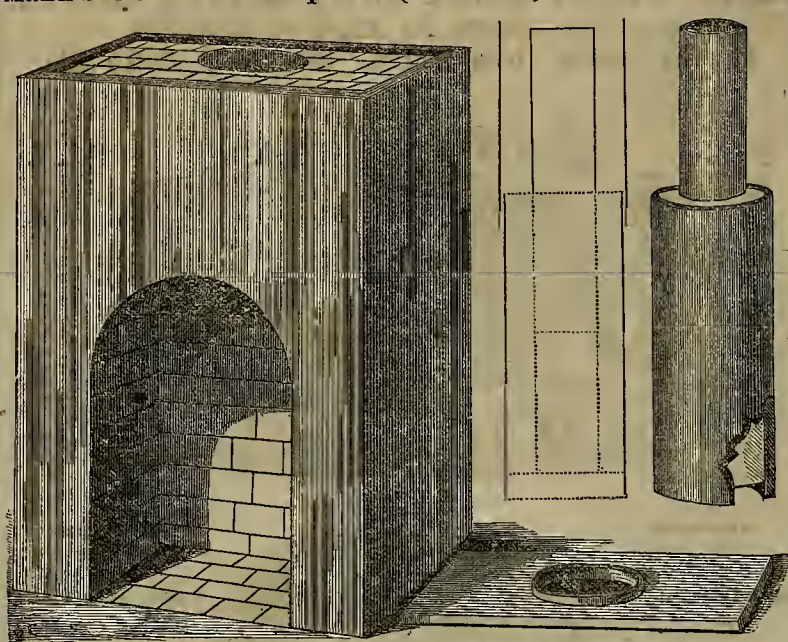
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RIDER'S GOVERNOR CUT-OFF ENGINE,

Manufactured by the DELAMATER IRON WORKS, WEST THIRTIETH ST., NEW YORK. The prominent features of this engine are: Economy equal to any; perfect regulation of speed by cut-off; entire absence of delicate or complicated mechanism; simplicity of design and non-liability of derangement; requiring no more care than common engines. Note.—This improvement can be applied in many cases to existing engines. Pamphlets sent on application.

Mann's Patent Earthquake (and Fire) Proof Chimney.



This invention affords a real improvement, which is much needed in this section of country, and as it is just as cheap, can be built more quickly, with less trouble and always perfect, it is very desirable and likely to supersede the old style of chimney.

The chimney is constructed entirely of metal. The lower portion, made of cast, sheet or boiler iron, with a proper opening for a fire-place (which may be built of brick), is of any suitable shape and is intended to rest upon any foundation or upon the floor, if desired, as the whole weight of the chimney will not exceed six or seven hundred pounds. The left-hand figure shows the general appearance of this lower portion. On the right is the chimney-flue, shown in section also, in the middle figure, and below this, is the cover for the lower portion.

The flue is cylindrical and consists of two pipes, one inside of the other, with the annular space between them filled with cement, plaster of paris, asbestos, or other non-conducting material. This flue is secured to the cover, which is fastened to the lower portion of the chimney by rivets or other proper means. The illustration shows the device with one fire-place and one flue. But it can easily be constructed for two fire-places, opening into adjoining rooms on opposite sides of the chimney.

The chimney may be placed directly on the floor, if necessary, and any suitable fire-proof fire-place can be constructed in the recess in the lower portion. Heating drums may be connected with it at any point, and thus the heat is utilized for warming rooms to a very great extent. It is so light that it is quite applicable when a fire-place is needed only in the upper story or stories of a building. The exposed part of the iron can be painted so as to represent brick-work, or ornamented as desired.

Besides this possibility of a cheap and easily-constructed chimney which can be placed in any room, are to be added its fire-proof qualities. As the pipes are made breaking joints, there is no danger of fire should the chimney be racked. This is a point of no small importance.

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San Francisco, Saturday, July 16, 1870.

VOLUME XXI.
Number 3.

Luxton's Monitor Peat Machine.

Of the large peaty formation which exists in our State but little exact knowledge is had. The most of it (which is called peat only in the wide significance of the term) seems to be intermixed with sand brought down yearly by the mountain streams, and is not used to any extent. Here and there, in isolated instances, we hear of its being employed for fuel; but its general reputation is not good. We know of but one analysis which has been made—viz: that made by Mr. Knstel of a specimen of New York Island turf and published in the *Press* of June 23d, 1866. The air-dried sample gave, by blow-pipe analysis:

Hygroscopic water.....	13.00
Combustible gas.....	46.70
Carbon.....	21.83
Ash.....	18.30
	99.83

By Berthier's test, samples of this peat reduced from eleven to thirteen times its weight of lead, giving a calorific power of 0.33 to 0.38 (taking that of carbon as 1).

It may be possible, however, that there is more to be obtained from our peat than we now think. At any rate it would do no harm if people in their leisure moments would take pains to investigate the subject. One or two gentlemen have expressed a belief that the article can be utilized in a number of localities at least, but we have no definite information on the point. It seems by no means impossible that it may be used, for the production of gas, either for furnaces, or for illumination, if not in other ways.

Our thoughts have been led in this direction by the accounts of the peat machine which is here illustrated. The object of the device is to take the peat as it comes from the bog, cut it up, and deliver it in a suitable form for drying. The working parts are inclosed in a cylindrical shell, the lower part of which, G, is fastened to the bed-plate, A, while the upper part is hinged at I, so that access to the cutters is always easy. When the machine is in operation, the upper part is shut down and fastened in place by pins or screws through the lugs, T.

The peat is introduced into the shell through a funnel, J, beneath which revolves a spiral wing, P, which forces the peat towards the cutters, K. These are fastened on the shaft, B, and kept a proper distance apart by the collars, L, so that they play in slots in the bed-piece. These slots leave vertical studs or teeth of rectangular form in their cross-section, but tapering edgewise.

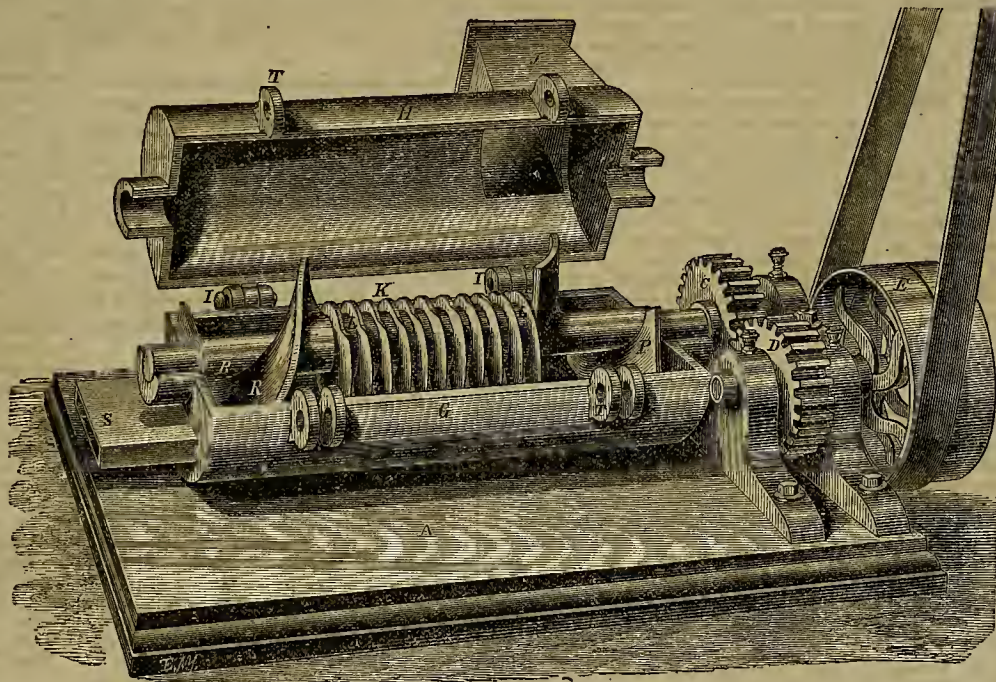
In passing through these cutters the peat becomes thoroughly comminuted. It is now received by the spiral spring, R,

and forced out of the machine, through the opening at S, in a sheet or other desirable form. It is affirmed that with 100 revolutions per minute the machine will grind and press 30 tons of peat per hour, and at the usual speed, requiring seven horse-powers, it will work over 150 tons in ten hours, at a cost for attendance of \$75 to \$80.

Were it possible to utilize our peat formations, it would add immensely to the wealth of our State. As a cheap fuel, peat

much less per ton than that usually employed in the manufacture of gas.

There are many other suggestive uses of peat which show the importance of the subject; but we have not space for further remarks. The machine in question is highly spoken of and seems well adapted for its purpose. We have received some specimens of peat which have been treated, and which appear of most excellent quality for fuel. It is the result of years of labor on the part of the inventor, who



LUXTON'S MONITOR PEAT MACHINE.

is consumed in very large quantities. Experiments in running locomotives with this article have turned out so well on the Grand Trunk Railway in Canada that the company has made a contract for one hundred tons daily for one season and three hundred tons daily for the four succeeding seasons. For gas, peat has been used successfully in several places in Europe. In the United States two examples are sent us. Mr. Gilchrist, Superintendent of the Gas Works at Glen's Falls, New York, states that from 125 pounds of dried peat taken from a bog in that town, owned by the Hon. E. H. Rosekrans, he procured 884 cubic feet of illuminating gas, or 5.8-10 feet of gas to the pound of peat, while from the best coal used at the works the yield of gas did not exceed 4.4-10 feet to the pound. At this rate the ton of peat will yield 16,000 feet of gas. Again, at the Glen's Falls Gas Works, Troy, New York, an experiment has been made in substituting peat taken from a bog about three feet below the surface, for coal, and the following were the satisfactory results, viz: One hundred and fifteen feet of dried peat yielded 78 feet of gas, or 5.81 feet per pound, while the best coal yields only 4.41 per pound, the price of the peat being

has been Superintendent of some peat works in New York.

Further information on the subject may be obtained by addressing the patentee, Charles Luxton, Hudson City, N. J., or Wiester & Co., 314 Bush street, S. F.

ZERAH COLBURN.—The statement has been published everywhere that this distinguished engineer died by his own hand. This the *Technologist* is inclined to disbelieve. It mentions the fact that the pistol was found in the left hand of the deceased, who was not left-handed, and that a large sum of money, nearly \$7,000, which Mr. Colburn was known to have had about him, has disappeared. The matter should be investigated, and if a foul murder has been committed, or if strong evidences of such exist, the public should know of it.

EAST RIVER BRIDGE.—The corner stone of the Brooklyn tower, a block of limestone weighing 5,800 pounds, was laid on the 15th of June. The caisson for the New York side is to be somewhat larger than the one now in place.

WEEVIL.—The *Contra Costa Gazette* says that the weevil is damaging some fields of wheat near Clayton.

Government Aid for Mining.

A number of articles have appeared in the *Press*, showing the liberal spirit of the government of Victoria with regard to the mining interests of that colony. With its excellent civil service, that government has been able to construct works which have tended greatly to develop the mineral wealth of the country. One item may be repeated here:—the construction of 43 reservoirs holding seven thousand million of gallons of water (imperial measure) and costing over eleven hundred thousand dollars.

This plan of erecting works, which not only benefit the miner directly, but also bring in a future revenue to the government, is a most excellent one. It is, however, entirely inapplicable in our country, where it would lead to a grand leakage in the public treasury, with a small amount of actual good done. When our civil service is equally good with that of Victoria, than we may begin to think of adopting some such method.

Congress, which will have ended its session by the time our readers see this, seems to have been liberally disposed towards aiding the development of our Western mining interests in the way of granting lands. Quite a number of plans and hills have been brought forward during the session, and a favorable spirit has been displayed. But

there seems to have been considerable confusion, and many bills which have appeared have again been lost to view. One very important measure, with regard to the sale of placer mines, has been pushed on by Mr. Sargent to a successful conclusion. But we have heard of bills in aid of the Sierra Iron Company, of the canal from the mountain lakes of Amador and El Dorado counties to some point in Sacramento county, of the coal and tin interests, and of various other projects, of whose definite condition we are in ignorance.

We have sometimes thought that if we had some special government officer to look after the general interest of the miners, it might be well. We have had a Commissioner of Mining Statistics, whose office, it seems to us, might safely be made a permanency, and raised to a more important position. At any rate, it would be a great gain if, where measures with regard to our mineral resources are proposed, those members of Congress who are not particularly well posted in the matter might have some one to refer to, who would be authority on the subject.

THERE is talk about boring some artesian wells at Sacramento, the residents being dissatisfied with the present water supply.

Communications.

Notes from Idaho Territory.

(CONCLUDED FROM LAST WEEK.)

Poorman Ledge.

This well-known lode, located in 1865, runs nearly north and south and dips at the surface to the west, but shows a depth of 150 feet the dip changes to the east. The ledge matter is very soft, and contains chloride and sulphuret of silver. Very rich sulphuret ores have been found in large bodies or masses, several of these at a depth of from 100 to 200 feet. A large mass holding light red ruby silver ore was taken from this mine and sent to the Paris Exposition, where a gold medal was awarded for it. Often quite large masses of horn silver occur.

In company with the obliging Superintendent, Mr. T. B. Pehsy, I got into the huckst and was let down the shaft. This is 500 feet deep, and almost exactly perpendicular, and there are six levels. The second is the tunnel which runs south from the shaft a distance of 1,300 feet to the side of the mountain. Five hundred feet from the shaft on this tunnel is where the rich deposit was found. Sixteen men are employed in this mine, but soon a larger force will be put at work. Owing to the large amount of water when the snow is melting, it is necessary to abandon the lower level, but operations will be resumed as soon as possible. The shaft is about the best built one I have seen. On the dump are some 300 tons of good milling ore.

Oro Fino Mine.

Near to the preceding, and 2½ miles from Silver City, is the Oro Fino mine, by some considered the best and the largest in the district. There are here many improvements, a good engine and fine hoisting works, and the mine at one time was doing well. But unfortunately no work has been done during this past year on account of litigation. There is a good tunnel; also a fine shaft.

Mr. Robert Bruce has bought the old dump pile, and is at present at work sluicing the fine dirt and picking out the pieces of good ore formerly thrown out with the waste. He showed me some very fine specimens containing fine gold and sulphurets. He will doubtless make a handsome thing by his operation. During the past eight days he has averaged daily a ton of good-paying ore.

Mahogany, Peck & Porter.

The Mahogany mine is located a short distance south of the Chariot. The mining superintendent is Mr. C. H. Young. The shaft is down 165 feet. This company are putting in large wooden boxes and building a small furnace for the purpose of ventilating the mine.

A short distance up the hill is the Peck & Porter mine. The shaft here is down 175 feet. The two companies are to connect their mines, having to sink about ninety feet and then to run an adit. Thus they will be enabled to secure good ventilation. Moreover, an engine will be put up on the upper works, which will be used by both companies for the present.

I see some thirty tons of rock are being crushed by Col. Fogus at the Ida Elmore mill, and as I see in this many specimens holding gold and sulphurets, I am convinced that it will "pan out" well.

Potosi Mine.

The Potosi mine is located near the city. The ledge is small, varying from eight inches to two feet in width, but the ore is good, containing free gold and sulphurets. Some of it which was milled a short time ago yielded all the way from \$30 to \$275 per ton. The ledge runs north and south and the country rock, which on the surface is porphyry, at a depth of seventy-five feet changes into granite. The shaft is some 180 feet deep, and a short distance up the hill is a tunnel, which is now in 180 feet. The mine promises well. Mr. Peck is the Superintendent and owner.

Miners' Foundry.

Silver City has a foundry. It is a small, unpretending affair, but it keeps on steadily and turns out good work. I believe in having such establishments and in patronizing local manufactures, be they on ever so small a scale. This foundry makes

shoes and dies for the mills, turning out some 6,000 pounds of castings weekly, and employing three hands. The old iron is bought up from the mills and worked over. John McMahon & Co. are the owners.

Quartz Mills—Flint District.

There are twelve quartz mills in the county, with an aggregate of about 150 stamps. Only three are in operation at present: the Ida Elmore, 20 stamps; Owyhee, 20 stamps, and Black's mill, in Flint district, 5 stamps. Trask & Son also have a large arrastra running, and are doing good work. I am creditably informed that two more mills will start up in a short time, which will add greatly to the industry of the camp.

Flint district is about nine miles south of Silver City. It has several promising silver-bearing veins, which contain base metals in such abundance as to require roasting before they can be amalgamated. The Rising Star, Astor, Leviathan and Twilight are some of the principal mines. There are three quartz mills in the district.

Other Mines—Agriculture.

The best portion of the placer diggings on Jordan creek and its tributaries have been worked out by the whites and are now occupied chiefly by the Chinese; although there are a few large claims which employ from five to fifteen whites. That branch of mining is not considered of much importance here now, although considerable gold dust finds its way into the market while water lasts in this spring. Frank Shuster & Co. have a very large claim and employ from sixteen to twenty-five men, but have made no clean-up as yet.

Besides the precious minerals, Owyhee boasts of extensive deposits of cinnabar, tin and coal. The coal measures on Reynolds and Sucker creeks, a few miles from town, are represented as of good quality, and quite extensive.

As a grazing country the hills and valleys of Owyhee offer very superior inducements—greater than I had before believed. Ten miles from Silver City, in any direction, cattle require no feed in winter. The nutritious bunch grass and famous white sage keep them fast this year round. This last imparts a peculiar but not disagreeable flavor to the beef. I notice in your valuable paper that several shipments of beef cattle (one of 220 head) have already been made from Idaho to California.

General Remarks.

Of the prospects of Owyhee I have great hopes. In common with all other places on the coast, there are now complaints of dull times. The population, also, of Silver is less than it was in 1866, when there were 3,175 inhabitants here. Still there are now signs of improvement, and merchants and others inform me that business is getting better. Wages are high here, and there is surely a large number of most promising mines already known, with every reason to suppose that there are many more yet undeveloped.

Owyhee has had many adverse circumstances to contend with. Chief among these have been Indian hostilities. The Snake Indians, inhabiting the country lying north and south of the Snake river, have often caused much trouble, and the early prospectors have suffered loss of life and property, as in the case of Mr. Jordan, the discoverer of gold here in 1863, who was killed. But since Gen. Crook took decisive measures to prevent such occurrences, no troubles have been had on this score. Mining, stock-raising and agricultural pursuits, which have been for years neglected, are now being prosecuted with most satisfactory results. I have before given the amount of hullion shipped during 1869. The total product of the mines for that year may safely be estimated at one million dollars, as the sums carried away by private bands would undoubtedly bring it up to that amount. The Central Pacific Railroad has brought the place much nearer San Francisco, and the managers of that road seem to show a most accommodating spirit and to be ready to make any suitable arrangements for the shipment of cattle, freight, etc. Then, as I am told, the firm of E. Reinhardt & Co., forwarding and commission merchants, of Elko, forward from that place to all parts of Idaho at very low rates. They propose to charge less than five cents per pound, dead weight, which is a lower rate than ever before known in this Territory. All these arrangements will do much for the place.

Chicago—Stage Lines.

I understand that several Chicago firms have sent circulars to all the business houses in this Territory soliciting orders and offering good terms. Many find that they can thus get their goods cheaper than they can from San Francisco. Chicago demands the money, however, in thirty days,

and will not give more time. But Chicagoans are enterprising and mean business. Of course people will buy hers of those who will take the most pains to supply them. If San Francisco intends keeping this interior trade she must wake up. She has many advantages over Chicago, but yet she must not sit down quietly and expect people to come and ask her to sell to them when Chicago is constantly on hand bidding against her.

I have previously spoken of Hill Beachy's excellent stage lines from Elko. From this place one takes the Boise and Owyhee stage lines to get to Boise City, sixty miles to the north. The six-horse coaches leave here at 5:30 p. m., and arrive at Boise City at four o'clock next morning. The road is very well kept and the stock is good. A few years ago there was trouble from Indians, but now everything is quiet. At Boise this line connects with Hailey & Pinkham's lines for the north, east and west. The proprietor of this line is Mr. John Early, a most perfect gentleman and a most accommodating stage owner. Kind, attentive and social, he is liked by every one, while at the same time he does well in his business. W. H. M.

Silver City, Idaho, June, 1870.

Smelting at White Pine.

(Written for the Scientific Press.)

EDITORS PRESS:—As it is apparent that your regular correspondent, "W. H. M.," has not exhausted all the sources of information in regard to this district, I take a convenient opportunity to enlighten you and your readers still further on the subject of mining and smelting the base ores thereof.

In the first place I will ask your attention to a few facts contradictory to the assertions of your correspondent, J. Mosheimer. It is notorious that at least seven different furnaces have been in successful operation here for months, and none of them have been in any sense "failures," as Mosheimer would have your readers believe. I will tell you, by and by, in what sense the White Pine Works, started by Mosheim himself, have been and are a "failure."

Successful Smelting.

At the head of all the works in the district stand those of the Alsop Smelting Company, who cleared themselves of all their debts, incurred for construction and repairs, in the first two months' run of the furnaces and made a handsome surplus. This furnace is situated in Shermantown, a mile farther from the Base Range than the White Pine Works. The company has always paid better prices for ore than the White Pine Co., and would continue to do so were it not for the measures taken by the latter to control and depreciate the prices. But more of this anon.

The Alsop Co. has just brought in one of Haskell's water-lined cupolas, for the purpose of reducing copper matt obtained from their large furnaces. The longest run made by this company was 34 days, in the months of April and May. In this run they turned out 157,000 pounds of base bullion. They have since made one run of 72,000 pounds.

The Silver Springs Works, also at Shermantown, come next in order of merit. This company has had difficulties of a personal character to contend with, and the works have passed into different hands on several occasions. But the operations with the furnace have been eminently successful. Upwards of forty tons of hullion were produced by the first company, as much more by the second, and an equal amount by the last proprietor.

Another furnace, called the Shermantown Works, was in successful operation for a time; but want of capital on the part of the owners caused them to suspend for a while.

Wieland's furnace, at Hamilton, has been continuously at work from the commencement, the proprietor paying the best prices for ore, and failing neither in amount of ore nor in profits.

Ratburn's, in the same place, was in operation several months, suspended a short time, and is now about to be started again.

Two furnaces, three miles from Hamilton on the Elko road, built by Raymond & Partridge, made one or two successful runs, when Mr. Partridge went East to obtain capital.

Judge James Walsh has erected the Eagle Works, near Swansea, in conjunction with

Wm. McCourt and S. Gabeldu. Their first run is now being made, with abundant and gratifying success. The works are under the superintendence of Lawrence Hart, a practical assayer and metallurgist. The furnace is a model of compactness, strength and efficiency. The blast is furnished by a ten-horse power engine and a Sturdivant fan three feet in diameter. The tuyeres are supplied with a constant stream of cold water from an elevated tank near the building. The slag is received upon a wrought-iron hearth in front of the furnace, and conducted away in a spout of the same material. High-grade and low-grade ores are scientifically mingled in the charge, and bars of bullion of more than usual richness are the result. This furnace has been running four days, and during that time has produced 186 bars of bullion of 91 pounds each, equal to 8½ tons. Everything about the works is scrupulously neat and tidy, the slag being removed out of the building as fast as drawn. The high-grade ore smelted in this furnace is from the celebrated Trench mine, on the western slopes of White Pine Mountain, below the old Monte Cristo mill. The low-grade ores are from the Mollie Stark, Farewell and others.

Russell Brothers, news-dealers of Hamilton, have a furnace about one mile above the works of the White Pine Co., which has been leased for some time to a company of practical miners and smelters, who have succeeded in realizing for their ore and hullion at least three times as much as has ever been paid for ore by any smelting company in the district. And this, counting in all the lost time for repairs and the drawbacks of want of capital and competition of other works.

Attempts at Monopoly.

The company originated by Mosheimer at the start attempted not only to discourage all other enterprises of the kind, but to fix for all time the prices of ore and the rates of smelting by the ton. The latter the latter was placed so enormously and disproportionately high as to amount to a positive prohibition to the owners of ore from having it worked in that manner. Forty dollars, and even as high as seventy-five, have been charged for smelting ore, for which the White Pine Co. would only offer \$10 and \$20 per ton on the dump. Professor Keyes, Mosheimer's successor as Superintendent of the works, has pursued this same unworthy system of depreciation, even going so far as to endeavor to induce the managers of the Alsop Works to enter into a combination to keep down the prices. His excess is, that this business is unprofitable. Yet the company is now building a still larger furnace to compete with the works of the Alsop Co.

The result of all these monopolizing efforts is, that the miners are leaving the Base Range in large numbers, preferring to take their chances in new districts rather than to mine their ore for seven dollars and a half per ton—all that the White Pine Co. propose to pay for carbonates ore. MINER.

Shermantown, Nev., July 2, 1870.

CAUSTIC LIME FOR INSECTS.—There are few insects that can withstand a dose of freshly-slacked lime. We always keep a quantity of it on hand ready for sprinkling over plants infested with slugs or hogs of any kind, and it has always proved effectual if applied at the right time. Last year, the white-pins worm attacked nearly every pine tree on our place; but two or three dustings of lime when the trees were wet with dew banished or destroyed this pest, which in a few days, if unchecked, would have stripped every leaf from our trees. The asparagus beetle appeared upon our beds of this vegetable in countless numbers, but a few doses of lime have made them leave, and the plants look healthy and vigorous at the present time.

We have driven from our garden the rose-slug, cabbage-flea, and numerous other pests, by the use of this same material, and we have never observed that the plants were damaged by its use. A correspondent at the West says that he has entirely obviated the ravages of the Colorado potato-hug by freely using lime upon the plants, and we have no doubt that others might be equally successful by a persistent use of this material. Lime is so cheap that no one can object to its use on that score, and even if it fails to kill the insects, it will usually do the land good wherever applied. —Hearth and Home.

One barrel of lime to three of fine pulverized, dry earth, is better for most cases than clear lime. The mixed earth and lime should be dusted on liberally, when the leaves are wet with dew, or after a shower or sprinkling.

Mechanical Progress.

Russian Sheet Iron.

Mr. Horbert Barry, an Englishman, late director of the iron works on a certain estate in Russia, has recently published a small book upon the metallurgy of that country. The following description of the method of manufacturing the celebrated Russia iron, as practiced in the Onral district, is quoted by *Engineering* in its review of the book: "The refined iron is hammered under the tilt hammer into narrow slabs, calculated to produce a sheet of finished iron two arches by one (56 in. by 28 in.), weighing when finished from eight to twelve pounds. These slabs are called *baleanky*. They are put into the reheating furnaces, heated to a red heat, and rolled down in three operations to something like a sheet, the rolls being screwed tighter as the surface gets thinner. This must be subsequently hammered to reduce its thickness and receive the *glance*. A number of these sheets having been again heated to a red heat, have charcoal, pounded to as impalpable a powder as possible, shaken between them through the bottom of a linen bag. The pile then receiving a covering and a bottom in the shape of a sheet of thicker iron, is placed under a heavy hammer; the bundle grasped with tongs by two men, is poked backward and forward by the gag, so that every part may be well hammered. So soon as the redness goes off, they are finished so far as this part of the operation goes. So far they have received some of the *glance*, or necessary polish; they are again heated, and treated differently in this respect, that instead of having the powdered charcoal strewn between them, each two red-hot sheets have a cold finished sheet put between them; they are then again hammered and after this process are finished as far as thickness and *glance* goes. Thrown down separately to cool, they are taken to the sheers, placed on a frame of the regulation size, and trimmed. Each sheet is then weighed, and after being thus assorted in weights they are finally sorted into firsts, seconds, and thirds, according to their *glance* and freedom from flaws and spots. A first-class sheet must be like a mirror, without a spot upon it. One hundred pounds of *baleanky* make seventy pounds of finished sheets; but this allowance for waste is far too large and might easily be reduced. Four heats are required to finish."

IMPROVEMENT IN MANUFACTURE OF TWIST DRILLS.—G. Lander, C. E., described the old and the new method before the Liverpool Polytechnic Society in April. The first was by cutting the drill out of a solid round bar by means of milling tools, then turning, tempering and straightening. The other is as follows: "The bar is rolled into a special shape, then cut into lengths and again rolled in cam rolls, which form a straight groove, after which the flank is formed by cresces. Next the blank, as it is now called, is passed to the twisting machine, which consists essentially of a hollow spindle having a perforated nut in the end to receive the blank. This spindle has a motion of rotation on its own axis, and also a motion of translation in the direction of its axis, being thus adapted to twist the blank, held firmly at the outer end by the vise-clamps. Other clamps, worked by suitable gearing, close on the blank as the central spindles clear them; these serve to hold the twist. After twisting, the drills are centered and rough ground, then hardened by heating in a lead bath and cooling in cold water, next tempered in an oil bath, and finished by grinding to a standard gauge. * * By this method of manufacture, the arrangement of the particles of the metal being properly regarded, the number of drills lost from water-cracks in hardening is extremely small."

SOMETHING NEW IN IRON.—The Philadelphia correspondent of the *Iron Age* writes, June 30th: "Experiments are now making in the production of iron in the blast furnace which, if successful on a large scale as in a small way, will make a mighty difference in the production of anthracite pig iron. The improvement consists in the addition to the ores in the furnace of the substance which it is claimed cause the superiority of charcoal iron over anthracite. It is said that anthracite pig iron, equal in every respect to the best Swedish iron, can be produced at no greater cost than for the present article."

Compound Engines Again.

Engineering for June 17th, names the three especial advantages which the double-cylinder engine possesses over the ordinary single cylinder engine.

First: "the cylinder receiving the high pressure steam is never cooled down much below the temperature of that steam, and the low-pressure cylinder, in fact, forms a kind of heat trap between the high-pressure cylinder and the condenser. The second advantage of the compound engine consists in the regularity of motion which can be obtained with it and the facilities it affords for vastly reducing the sudden strain thrown on the moving parts at the commencement of each stroke. The third lies in the fact that with the compound engine the effective differences of steam pressure tending to cause leakage past the pistons and valves are much less than in the single cylinder arrangement, and the difficulty of keeping these parts tight is therefore greatly diminished and the friction reduced."

One reason why the engine of Woolf, early in the present century, did not compete successfully with the Cornish engine, was that the first of these advantages is possessed in a great degree by the Cornish engine also. In other words it follows, from the manner in which the Cornish engine is worked, that but a small proportion of the surface exposed to the fresh steam is ever reduced to the temperature due to the vacuum formed in the cylinder by opening the communication with the condenser. * * "In the Cornish engine the piston and equilibrium valve serve—although less perfectly—much the same purpose as the second cylinder in the compound system, and therefore a competition between the double cylinder and Cornish engines was a very different thing from the competition between compound and single cylinder rotative engines such as is going on at the present day. Moreover, in the competition with the Cornish engine, the second and third advantages mentioned as attending the double cylinder arrangement went almost for nothing."

HYDRAULIC GAS-LIGHTER.—Mr. Magnus Ohren, Vice-President of the British Association of Gas Managers, in his annual address June 7th, thus describes an arrangement devised by a Mr. Hunter: "By one operation the tap is opened, a match struck, and the gas lighted. A service pipe is to be laid throughout the district to be lighted, with branches to each lamp. The pipes are charged with water, and the pressure required is given and maintained from a tank placed at the required elevation. Inside each lamp post is to be placed a small cylinder, to the piston of which is attached a rod. The top of this rod is serrated, and gears into a toothed wheel attached to the plug of the lamp tap which is turned round, and opened as the rod rises. A small fusée drops from a reservoir, and is carried by a swivel plate to a piece of roughened spring, on which it is rubbed and ignited. It is then carried round past the burner, the gas is lighted, and the fusée drops to the bottom of the lantern. In the morning, when the gas is to be extinguished, the pressure of water is taken off the cylinder, and an escape tap opened, the pistons drop with the weight of the rod, and the taps are turned off. It is proposed that as the lamps are cleaned weekly, the lamp cleaner shall supply the reservoir with a week's supply of matches."

ADDIS'S SINGLE-RAIL TRAMWAY.—J. W. Addis, C. E., of Bombay, has devised an arrangement in which two double-flanged bearing wheels, one at each end of the vehicle, run upon a single rail in the center of the road, supporting all, or nearly all, of its weight,—while the ordinary wheels serve to prevent its overturning. Two of the little country bullocks attached to a cart thus rigged drew a load of three one with ease.

OLD RUBBER SHOES UTILIZED.—The *Cabinet Maker* describes a new heel stiffening, made of cast-off over-shoes softened by steam, ground up, dried, spread over a sheet of burlaps, covered with another such sheet, and cut into blanks, which are by power presses forced into moulds under a pressure of 30 tons at a temperature of 220°.

Scientific Progress.

Laws Governing Distillation.

Volatility alone does not determine which of mixed liquids will distill over first. Quantity has something to do with it. If the less volatile be in large excess it tends to come over with the other. But there is still another law. The comparative density of the vapors produced affects the result; the denser vapor having a tendency to be evolved in greater quantity. Dr. Van der Wejde thus closes an article on this subject in *The Technologist*:

"These facts prove that the amount of vapor developed from liquids is regulated by volume and not by weight, or, in other words, that of two liquids possessing the same boiling point, but of which the densities of the vapors differ, the same volumes of vapors will evolve, and that, consequently, the liquid emitting the densest vapor will evaporate in larger quantity; or that if there be two liquids of which the boiling points differ, and that with the lowest boiling point possesses the lightest vapor, the greater volume of the vapor generated from the latter will produce less liquid after recondensation, that the lesser volume of the vapor evolved from the less volatile liquid, the latter thus more than compensating the former, and resulting in the apparent anomaly that, from a mixture of two liquids of different boiling points, the least volatile may sometimes distill over in the largest quantity."

THE WORD PROTOPLASM OBJECTIONABLE. The following paragraph is from the address of the President of the Royal Microscopical Society: "In consequence of the penumbral of diametrically opposite definitions, Dr. Beale rejects the word *protoplasm*, so much in favor with metaphysical physicists, and he enables us to look on at the battle of the giants, vigorously destroying each other's theories but failing to establish their own. In propounding his own views concerning the matter of living beings, Dr. Beale restricts himself to the simple and expressive terms, *germinal matter* and *formed matter*. The former is possessed of *vital properties*, and the latter of *material properties* only. The rather striking difference between dead and living matter seems to justify the rejection of a term which is indiscriminately applied to masses of living things and dead things, and to warrant the use of other terms which are free from the mysteriousness of *protoplasm*, and which properly indicate matter existing in two very different states, *living* and *formed*."

SILICON ALLIED WITH CARBON.—We quote the following from an article by Messrs Friedel and Crafts in *Silliman's Journal*: "The study of the compounds of silicon with alcoholic radicals leads to the discovery of a property of silicon, which allies that element with carbon far more closely than the equality of their atomicity and the similarities hitherto observed in the structure of their compounds. In fact, silicon has been found to possess the property of combining directly with carbon, or rather with hydrocarbons; and the resulting compounds are in every respect similar to simple hydrocarbons, susceptible like them of substitution of chlorine and bromine for hydrogen, and of acting as radicals in alcohols and ethers; consequently silicon may take the place of carbon in a hydrocarbon, and in the series of bodies which can be derived from hydrocarbon, without modifying essentially its properties."

EXCITING LIQUID FOR THE GALVANIC BATTERY.—An article in *Les Mondes*, by M. Delaurier, translated for the *Bowdoin Scientific Review*, has the following: "Having learned that the quantities of sulphuric acid and potassic dichromate, as used, are irrational both in theory and practice, I have made an exciting liquid with convenient quantities. I found it necessary to take 18 parts potassic dichromate, dissolve in 200 parts of water, hot or cold, and then add gradually 42 parts monohydrated sulphuric acid, in all 200 parts. In this manner there is secured a liquid which attacks nearly every metal, particularly iron and zinc, without liberating gas; these metals may serve for the negative pole, and gilded copper or carbon for the positive. This liquid produces a very energetic action, is cheap, and forms a chromic salt of great value."

BRAZILIAN GLACIERS.—Prof. Winchell, of the Michigan University, gives, in the *College Courier*, his reasons for dissecting from the theory of Prof. Agassiz, that continental glaciers invaded Brazil, and moved down the valley of the Amazon during the epoch of the north-temperate glaciation. He says that science is not in possession of satisfactory grounds for assuming that the geological winter was universal and simultaneous. Even the North American glacier appears, from recent observations, not to have covered so wide an extent as was supposed. Among the facts which militate against the theory of Prof. Agassiz, are the absence of glacier scratches; the lack of proof that the "red deposits" are not from rocks disintegrated in place; the presence of leaves in clay which could not have been deposited while the whole country was buried in ice and snow; other evidence of abundant vegetable matter during its deposition; a fossiliferous bed crowded with marine tertiary shells, intercalated between the variegated clays peculiar to the Amazon, described by Prof. Orton; and the occurrence of similar fossils in other localities.

REGENERATION OF THE SPINAL CORD.—Professors Masius and Ven Lair, of Liege, find that an excised segment of the spinal cord of a frog can be reproduced within a short period, and its functions restored. We quote a paragraph by them from the *Microscopical Journal* for May: "A certain number of frogs selected for these researches were operated on below the reflex center of the roots which compose the sciatic plexus in a manner to destroy all spontaneous and reflex mobility in the hind limbs. Another series were operated on above this center so as to preserve the reflex mobility. In both cases, at the end of a month, we have seen the voluntary movements reappear in the previously paralyzed parts, and the conscient sensibility soon after exhibits itself. At the end of six months the frogs move away spontaneously, and perceive impressions just as they did before the operation. The portion of the cord removed was about two millimetres."

NEW FORM OF SPECTROSCOPE.—The *Bowdoin Scientific Review* describes a simple device hit upon in the laboratory at Bowdoin, specially adapted to blow-pipe determinations: "If the lenses be removed from an ordinary spectacle frame, and one of them be replaced by a very small direct-vision spectroscope, we have the instrument in question. The direct-vision spectroscope may consist of the following parts: a compound prism consisting of one flint and two crown-glass prisms, suitably united, and an achromatic lens, all properly mounted in a small tube having an adjustable slit exactly in the focus of the achromatic lens. This instrument may be worn like ordinary spectacles; thus releasing the hands of the operator for necessary manipulations. By this device we are enabled with one eye to study the spectrum while with the other we direct the operations necessary to its production."

LUNAR RADIATION.—The Council of the Royal Astronomical Society, at the last annual meeting, after stating the result of Lord Rosse's observations upon this subject, which have already appeared in the Press, go on to say: "Some later observations have been made upon the same subject in Paris, respectively by M. Baille, at the Ecole Polytechnique, and M. Marié-Davy at the Paris Observatory. The former employed a concave mirror of 39 centimeters aperture to condense the moon's rays upon his pile, and also made use of a Thomson's galvanometer. The one conclusion at which he arrived was, that the full moon, at Paris and in the summer months, gave as much heat to his pile as a radiating surface 6.5 centimeters square, maintained at boiling-water temperature and placed at a distance of 35 meters."

PREPARATION OF CHLORAL HYDRATE.—J. Thomson saturates absolute alcohol with chlorine, heat being applied towards the close of the operation. The liquid is then boiled to drive out the hydrochloric acid; the liquid is distilled on chloride of calcium, the hydrate of chloral passing between 110° and 115° C. One hundred parts alcohol furnish 140 of chloral hydrate. — *Deutsche Chem. Gesellschaft*.

Mining Summary.

The following information is gleaned mostly from journals published in the interior, in close proximity to the mines mentioned.

California.

ALPINE COUNTY.

LEVIATHAN.—*Chronicle*, July 2d: The preliminary smelting was satisfactory. The chimney will be strengthened and the work continued. The mine continues to look well—the body of ore being now over 12 feet in thickness, and assaying from 30 to 50 per cent copper.

ITEMS.—*Miner*, 2d: Last week the Schenectady lower tunnel was pushed ahead 33 feet, and about the same will be made this.... The Globe has made 3 feet a shift for several days past.... The drift in No. 3 tunnel of M. C. is moving on at the rate of over a foot a shift, and must soon reach the east wall.

BUTTE COUNTY.

GOING FORWARD.—*Oroville Record*, July 9th: The iron pipe for the Spring Valley Canal Co. is being forwarded to Cherokee with diligence. The Co. expect to have the canal completed to Concow in time for the winter rains.

CALAVERAS COUNTY.

GOOD ROCK.—*Chronicle*, 9th: B. F. Clerc & Co., the French company, have been crushing good rock from their mine at Upper Rich Gulch. The shaft is sunk 100 feet and is still going down. The rock taken out, so far, averages \$15 per ton.

STRIKE.—Wallace & McIntyre struck a continuation of the old Whisky Slide lead while prospecting, and took \$75 out of a few pans of dirt.

EL DORADO COUNTY.

COON HOLLOW.—The Placerville Democrat of July 9th prints the laws passed at a miners' meeting June 28th. All previous laws are repealed; hill or drift claim shall do three days' work each every three months; ravine or surface claims, three days' work every six months; all claims now held shall be recorded in 60 days; all claims hereafter located shall be recorded in ten days thereafter.

LOS ANGELES COUNTY.

Los Angeles telegram, 11th: The tunnel at the Seapatapal silver mine on the San Gabriel is now in 600 feet. The ledge is reported as struck.

NEVADA COUNTY.

AT EUREKA.—*Grass Valley Union*, July 8th: The Mutual mine has just made a clean-up, after a 22 days' run with five stamps, of \$5,000. The Black & Young is doing well; the Birchfield Co., after running a long tunnel, have struck a strong ledge. The Star mine has a large ledge and good prospects.

LOWELL HILL.—*Gazette*, 6th: Five companies are mining, and ground abandoned as worthless is now giving fair returns by drifting. Three tunnels have been pushed into the Main Divide. The Frick brothers have entered about 900 feet, and found good pay. The gold is coarse, the largest nugget being worth \$87. About 40 men are at work.

COMPLETED.—W. C. Stiles has completed his flume and railroad track, leading from his quartz mill to his mine and hoisting works at the mouth of Roger Williams' ravine.

MOVING.—The machinery of the Salathiel mill is being moved to the Fidelity mine, above Omega. An over-shot water wheel 32 feet in diameter will be used.

ITEMS.—*Transcript*, 6th: The machinery on the Manhattan mine was started up for regular work yesterday.... The owners of the Mulberry ledge, on Gold Flat, have perfected arrangements for the erection of hoisting and pumping machinery.... A difficulty having arisen between the owners of the Orleans and the owners of an extension, the companies have consolidated.... The owners of the Cold Spring claims, three miles above Nevada, on the Washington ridge, purpose erecting machinery to sink for the ancient channel.

BIG CLEAN-UP.—Same of 7th: The Smartsville Consolidated Hydraulic Mining Co. made a clean-up on the 25th of June, of 60 days' run, the result of which is about \$80,000.

WISCONSIN.—Frank Richards has been working this mine on the cooperative plan with his men, retaining in his own hands the control of the work.

SAN JUAN.—Same of 9th: The project of bringing a ditch into San Juan and Sebastopol, by the American Co., has been given up. The matter between the Eureka Lake and the American Mining Co. has been amicably arranged, and on Monday the American will commence washing.

WASHINGTON.—Eshback, Ruth & Co. have been working four years on the har opposite the town. A few weeks ago

they struck into a gravel lead which is paying them \$8 to \$10 a day to the hand. Grissel & Co., below and adjoining, a few days ago struck gravel which prospects remarkably well. They are preparing to commence drifting.

SALE.—Reid, Mills and Rankin have sold one-fourth interest in the Blue Bank claims, Woolsey's Flat, to Wm. Pryde for \$7,500.

GOOD PROSPECTS.—A few weeks ago, Messrs. Pecktal, Worthley and others, located hill claims on the South Yuba side of the ridge, and commenced sinking. They were unable to get to bed-rock on account of the water, when they abandoned the shaft, and commenced another. On Saturday they got to the bed-rock, where they found a rich gravel deposit. We were shown yesterday from two pans of gravel, three dollars. The gold is coarse.

PLUMAS COUNTY.

TAYLORVILLE.—Cor. of Quincy National, July 9th: Most of the mines are doing well, especially the Crescent and the Indian Valley. A prospecting tunnel in the latter a few days ago struck the ledge at the depth of 700 feet. The Celedonia is laid up, and the talk is the ledge is worked out. We prophecy if the mine ever receives a thorough prospecting it will pay well.

PLACER COUNTY.

GOLD RUN.—*Stars and Stripes*, July 7th: During the year 19 hydraulics have been operated while water was plentiful; 10 are still in operation. The Gold Run Co. has made its last clean-up for the year. The Judd Co. cleaned up last week, realizing fifty-eight pounds from their last run, and the Druid Co. made a clean-up from which they realized sixty-eight and one-half pounds. During the season the average yield of the Gold Run hydraulics has been fifteen hundred dollars per day, with every assurance of an equal yield for many years to come. In addition to the hydraulic claims, there are independent enterprises for washing tailings. One of these—Col. Moody's, in Cañon creek—last year yielded between twenty and thirty thousand dollars, and promises to do better this season.

A GRAND PROJECT.—Parties have it in contemplation to cut a tunnel through the Colfax divide, near Secret Town or Long Ravine, from the North Fork or a cañon, sufficiently low to tap Beer river and snice off the tremendous body of tailings that has accumulated there. For miles and miles along that stream the tailings are scores of feet in depth.

The Grass Valley Union, learns from one of the owners of the St Patrick mine, that the shaft has been sunk 115 feet, striking rock richer in gold than any heretofore taken out. Murray & Co. have located the western extension.

SAN BERNARDINO COUNTY.

Los Angeles telegram, July 8th: A shipment of rock has been made to San Francisco from the Coso gold mine in San Bernardino county.

SAN DIEGO COUNTY.

The Union says a second mess meeting of citizens was held on June 18th, to discuss the Cuyamaca grant, and its attempted extension over Julian district. After several speeches, a committee was appointed to ascertain the amount of money which it would be necessary to raise for the purpose of contesting the grant.

SISKIYOU COUNTY.

GOOD CLAIM.—*Yreka Union*, July 8th: The claim of Richardson & Smith continues to pay from thirty-five to sixty ounces per week, for three men's labor. Last week they cleaned up 58 ounces.

ORO FINO.—We have been shown some fine specimens of quartz from a ledge in the mountain west of Oro Fino. The ledge is a foot in thickness and gradually widens as they descend. Trimble & Co. took twenty-three tons and had it crushed at Scott Valley, the rock yielding forty dollars to the ton.

QUARTZ.—Squire Hall is at work on the old Scholes ledge with the most flattering prospects.

Arizona.

WALNUT GROVE.—*Prescott Miner*, June 25th: Messrs. Scott & Henry worked in an arastra two tons of ore from the Rainbow lode, which paid \$192, and six tons from the Neptune, which yielded \$306. Encouraged by this they have commenced running a tunnel in the Rainbow and building an arastra of their own in Peoples' Valley.

WALKER'S.—Some miners working in the Accidental lode say that there is now in the tunnel a large vein of rich ore. Uncle Billy Pointer and C. Y. Shelton were working on their lodes.

TURKEY CREEK.—Jackson McCrackin and

others are prospecting a silver mine in this district.

BIG BUG.—Rogers & Garner were here this week. A general clean-up had not been made, but the outside plates had been cleaned up, and the amount of emulsion therefrom was evidence that the "run" was paying well. Water was getting scarce.

CONQUEST MINE.—LA PAZ.—Cor. of same: Work has recently been resumed. Arastras are in course of construction. The ledge shows free gold in abundance, is visible for 1,200 feet of its length, and has eight shafts sunk on it, besides a number of cuts. There are hundreds of tons of valuable ore already out, with a large amount in sight.

Colorado.

ITEMS.—Central City Herald, July 6th: Chisfee & Co. shipped \$13,500 worth of gold this morning, bought since Monday.... The Gress Valley Co. shipped \$5,000 this week.... Sullivan & Co. this morning brought down a retort of 120 ounces from Roderik Dhu ore crushed in the Lexington mill.

GEORGETOWN.—A body of ore has been found in the Harris mine, which is worth \$300 per ton.... The Baker mine is yielding more ore than the company's wagons can haul away. The Brown is looking better than usual. Huesden is buying ore and paying a higher price. Stewart's new works will be ready to start up in a short time. The Terhile is turning out more first-class ore this month than last. All this ore—worth about \$400 per ton—is shipped to England for reduction. The second-class is treated at Georgetown. The last lot, which yielded about \$200 per ton, was treated by Stewart.

NEVADA DISTRICT.—Richard Kellett is working the Mercer County lode (claim No. 5 west), for the owners. The mine is 380 feet in depth, and has extensive drifts. Vincet & Davey have commenced work on the Central, which they have sunk 30 feet, where they have a rich-looking crevice, though narrow. Richards & Co., working the claim of S. H. Cook, on the Keystone lode have now 14 inches of good-looking iron. Barker, Boulton, Pirce and Lowry are taking out good pay from No. 3 east, on the California. The crevice is wide and the ore gives five to six ounces per ton. Charles Hager is working two claims on the Monitor. Mr. Fleming is sinking two shafts on the Irish Flag, which have reached a depth of 65 and 40 feet respectively. The crevice is two end one-half to three feet in width, and the ore at Whitcomb's mill yields five end one-half to six ounces to the cord.

GRAND ISLAND DISTRICT.—Cor. of same: Outside of Carihou Hill it takes from 15 to 25 feet to strike ore. The greatest activity is on Pomeroy Mountain. Doc. Mann & Co. are sinking down to pay, regardless of time or cost. There are eight log houses up and more started. The Carihou Co. and Mr. Conger commenced to-day to haul ore to Prof. Hill. The Caribou mine will be started up on Monday.

Idaho.

THE SEASON.—Boise City Statesman, July 2d: The mining results have fallen short of expectation. Water has been tolerably plenty in the Basin, but owing to the abundance of snow, a better yield was anticipated than has been realized. Loon creek and the river mines of Middle Boise will no doubt come in to close the season prosperously. The her mining on Snake river will, toward fall, give employment at wages of from five to eight dollars per day for three or four hundred men. In quartz mining there is nothing new. The Owyhee mills are running, and two or three are sustaining their reputation. The general feeling is, however, that the maximum yield has been reached. Altras returns a meagre dividend from her mills.

SALMON RIVER.—The Sonora Democrat of July 9th copies part of a friend's letter from Slete creek: "The season is one month later than usual, owing to late snows. This is all the better, as it gives a longer supply. Most of the boys from Wood's creek depend on hiring out. They receive \$5 per day. It is about an even thing as the cost of living during winter absorbs the summer's earnings. Most all the claims pay well. The gold is fine and light. They are obliged in the claim where I am at work to use about 400 inches of water, and about 200 pounds of quicksilver to seve it. The gold is distributed in the hank in layers 30 or 40 feet in depth. There is no bed-rock.

Montana.

RADERSBURG.—Helena Gazette, July 4th: A nine days' run on the Blacker & Keating mill, 10 stamps, crushing rock from the

Keating lode, produced \$4,573. Keating lode is developed to the depth of 100 feet. The crevice is four end a half feet, end the poorest rock will pay \$30 to the ton.

HIGHLAND.—Rod. Legget brought into town 160 ounces of silver obtained from ore out of the Harvey lode, crushed in an arastra.

ITEMS.—H. Bohm & Co. have just cast a gold brick worth \$20,200 in coin—the largest of the season.... In Nelson Gulch, 10 hands are at work in George Pierce's claim, end doing well.... The ditch subscription has reached \$20,000.

MISSOURI VALLEY.—Cor. of same: Randall & Folsome, after testing Metropolitan har, by ground-slicing, have completed their telegraph for a hydraulic of 80-foot fall, and in a week will be at work with 400 inches of water. On Spokane har, 15 claims are running. The Dancy har ditch will be completed to that place in a few days.

PHILLIPSBURG.—Cor. of same: At the Saunders smelting furnace, the first run made 300 pounds bullion, which will cupel one dollar per pound. The St Louis mill has not yet been leased. The ore in the Merrell & Uley shaft continues good, the upper wall regular and the ledge solid.

RED MOUNTAIN.—Correspondent of the New North-West, July 1st, says water is falling slowly. Cannavan's flume has suspended. Other flumes are all running. The Only Chance Co. have made another good clean-up—60 pounds of amalgam on a 9 days' run.

Nevada.

COPE DISTRICT.

ITEMS.—Elko Independent, 9th: The Argenta Co. has permitted the Crescent to crush 200 tons of ore on the original contract made by the Argenta with the Cope mill.... Vance & Co., owners of the 20-stamp mill now on the way to Cope, have made a contract with the Mountain City Co. to furnish the mill with all the ore that it can crush for 12 months.... Another mill, a 10-stamper, is on the way to Cope from Meadow valley. It will do custom work.... Nash and Johnson, from Bull Run, last week brought good tidings. They had samples which for richness cannot be excelled. Governor Chillis' mine is surpassing expectations. Other late discoveries are represented as wonderful rich.

MOUNTAIN CITY.—Elko Chronicle, July 10th: Al. Cege sent me a fine specimen of ore from the Crescent. Drew's mill is making a run of three or four hundred tons of Crescent ore.

ESMERALDA.

DUNDERBERG.—Carson Appeal, July 7th: This mine, as reported upon by A. H. Griswold, an expert, has a 20-foot ledge, 100 tons ore on dump, which will mill \$50 per ton, a 60-foot shaft, end drifts 96 feet in length, in continuous pay ore.

Some Dunderberg rock which Dr. Munton sent to Virginia for assay, shows \$550 per ton. This was picked up at random from a great mass taken from the main drift.

HUMBOLDT.

BULLION.—Silver State, 8th: During the last week, John C. Fell & Co. shipped from Unionville to San Francisco, 501 pounds of silver bullion.

RAILROAD.—Reveille, 6th: Latest advices from this camp are to the effect that the smelting furnace recently erected is working admirably.

REESE RIVER.

MINERAL HILL.—Cor. of Nevada Gazette, 8th: This is a lively camp with a population of between three and four hundred. There are 50 or 60 mines altogether. The principal ones are the Star of the West, Live Yankee, Great Republic, Giant, Silver Queen, Mary Ann, Vallejo, and the Give Out, all of which, are owned by the Mineral Hill Co. The Austin, Western Slope, and others, are owned by the Austin Co. The average proceeds per ton, of ore worked, some 60 or 80 tons in all, is \$500 per ton, some of it milling as high as \$950.-37. All the rock crushed has been shipped to the Auburn mill at Reno, or the Manhattan mills at Austin. But the mill being built by Curtis & Hunter will be completed by the middle of August. This mill, in every respect, is to be first class, with ten stamps, and a Stetefeldt furnace for roasting. At Cave Hill, two miles north, Coles & Co., Brown & Co., Reese & Co., and others, have locations which promise well. The Gress Valley tunnel Co. are running through the mountain in hope of striking the main ledge.

WASHOE.

SACRAMENTO & MEREDITH.—Enterprise, 10th: The recent clean-up shows a yield of \$8 per ton for the amount crushed.

OPHIR.—Prospecting in the upper works has made no development. The quartz is of a quality as yet below what can be rendered valuable, but is of a good character, indicating good ore near.

OCCIDENTAL.—The winze from the upper works has been extended 380 feet in the direction of the lower tunnel. About 30 tons per day is being extracted and reduced from the upper works. The new mill will be in operation about the 20th. The balance of the machinery has been shipped from San Francisco, and will arrive during the week.

YELLOW JACKET.—The amount of ore extracted has been small. More delay had been caused by the cave than was anticipated.

CHOLLAR-POROSI.—Last week 1,370 tons of ore were extracted—the result of five days' work, showing an average assay of \$64.20 per ton.

VIRGINIA CONSOLIDATED.—About the usual amount of ore from the upper works. This portion of the mine presents a favorable appearance. The tunnel from the lower shaft at the 500-foot level is extended west 417 feet.

SAVAGE.—No change perceptible. A winze being sunk at the lowest level, has not disclosed any encouraging feature.

SIERRA NEVADA.—The ore from the northwest drift is more solid and less associated with debris, it is of greater richness. The quantity of hillion produced is materially increased.

HALE & NORCROSS.—About 75 tons of ore per day extracted. This small yield is owing to the fact that the repairs on the main shaft shunt operations from the lower works. The ore on hand will keep up the supply at the mills.

BELCHER.—The stopes above the 152-foot level are yielding 25 tons daily; average assays, \$22 per ton. A raise is being made south of the shaft, from the 226-foot level. Total hillion receipts for June, \$38,784.

CROWN POINT.—Upper levels still yielding 50 tons of low-grade ore per day. The winze from the 1,000-foot station is down 145 feet.

SIERRA NEVADA.—Mine and mill running as usual, and producing satisfactorily.

WHITE PINE.

REVIEW.—*News*, 11th: The events of the week impart buoyancy to mining operations. The active leading mines have rather increased than diminished the amount of labor employed, and claims that have been for months passive are preparing for a busy season. The new Eberhardt Co. are making extensive preparations to work their mines.

One of the principal stockholders in the Original Hidden Treasure has been here, and we hear whisperings that work will be greatly increased. The rich body of ore struck in the South Aurora, ten days since, turns out to be extensive. The 30 stamps of the Stanford mill are running night and day on South Aurora rock. The Philadelphia Co., who have bought the Glacier, Wabash and Hemlock and other mines, will commence work this morning. Prospecting is persevered in all over Treasure Hill with energy. Some of the standard claims are furnishing custom ore to the mills.

BULLION.—The total amount shipped per Wells, Fargo & Co. last week was \$23,870.88—\$13,845.15 of which went to San Francisco, \$8,470.03 to New York and \$1,554.70 to Carson. The shipment for the week previous aggregated \$23,884.64.

ITEMS.—In the Maggie Consolidated claims, the tunnel is in over 75 feet. Chloridated veins of quartz and gray carbonate ores, carrying silver, have been met continuously from the mouth. The Ticonderoga, a mile to the south and east, is being actively explored. There are now on the dump 100 tons of first-class smelting ore. We have seen a remarkable rich specimen from Jennie A. Consolidated, containing a large quantity of born-silver. Flanagan mine promises well. In the Trench mine new nodules of rich ore have been uncovered. The Micawher mine is turning up something. The Good Hope, in the Base Metal Range, the other day laid open by a shaft the richest ore lately seen. It contained large masses of horn silver.

SMELTING WORKS.—The Walsh furnace, at Swansea, has proved a success, and shipments of bullion are under way. The Alsop has not yet fired up. The White Pine works have been running steadily for forty days. The Eagle is running finely. It has 125 tons of ore on the dump. The Trench mine is the chief source of supply.

OUTSIDE DISTRICTS.—Pinto prospects prime. Shaft in the Maryland down 54 feet in a deposit of high-grade ore, estimated to be 17 feet wide all the way—hot-ton not yet reached. J. J. Dunne has purchased the Champion and Germania

mines, and will put on 25 men. Work commenced on the Galena. In Eureka District Wm. M. Lent, who bought the Buckeye mine, belonging to six Cornishmen, has paid the first installment of \$50,000 in cash.

EUREKA.—Whitney & Co., of Carlin, received, during June, from Eureka, for shipment to New Jersey, 399,423 pounds of hillion. Of this 290,290 pounds were shipped in the interest of Bateman & Bnol.

The Elko Chronicle says 28 tons of ore, estimated to be worth \$700 per ton, were received at that place from the Paige & Corwin mine, Secret Cañon, eight miles from Eureka.

EUREKA.—A correspondent of the *Chico Enterprise* says that Charley Goodwin started a furnace and commenced huying ore to run it; then bought the controlling interest in the Jackson mine for \$7,000, and paid for it in one week's run.

New Mexico.

ITEMS.—*Press and Telegraph*, June 25th: On Willow, are some nine companies at work, taking out from wages to \$7 per day per man. Two men were working on Last Chance with a hydraulic, and we found Conley, Pease & Co. running a new cut on Orleans Flat, and getting ready to use their hydraulic. At the head of Grouse there are few men at work. About a mile down we found a hundred inches of water running in from the big ditch, and four companies opening their claims. Below, Mr. Carpenter has finished his reservoir. The California Co. were ground-slucing with 100 inches water. They are working a out 100 feet wide, with pay dirt averaging 15 feet in thickness. The Chester quartz mill will start up as soon as the wire rope and running stock for the tramway arrive.

UTE CREEK.—There was some excitement in the early part of the week about the reported discovery of new gulch mines. Mr. Morton has been there running a drift into a bank, and on reaching bed-rock commenced panning out, realizing \$35 in three days.

BURRO MINE.—A Los Angeles telegram, July 11th—says: Parties arriving continue to bring glowing accounts of the fabulous wealth of the Burro mines.

Utah.

COTTONWOOD.—A Salt Lake telegram of July 9th says: Mining statistics show that 600 tons of ore have been shipped in less than a year, and mainly from one mine in Cottonwood, netting to the Territory over \$50,000. Five hundred tons are now at Little Cottonwood cañon ready for shipment or melting. Parties will continue to ship until home melting works are completed.

Another from Corinne, 11th: Two hundred tons of ore from the Cottonwood mines were shipped from Salt Lake City during the past week—120 tons to Newark, N. J., and 80 tons to Sacramento.

RIVER MINING.—The Nevada Gazette says that in the gold-mining sections of that county, the beds of many streams, once worked out, are again becoming valuable. Tailings in the river and creek channels pay as often as filled up by gravel and cement from the deep hill diggings. Many of the bars of streams are proving the easiest kind of mining property. In many cases the owners are put to no expense whatever. The hydraulic mines above them fill in their claims gratis every year. The action of water and exposure to the atmosphere pulverizes all the lumps of cement that escape from the first hydraulic process. In many instances these claims are farmed out to Chinamen, the owners receiving from 30 to 50 per cent. of the amount taken out. No longer ago than six years, some 3,000 feet of the bed of Deer creek, below town, was sold for \$300—the owner supposing it would never pay for working again. The same ground is now worth several thousand dollars. As the hill diggings are likely to last for generations, and these river claims must hold out equally as long, some idea may be formed of their value.

The Independent, a new weekly published at Brooklyn, is a good representative of that excellent town. We hear the paper is prospering.

ENCOURAGING REMARKS.—One of our readers writes: "Incorporating an agricultural department into your paper has made it acceptable and really useful all over the country west of the Rocky Mountains, and probably further; and for my part I do not see how an intelligent farmer, minor or mechanic can do without it."

Mining Shareholders' Directory—Meetings, Assessments and Dividends.

[Compiled weekly from advertisements in the SCIENTIFIC PRESS and other San Francisco journals.]

ASSESSMENTS.			
NAME, LOCATION, AMOUNT AND DATE OF ASSESSMENT.	DAY	DAY	DELINQUENT, OF SALE.
American, G. H., June 13, \$3.	.....	July 18—Aug. 6	.....
Alpha Cons., G. H., July 13, \$1.	.....	July 22—Sept. 20	.....
Belcher, G. H., June 8, \$4.	.....	July 11—Aug. 9	.....
Cosala, Mexico, June 2, \$1.	.....	July 7—July 27	.....
Cordillera, Mexico, June 8, 50c.	.....	July 9—Aug. 1*	.....
Cherokee Flat, B. G., June 17, \$5.	.....	July 19—Aug. 9	.....
Cons. Virginia, Storey, July 8, \$1.	.....	Aug. 10—Sept. 1	.....
Excelsior, Argenta, June 22, 20c.	.....	July 30—Aug. 20	.....
Evening Star, No. 1, W. P., June 4, 5c.	.....	Aug. 4—Aug. 24*	.....
Featherstone, W. P., June 14, 20c.	.....	July 20—Aug. 11	.....
Hoppe Gravel, May 25, \$1.	.....	June 27—July 18	.....
Hait & Van Dyke Cons., June 7, 50c.	.....	July 23—Aug. 20	.....
Jennie A. Cons., W. P., June 20, 10c.	.....	July 25—Aug. 15*	.....
Latawana, W. P., June 2, 15c.	.....	July 14—Aug. 6*	.....
Mammoth, W. P., May 26, 20c.	.....	July 1—July 22	.....
Nevada L. & M., W. P., July 12, 1c.	.....	Aug. 11—Aug. 29*	.....
N. P. Roundfield Gravel, June 20, \$5.	.....	July 23—Aug. 9	.....
Pointon Flat, W. P., June 15, 3c.	.....	July 23—Aug. 3*	.....
Placer G. & C., Placer co., June 11, \$2.	.....	July 26—Aug. 16*	.....
Sophia Cons., 50c.	.....	July 27—Aug. 6	.....
Segregated Belcher, G. H., May 30, \$3.	.....	July 1—July 22	.....
Tahulul, Sierra dist., May 10, \$2.	.....	June 25—July 18	.....
Wheeler, Pines Grove, June 28, 50c.	.....	July 30—Aug. 20	.....
MEETINGS TO BE HELD.			
Eclipse Cons.	Annual Meeting July 23*		
Germania Cons.	Adj. Annual Meeting July 23*		
Globe	Annual Meeting Aug. 2*		
Maxwell	Annual Meeting Aug. 2*		
Ida Elmore	Annual Meeting Aug. 1		
Sidney Brooks, T. & L.	Annual Meeting July 18		
Union	Annual Meeting Aug. 8		
White Pine Smelting	Special Meeting July 23		
Yellow Jacket	Annual Meeting July 18		
LATEST DIVIDENDS.—(Within Three Months).			
Amador, div. \$10 per share.	Payable April 7, 1870		
Eureka, div., \$7.50.	Payable July 7, 1870		
Golden Rule, div., 50c.	Payable March 26, 1870		
Hale & Norcross, div., \$6.	Payable July 9, 1870		
Ida Elmore, div., \$1.	Payable Dec. 1, 1869		
Kentuck, div., \$5.	Payable Feb. 10, 1870		
North Star, div., 50c.	Payable May 5		
San Marcial, div., 50c.	Payable June 10, 1870		
Union, div., \$1.	Payable July 7, 1870		
*Advertised in this journal			

New Incorporations.

The following have filed certificates with the County Clerk, San Francisco:

PIUTE CO.—Lincoln county, Nev., and San Bernardino county, Cal. June 30. Capital stock, \$5,000,000, in 50,000 shares. Trustees: L. H. Loveland, Wm. H. Sharp, H. C. Greene, Wm. H. V. Cronie and John Moss. **INDEPENDENT GERMAN CONGREGATION.**—S. F. July 1. Trustees: Albert Kaster, Louis Falkenau, Herman Wenzel, Ernest A. Denike, Ludwig Altschul, Carl Hechter, Charles Weher, M. Waterman and Adolph Fried. **ELECTRIC SEWING MACHINE CO.**—June 30. Capital stock, \$600,000, in 600 shares. Trustees: Lewis Cunningham, Leland Stanford, George E. Gray, Thomas B. Shannon, J. C. Birdseye, W. P. Hoffman and R. C. Gaskill.

CONSOLIDATED BURRO.—Grant county, New Mexico. July 5. Capital stock, \$9,000,000; 360,000 shares. Trustees: Robert Morrow, S. Heydenfeldt, G. D. Roberts, J. S. Wall and J. B. Cooper.

PACIFIC BENEVOLENT ASSOCIATION.—July 5. Directors: A. M. Crane, H. J. Brown, N. P. Brown, G. W. Eaine, A. S. Halliday, O. W. Prescott, James M. Patten and W. C. Randolph.

EUREKA CONSOLIDATED M. CO.—Eureka District, Lander county, Nevada. July 6. Capital stock, \$5,000,000, in 50,000 shares. Trustees: F. S. Dodge, W. M. Lent, W. Thompson, W. L. W. Cole and J. C. Bateman. **BUTTER CANAL & M. CO.**—July 6. Capital stock, \$500,000, in 5,000 shares. Trustees: C. L. Bowman, Charles D. Horn, Lewis Schumacher, Hall McAllister and S. Footman.

The following have been recorded in the Secretary of State's office, Sacramento:

DENTON G. & S. Q. M. CO.—Brown's Valley, Yuba county. June 30. Capital stock, \$165,000. Trustees: M. Payton, A. C. Perry and C. More.

THE AUSTRALIAN MAIL SERVICE.

The Bulletin says that there is good authority for stating that Congress will grant the subsidy of \$300,000 asked for by Mr. Webb for his line of steamers, and that the subsidy of \$400,000 will be granted, in all probability, by the colonial government. It states that Mr. Webb's agent has met with many unexpected difficulties. Hall's line, it intimates, was started merely for the purpose of making some advantageous coalition or arrangement with Webb, and not with the idea of making it a permanent enterprise of itself. Mr. Hall has the New Zealand subsidy of \$75,000. "However, we shall soon have a line of ocean steamers established, and permanent colonial travel inaugurated on this route. The line now dragging out a slow existence with the aid of the New Zealand subsidy, will not interfere, and the assistance in question will doubtless be transferred to the new enterprise without much difficulty."

RARE, RICH AND SPICY is the "California Bonzeet," a new and valuable condiment, invented by a resident of this city, and manufactured here. It is an antiscorbutic preparation, and said to be a sure preventative against the diseases incident to sea life. It is also an excellent appetizer, which, if once tried, is seldom abandoned. See advertising column.

THERE are 171 farms in Kern county, each having 20 acres or more under fence, the total number of acres being about 14,015. There are, in addition to the above, some 50 ranchos with less than 20 acres under fence, and about 259 men engaged in agriculture, most of whom have families. —*Exchange.*

California Illustrated.

We have had several pamphlets and hooks on the natural beauties and wonders of our State. We are now to have these depicted on canvas, and brought to us, instead of our going to them. Next Monday evening there will be opened to the public gaze, the pioneer panorama of California.

We haven't seen the work yet, but we take quite an interest in it from the fact that one of those engaged in the project (Mr. Davis) has worked at the case for a long time in our office. Undoubtedly he has become imbued with the spirit of the Press, and desires to aid in disseminating a knowledge of what really exists on this coast. We wish him a hearty success, and give him a good recommendation.

The panorama, projected by California citizens, painted by California artists, and endorsed by California tourists, contains views of the principal points of the Yosemite, the Big Trees, the Geysers, the Mountains, the Lakes and the Cities. After exhibiting in this State, the owners will go East and give the masses a chance to gain a clear idea on some points concerning this land of wonderful stories.

SALT DEPOSITS SOUTH.—The extensive and valuable *salinas* at the head of the bay, in the vicinity of the Rancho La Punta, are, we learn (says the San Diego Union), to be opened and worked in a very short time by a gentleman from the upper part of the State, who has large practical experience in the business. Few of our citizens have an idea of the value of these home salt deposits, which are but ten miles distant from our city. Last year these *salinas* produced over 300 tons of salt; but the gentleman referred to estimates that they are capable of yielding annually ten times that quantity, or 3,000 tons—nearly enough to supply the entire demand of the State. The salt is of excellent quality, being free from alkali—an objection which is made to much of the salt of California. The opening and energetic working of our salt beds, then, is a matter of much importance to San Diego, and it will result in a large and profitable export business. The salt can be easily shipped from the head of the bay in light vessels to steamers or sailing vessels off the town, and at slight cost. Besides, our salt will be exempt to no duty, and will pay no export charges, which amount to nearly \$5 per ton on all obtained from Lower California and Mexico.

THE DARIEN EXPEDITION, which left New York on the 22d of January, returned thither on the 29th of June, and reports that the obstacles to the canal render the work practically impossible. The expedition encountered a series of rivers and high mountains not previously reported, and hostile Indians. All the routes surveyed were impracticable; and after six months of great toil and intense suffering the commander gave up the work and returned to New York. So says one account. Another and later is to the effect that the expedition returned on account of the rainy season, the want of supplies and the lack of funds; and that Captain Selfridge, who had charge of the expedition, will return in November next, Congress willing, and prosecute the work with renewed vigor, and will also make a re-survey of the San Blas route.

A FISHY VISIT.—Week before last a visit was paid to the Salinas river, which the *Castroville Argus* thus describes: "On Wednesday and Thursday last, an immense number of pickerel made their appearance in the bay, near the landings, and swarmy up into the Salinas river for some distance, in pursuit of the small fish called here sardines. The latter sought the shoal water in myriads in their endeavors to escape the vast schools of their voracious pursuers, who, following with gluttonous furv and oharming ignorance of the results of getting into shallow water, soon found themselves too high up on the beach and banks to make any use of their fins. There was no need of hook and line, gig, spear, or net; all that was necessary was to walk down to the water line where they floundered, and gather them up. The residents thereabout and many of our citizens engaged in the sport, and fish have been plenty in town, while wagon-loads of them have been sent back into the country."

Farming and Gardening.

COMMUNICATIONS for this department are solicited from all parts of the Pacific States and Territories.

Our Horticultural Visitors.

Our horticultural visitors from the East, Messrs. Wilder & Company, are still engaged in visiting our principal gardens, nurseries and other places of interest. They express themselves in the highest terms of the wonderful and varied productions of our soil and climate. They were much delighted and surprised at the display of orange, lemon, pomegranate, fig, olive and other trees in such full bearing at Dr. Strenzel's and other gardens near Martinez. They are also much surprised at the wonderful yield of cereals which they witness in every portion of their travels. The fields of wheat along the railroad tracks, and at the various shipping points which they have visited, added to the horticultural and vinicultural displays, are giving them an insight into our great and varied agricultural resources, which they had scarcely dreamed of from anything which they had heard or read.

There is nothing like *seeing* to impress and fix belief; especially when the belief asked is so far beyond common acceptance, as is everything connected with the natural productions of California. The visit of these gentlemen, and the kind attentions bestowed upon them by our citizens, will not be lost; as their high standing at the East, and their well known attainments in practical horticultural science, will render the reports which they may carry back a fixed standard by which those who have never visited this coast will judge of our resources. They are getting facts as they travel which they will not fail to use—facts which will tell upon the masses at the East and in Europe, and which will not be without an important influence in directing the steps of thousands who, in coming years, as now, will be leaving the crowded communities of the old world for the more promising, wider and fertile fields of labor in the new.

WHEAT SHIPMENTS.—It is a somewhat noticeable fact in connection with the incoming of the new crop that thus far nearly or quite every hshel of wheat has been loaded at Vallejo, and that of the five or six ships now under charter to load with wheat for England, all are to go to Vallejo. Oakland will also soon come in competition for this business; so that there is a fair chance that San Francisco grain shipments will ere long be confined mainly to the product of San Mateo and the western portion of Santa Clara counties. The present appearances are that not more than one-quarter of the next year's grain crop will find its way to this city. Charges on shipping in this harbor are driving from our wharves one of the heaviest and most important classes of business on the coast. Somebody has blundered.

NEW CABBAGE PEST IN NEVADA.—The Nevada Transcript says that nearly all the cabbage in that vicinity have been destroyed by little insects which the gardeners call cabbage lice. Mr. Leme, of the French gardens, says that this is the first year of these insects. They are about the size of a flea and the color of the cabbage, and their depredations are committed by eating off the stalk at its junction with the head of the cabbage. We are told that the pest is not uncommon in other counties.

RAPID GROWTH.—The Russian River Flag notices, as an instance of the rapidity of California vegetable growth, that Joseph Knowland, of Healdsburg, planted potatoes, peas and beans, on the ninth of April last, and in just two months and six days thereafter supplied his table with new potatoes, green peas and string beans from that planting.

Root Growth.

Whenever the embryo of a plant bursts through its envelop its most obvious peculiarity is, first, to throw a root downwards, and next a stem upward. There are a few exceptions to these rules, however, where both roots and stems manifest an indiscriminate disposition to grow either way, which we have not time now to consider. But where the rule holds, no known power can change this tendency. If the plant be inverted, both the root and stem will at once change their direction of growth. The root seeks the earth, the stem the air.

Depth to which Roots will Grow.

There is also to a great extent a parallelism in the two growths. A luxuriant growth is generally attended with a corresponding development of lateral roots. A tall, rank growth of rye and wheat has been known to form a perfect mat of roots four feet deep in the ground. The roots of winter wheat have been traced to a depth of even seven feet! This extreme length, however, can only be found in very light soil, which is dry near the surface and moist below. Cereals will not go to any such excessive depth unless compelled to do so in search of moisture; and when they do go that deep they generally pass through the dry portion of the soil by roots almost bare of branches, as shown at *b*, between *a* and *d*, in Fig. 1, throwing out from the main root a thick mat of rootlets as soon as moisture is reached. These facts speak volumes in favor of deep culture.

An Interesting Fact in the Root Growth of Cereals.

Some weeks ago we alluded to a special peculiarity of wheat, barley and oats, known as tillering or stooling. There is another and quite interesting peculiarity common to this class of plants, which we will now endeavor to describe by the accompanying illustrations.

After the germ has thrown up its stem, a protuberance will be found as at *d* in Fig. 1. If the seed has been sown deep—say two or three inches, or more—as in the same figure, this protuberance will be found about one inch below the surface, leaving from one to four inches of root, without branchlets, between the seed and this protuberance. If it has been sown very shallow, say one inch deep, as in Fig. 2, the distance between the seed and the protuberance is merely nominal; while if it is barely covered with earth, as in Fig. 3, this connecting link does not appear at all, but the protuberance grows directly out from the germinal end of the seed—the roots, as will be seen, springing out from the protuberance, and not from the seed, as is also the case in the lower sets of roots in both the other figures.

The Significance and Use of this Peculiarity.

Now this peculiarity has a use in agriculture, and its conditions and purposes should be distinctly known to every grower of grain. To premise, we will state that the upper set of roots is known as the cor-

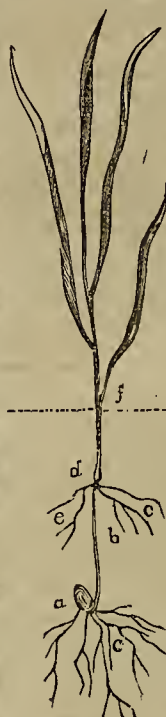


FIG. 1.



FIG. 2.

onal or crown, and the lower as the seminal or seed roots. As has already been stated, at whatever depth the seed may have been sown—two, four or five inches—the coronal roots are always formed at just about such a distance from the surface—about one inch—while the connecting root is generally quite bare of branchlets. It is from this upper or coronal point that the stooling or tillering always takes place. Were it not for this habit or nature of the plant to form that protuberance, the tillering and its important results—described two weeks ago—would not occur. The action or habit here described has been called by some *vegetable instinct*.

Office of these Two Sets of Roots.

The increase and fructification of the plant depends mainly upon the vigorous action of the coronal roots. It is through these roots that the "plant food" is mainly received. The office of the seminal roots is more especially to provide moisture; and in seeking for this, as we have already said, they will sometimes, in loose soils, penetrate to a depth of four and even seven feet. Of course but little plant food can usually be obtained at such a depth. The coronal or food-seeking roots have a tendency to spread out near the surface, where the plant food is usually found, especially on old land which has to be kept in condition by the surface application of manures.

Another Advantage

Derivable from this peculiarity in more northern climates is the fact that these coronal roots are often so badly chilled by late frosts that the plant would be killed were it not for the action of the seminal roots (which are out of the way of the frost) in sending up nourishment for it, until the food-seeking roots have had time to revive and again resume their office. It is for this reason that wheat should be sown deeper in high latitudes than in lower.

An Important Fact for Californians.

There is a very important matter in this connection for Californians to consider in the relation which this habit of the wheat plant has to drouth and deep tillage. It is manifest, by an examination of Figs. 1 and 2, that a plant in the condition of the former is much better calculated to withstand a drouth than one in the condition of the latter. Even if the seminal roots in Fig. 2 could be induced to go as deep for moisture as those in Fig. 1, those in the latter must have a decided advantage, for the reason that the distance from *a* to *d* is made by a single concentrated root or tube, and as such is better fitted to hold and convey the moisture through dry soil, than though it were so carried through a number of smaller roots, as at *c*. In a drouth, the plant in Fig. 2 would derive little or no advantage from its double set of roots, for the lower set would be as much affected as the upper.

The advocates of shallow tillage will derive but little encouragement for their theory when they come to apply thereto the foregoing facts connected with the development and growth of the wheat plant. In our next issue we shall endeavor to give some further facts bearing upon deep tillage and the proper depth of sowing, illustrated with several pointed and highly suggestive engravings.

CASTOR OIL BEANS are much wanted at the oil factory in this city, for which good prices will be paid.

How to Fallow in California.

Last spring I gave the readers of the Press an account of the way that Mr J. V. Webster, of Fruit Vale, cultivated his land for hay. I wish now to repeat the statement, with some additional information, gained from him since my previous letter. On 20 acres of rolling ground that had been run down by constant cropping until it would not produce one ton of poor hay to the acre, he now makes a yield of three tons of fine clear hay, by a system of summer fallowing, conducted as follows:

One-half of his field is fallowed alternately. The half that has yielded the hay this year he is now pasturing till the rainy season commences. Then a volunteer crop of grain, weeds, etc., will spring up thickly. When this growth gets about a foot high—say in February or March—he will plow the green crops under, and again, at the end of the rainy season, he will cross-plow, destroying all the weeds that spring up the second time, and leaving the ground in a light condition. Then, instead of sowing his grain as soon as the rainy season commences, he will let his land lay till January, when another crop of weeds will be growing from the effects of the first rains. These he will again plow under. Then he will sow 175 pounds of grain to the acre and harrow in. After the grain has started the ground will be rolled.

His object of sowing thickly is for hay, and the philosophy thereof is: a thick mat of grain will choke back all weeds, allow a rank growth and still produce fine hay; whereas, if thinly sown, the straws would be too large and coarse. For grain, thin sowing is best.

While Mr. W's land is increasing in richness, and his yield is one-half greater with not over two-thirds the expense, land adjoining his was not considered fit to cut at all this year, it having been run down from constant cropping and overrun with foul weeds.

Blackberries.

Mr. Webster has four acres of blackberries that will rival any plantation in the State for luxuriance of growth, systematic training and size and quality of fruit. He will keep account of their yield, which will be given through the Press.

S. H. HERRING.

New Mode of Fighting Grasshoppers.

At the height of the grasshopper raid in Utah, all the known and available forces for fighting such insects were brought into requisition or suggested. Among the new devices suggested was driving a flock of sheep hurriedly over a field of these insects, which is said to have "depressed" the vermin fully as much or more than any other expedient employed.

Another plan, however, is spoken of by the Salt Lake News as having proved quite effectual. One Brimhall, after carefully watching the habits of these insects, observed that when any considerable number of them were killed, the survivors would leave the foliage and feed upon the bodies of their defunct fellows. Noticing this, he and his assistants armed themselves with willow scourgss, and, passing rapidly over the fields, soon slew enough to draw them off from the crops to feed upon those that had been slain. This having been effected, he had an opportunity to go more leisurely a second time over the fields, to complete his work, while his crops were in the meantime in no wise suffering. By this means, according to the News, he eventually—after twenty-four days of hard fighting—fairly overcame his foes and saved his crops, while others, who pursued different modes, suffered greatly, and in some instances lost almost their entire crops. Their visits are sometimes so early that the scourging process may be carried on in wheat fields, before the grain comes into the joint, when, instead of doing any damage, it is said the crop will be improved by the operation.

ASSESSING SHEEP.—A petition is in circulation in Tulare county requesting the Supervisors to reduce the assessed value of sheep to two dollars per head. The demand is not unreasonable when regard is paid to the rate at which other property is assessed.

Flax Culture Again.

In addition to the 2,500 acres of flax cultivated in Santa Cruz county, noticed last week, I find that there are about 400 acres of flax growing in San Mateo county this season—300 acres at Half Moon Bay, and the balance near Redwood City. Although sown more for the seed than for the straw, it is designed to convert much of the straw into fiber, or to sell it for that purpose. This will surely pay when proper machinery is introduced. But I find that no one has yet any machinery; all seeming disposed to depend upon the Oakland bag factory for a market. It is hardly presumable that the Oakland factory will work up all the crude material which will be produced in this State the present year with their machinery. They are now using jute, which costs them about six cents per pound. This is a long, easily-worked but inferior fiber, imported from the East Indies. What this company consider for their interest in this matter I know not; but while it is to be hoped it will be in favor of flax, it will undoubtedly be with an eye to profits.

Mr. Jacob Weaver, near Redwood City, who has thirty acres, says that he will harvest one thousand pounds of seed to the acre. This, at four cents per pound, will pay him twice the profit of wheat. He will thresh with a common machine and convert his straw into manure.

Flax Growing at Half Moon Bay.

It was my good fortune to fall into company with Mr. W. D. Perine, of Half Moon Bay, the pioneer in flax culture, as a business, on this coast. He came to California from Canada West, where he had been constantly engaged in the culture and manufacture of flax for fifteen years. He was one of the leading men in this business there, and came here with the express design of entering into and developing the business here. This is his third year in California. He has 280 acres of fine flax in cultivation this season. Mr. Perine says that his success exceeds his brightest expectations, and that with proper machinery it will grow into a most important business in this State.

Importance of Good Seed.

He has had difficulty in getting the best sort of seed suited to this climate. From a trial of four different varieties he has selected one that is superior to the rest for oil and for fiber also. By further attention to this particular, in gathering the best to plant every year, he expects to beat the world. The matter of a superior sort is certainly an important one in the cultivation of anything. His straw stands three feet high, while some of the fields I have seen will not reach two feet.

The Need of Machinery.

Mr. Perine says that a good quality of "scutcheel" or cleaned flax is worth 13 cents per pound in the East. He prepared a little by hand last season as a specimen of what this State can produce, and it was on exhibition at the Mechanics' Fair, and elicited high praise. He declares that the one great thing needed here now, to encourage and insure success and permanency in this enterprise here, is machinery. Machinery is needed for harvesting the fields, and for threshing out the seed without injuring the fiber. Flax-brakes and scutching machines must be had also.

Mr. P. showed me some drawings of the most approved machinery used by him in the East. He contemplates sending East for machinery for his own use. He has made applications to mechanics here; but cannot get what he needs without paying twice what it will cost to get the same from the East. He expressed considerable disgust at the prices demanded here.

With a devoted attachment to this enterprise, and an abiding faith in the possible magnitude and importance of the flax business in this State, Mr. Perine is willing and anxious to join hands with the Santa Cruz farmers, and all others interested in this culture, in producing and working the machinery so much needed and so necessary to success and profit. Of the positive value of this industry to California there can no longer remain a doubt, and this matter is well worthy the attention of capitalists as well as of farmers. Its practicability is unquestionable. Its development is a foregone conclusion, but has yet to be

perfected. This matter will be again treated on in the Press, and we hope to be able soon to illustrate and describe some of the latest approved machinery now used in preparing the fiber, etc.

S. H. HERRINO.

Santa Cruz Farmers' Club.

We are indebted to the Secretary, Mr. J. W. Morgan, for the following report of the proceedings of the Santa Cruz Farmers' Club, at their last meeting, held July 21:

Club met pursuant to adjournment, Mr. J. W. Woods in the chair. Minutes of the previous meeting read and approved. The report of committee on the cause of the sudden death of cattle, received. Mr. John Woods stated that in company with Dr. Anderson he made a thorough search for a plant supposed to be poisonous to animals; but could not find any. Mr. Locke thought perhaps the plant referred to was not the cause, but thought that ergot might be. Mr. Humphrey thought there was not sufficient ergot in the grasses hereabouts to produce death. The committee, not being able to make a satisfactory report, were requested to continue their investigations and report at another meeting.

The mode of assessing property in this county was then taken up as the continued subject of discussion. Mr. Feely read from the Santa Cruz Times of some very unequal and injudicious assessments. Mr. Locke thought there was no remedy other than to elect some man to the office of Assessor who would do his duty. Mr. Feely thought that it might be remedied some by the appointment of a committee to examine affairs in that line and appear before the Board of Equalization and show up the facts as they are, taking the assessment roll as their guide. On motion, a committee of three were appointed to examine the assessments and collect all the reliable information concerning them and report at the next meeting of the club. Messrs. Feely, Humphrey and Dakan were appointed such committee.

Subject for discussion at the next meeting: "The Best Mode of Breeding and Managing Stock." Adjourned till Saturday, July 16th.

MORE OF "STEAM CULTURE IN LOUISIANA."—We have made several allusions to the experiments in steam culture, with deep plowing, now in progress on the Magnolia sugar plantation, near New Orleans, and now find the following additional information in the Agricultural Report for May and June, just received, which will be read with interest: "The crop of cane and corn, about 1,000 acres in one field, had been planted on land plowed and cultivated wholly with the steam plow. Not one drop of rain had fallen for more than six weeks, and the crops on the various plantations in the neighborhood, though green, were quite small, from excessive drought. I was surprised when I got to Magnolia to find the cane and corn looking dark and exceedingly thrifty, and I am free to say it is the most splendid-looking crop of cane and corn I saw in the State. The dry weather had not affected the growth of the crops, which were in a forward and flourishing condition. The crop was nearly all laid by, and it had been worked by about half of the usual number of hands. I was shown a few acres of three-year-old ratoon canes that had been deeply sub-soiled with the steam plow, apparently as good as any cane in the field. Mr. L. is very sanguine that the cane crop can be made with steam cultivation, with one-third less mules, one-third less laborers, and will give one-third more yield per acre, than under the old system."

OLD AND YOUNG VINES FOR WINE.—It is claimed that grapes from old vines produce much better wines than grapes from younger vines. Young vines, as a rule, make raw wines which no age will properly soften; while those which have, by age, attained mature and substantial stems make a wine more resembling the old wines of Europe. If this statement is reliable, it affords matter of encouragement for future improvement to those who are cultivating young vineyards. It would also argue in favor of grafting old vines, in changing the variety of grapes, rather than digging up the old to make room for new.

What I Know of Farming—No. 26.

The grass crop of this, as of many, if not most other countries, is undoubtedly the most important of its annual products, requiring by far the largest area of its soil, and furnishing the principal food of its cattle, and thus contributing essentially to the subsistence of its working animals and to the production of those meats which form a large and constantly increasing proportion of the food of every civilized people. But I propose to speak in this essay of that proportion of the grass crop—say 25 to 35 per cent. of the whole—which is cut, cured and housed or stacked for hay, and which is mainly fed out to animals in winter and spring, when frost and snow have divested the earth of herbage or rendered it inaccessible.

The seventh census (1850) returned the hay crop of the preceding year at 13,838,642 tons, which the eighth census increased to 19,129,128 tons, the product of 1859. Confident that most farmers underestimate their hay crops, and that hundreds of thousands who do not consider themselves farmers, but who own or rent little homesteads of two to ten acres each, keeping thereon a cow or two and often a horse, fail to make returns of the two to five tons of hay they annually produce, considering them too trivial, I estimate the actual hay crop of all our States and Territories for the current year at 40,000,000 tons, or about a ton to each inhabitant, although I do not expect the new census to place it much, if any, above 25,000,000 tons. The estimated average value of this crop is \$10 (gold) per ton, making its aggregate value, at my estimate of its quantity, \$400,000,000—and the quantity is constantly and rapidly increasing.

That quantity should be larger from the area devoted to meadows, and the quality a great deal better. I estimate that 30,000,000 acres are annually mowed to obtain these 40,000,000 tons of hay, giving 1½ tons per acre, while the average should certainly not fall below two tons per acre. My upland has a gravelly, rocky soil, not natural to grass, and had been pastured to death for at least a century before I bought it; yet it has yielded me an average of not less than 2½ tons to the acre for the last sixteen years, and will not yield less while I am allowed to farm it. My lowland (hog when I bought it) is henceforth to yield more; but, while imperfectly or not at all drained, it was of course a poor reliance—yielding hounteously in spots, in others little or nothing.

In nothing else is shiftless, slovenly farming so apt to betray itself as in the culture of grass and the management of grass lands. Pastures overgrown with bushes and chequered by quaking, miry bogs; meadows foul with every weed, from while daisy up to the rankest brakes, with hillsides that may once have been productive, but from which crop after crop has been taken and nothing returned to them, until their yield has shrunk to half or three-fourths of a ton of poor hay—these are the average indications of a farm nearly run out by the poorest sort of farming. Such farms were common in the New England of my boyhood; I trust they are less to-day; yet I seldom travel ten miles in any region north or east of the Delaware without seeing one or more of them.

Fifty years ago, I judge that the greater part of the hay made in New England was cut from sour, hoggy land, that was devoted to grass simply because nothing else could be done with it. I have helped to carry the crop off on poles from considerable tracts on which oxen could not venture without miring. It were superfluous to add that no well-bred animal would eat such stuff, unless the choice were between it and absolute starvation. In many cases, a very little work done in opening the rudest surface-drains would have transformed these hogs into decent meadows, and the product, by the help of plowing or seeding, into unexceptionable hay.

There are not many farmers, apart from our wise and skillful dairymen, who use half enough grass-seed; men otherwise thrifty often fail in this respect. If half our ordinary farmers would thoroughly seed down a full third of the area they usually cultivate, and devote to the residue the time and effort they now give to the whole, they would grow more grain and vegetables, while the additional grass would be so much clear gain.

We sow almost exclusively timothy and clover, when there are at least 20 different grasses required by our great diversity of soils, and of which three or four might often be sown together with profit; especially in seeding down fields intended for pasture, we might advantageously use a greater variety and abundance of seed. I

believe that there are grasses not yet adopted and hardly recognized by the great body of our farmers—the buffalo grass of the prairies for one—that will yet be grown and prized over a great part of our country.

As for hay-making, my conviction is strong that our grass is cut in the average from two to three weeks too late, and that not only is our hay greatly damaged thereby, but our meadows needlessly impoverished and exhausted. The formation and perfection of seed always draw heavily upon the soil. A crop of grass cut when the earliest blossoms begin to drop—which, in my judgment, is the only right time—will not impoverish the soil half so much as will the same grass cut three weeks later, while the roots of the earlier cut grass will retain their vitality at least thrice as long as though half the seed had ripened before the crop was harvested. Grass that was fully ripe when cut has lost at least half its nutriment, which no chemistry can ever restore. Hay alone is dry fodder for along winter, especially for young stock; but hay cut after it was dead ripe, is proper nutriment for no animal whatever—not even for old horses, who are popularly supposed to like and thrive upon it.

The fact that our farmers are to generally short-handed throughout the season of the summer harvest, while it seems to explain the error I combat, renders it none the less disastrous and deplorable. I estimate the depreciation in the value of our hay crop, by reason of late cutting, as not less than one-fifth; and, when we consider that a full half of our farmers turn out their cattle to ravage and poach up their fields in quest of fodder a full month earlier than they should, because their hay is nearly or quite exhausted, the consequences of this error are seen to diffuse themselves over the whole economy of the farm.

From the hour in which grass falls under the mower, it ought to be kept in motion until laid at rest in the stack or the barn; keep stirring it with the tedder until it is ready to be raked into light winrows, and turn these over and over until they will answer to go upon the cart. In any bright, hot day, the grass mowed in the morning should be cocked before the dew falls at night; while, if any is mowed after noon, it should be cocked and capped by sunset, even though it be necessary to open it out the next fair morning.

I have a dream of hay-making, especially with regard to clover, without allowing it to be scalded by fierce sunshine. In my dream, the grass is raked and loaded nearly as fast as cut, drawn to the barnyard, and there pitched upon an endless apron, on which it is carried slowly through a drying-house, heated to some 200° Fahrenheit by steam or by charcoal in a furnace below, somewhat after the manner of a hop-kiln. While passing slowly through this heated atmosphere, the grass is continually forked up and shaken so as to expose every lock of it to the drying heat, until it passes off thereby deprived of its moisture and is precipitated into a mow or upon a stack-bottom at the opposite side; load after load being pitched upon the apron continuously, and the drying process going steadily forward by night and by day, and without regard to the weather outside. I do not assert that this vision will ever be realized; but I have known dreams as wild as this transformed by time and thought into beneficent realities.—Horace Greeley.

REMARKABLE EFFECTS OF SUN HEAT—FRUIT COOKED UPON THE TREES, ETC.—We learn from Mr. George G. Briggs that the late very hot days produced quite a serious effect upon the fruit at Putah creek and vicinity. Many of the grapes, two-thirds grown, were fairly cooked upon the vines. Very few bunches escaped the scorching effect of the sun. He says that the White Muscat and Flame Tokay varieties suffered more than the Mission grape. Plums were cooked upon the trees also—a thing never seen before in this State, although it frequently happens that apples and pears are scalded upon one side. The thermometer indicated 114 degrees in the coolest shade.

In 1858 the heat reached 120 in the shade in Marysville, at which time birds were seen to drop dead from the trees and several cases of sunstroke were reported.

DAMAGE FROM CATTLE.—Serious damage is said to have been done to the crops on the San Bonita by large bands of cattle and sheep that are constantly being driven through that region.

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Notices to Correspondents.

SERICUM, Columbia, Tnolnmae Co.—There is no work, on this coast, that we are aware of, which answers the purpose of which you speak. The one published by Mr. Prevost, some two or three years since, comes as near to what you desire as any with which we are acquainted. Mr. Bancroft, of this city, has also recently published a small work on the culture of silk and tea, which, we presume, may be obtained at most of the interior bookstands. The best silk manual which we have ever met with, is one published in Boston, Mass., some twenty-five years ago, during the height of the *morus multicaulis* excitement; but this is now out of print.

"CROWQUILL," "E. N. S."—We are obliged to defer these letters to next week.

PERSONAL.—The *Pajaronian* uses rather harsh terms in speaking of a correspondent of ours, S. H. Herring. While we do not profess any responsibility for the ideas of our correspondent's, we deem it but just to say that, to the best of our knowledge and belief, the character of our agent is above suspicion. To defend the reputation of one's city is natural and praiseworthy, but we think that the *Pajaronian* wrongs itself, and is unworthy of its general high ability, when it considers that making insinuations as to the personal character of the gentleman in question is defending the good name of Watsonville.

DEATH OF A JOURNALIST.—Major George W. Wright, late city editor of the *Alta*, died on the 8th inst. in this city. The deceased was one of those who have the happy faculty of making many friends and few enemies, and his character and ability had endeared him to a large circle both in and out of his profession.

A GOLD FEVER is raging in Mayfield in Santa Clara county. Gold has been discovered, it is reported, on Stephen's creek, in the foothills some ten miles from the town. We hear of no heavy strikes, but a nugget worth fifty cents is reported.

STEAMER FOR LAKE TAHOE.—Ben Holladay has bought the little steam propeller yacht Stager, built originally for the Russian Expedition, and sent it up to Lake Tahoe, for the use of excursion parties.

Work at the Foundries.

The foundry business has been better within the past few weeks than for some time previous. In several of the works a larger number of men has been employed than for months before. A walk through all the foundries shows much great activity, and although some do not see much grounds for a permanent improvement, the greater number of foundrymen express the opposite opinion.

The Vulcan Works are busy on an engine for Virginia City, with 16-inch cylinder and 36-inch stroke. They are also making a lot of castings for molds, etc., for various smelting works at White Pine. Among these are some patent slag-trucks for conveying the slag away from the furnaces; these at the same time form slag-bricks, being of the proper shape therefor. They are repairing and adding to a 10-stamp mill which is being moved from Meadow Lake to Cope District, where it will be set up and receive five additional stamps. And they are doing something in the way of store-hoists, besides an indefinite amount of general work.

At the Fulton Foundry, machinery has been ordered for a steamer by the Merchants' and Farmers' Steam Navigation Company of Roseburg, Oregon. This boat will ply on the Umpqua river. There are two engines 14x48, and boilers 56 inches by 16 feet. Here a quartz mill (Vance's Little Giant) has just been completed for Cope District. With this are three amalgamating pans, two settlers and a Brodie crusher. The engine is 10 by 20, and the boiler 48 inches by 16 feet. Another Brodie crusher has just been sent to Nevada, and a third to the Confidence mine, both being of the largest size. A large number of castings have been made for the smelting works of Woodhull & Co., at Salt Lake City, and also for Selby's works. In addition, machinery is being made for a circular sawmill and also for a flour mill, which we to go up the Weiser river in Idaho. The works have been running between sixty and seventy men of late, being kept very busy.

At the Aetna Works, castings are being made for a horse front, for the corner of California and Spring streets, and also for one on Market street. A large engine with 20-inch cylinder and 24-inch stroke is being built for a sawmill for the California and Oregon Railroad Co. The Cope Milling and Mining Co. are having considerable work done here, and there is a lot of furnace castings being made for the San Marcial Company of Mexico. A propeller has been manufactured for the steamer Escort. A dozen sets of car-wheels have been cast for the Seattle Coal Mining Company of Washington Territory. Besides these items, other general work has been received, and the works have been running at their fullest capacity.

The Golden State Works seem to have been very fortunate in securing work since their late fire. They make a specialty of Stevenson's Patent Mold Board and Amalgamating Pan, which was illustrated in the Press of April 2d, and which, they say, is rapidly coming into favor. Besides these they have been making castings of various descriptions for the mills at Virginia City, pumping works and hoisting machinery for Pine Grove, etc., keeping the men (who are working on the coöperative plan) up to their hest.

The Risdon Iron Works are at present very busy. They are engaged on a ten-stamp quartz mill with four amalgamating pans and other apparatus, and also with hoisting works, etc., which are to be sent to Calaveras county. They are building hoisting works for the Eastport Coal Mining Company of Oregon, some work for Mexico, and have a considerable amount of steamboat work on hand. But it is in the boiler department that the greatest activity

is shown. Here the ground and floor are covered with pipes, and the din of the hammering is deafening. Over twelve miles of sheet-iron pipe, thirty inches in diameter, are being made for the Spring Valley Water Works, at the rate of 700 feet per day. Some of the pipe made by the Risdon Works have been in use ten years.

Some three miles of the same pipe, of No. 14 to 3/4 iron, are being made for the Cherokee Mining Company. This pipe is intended for one of the boldest plans yet undertaken in California: conveying water down and up the sides of a ravine whose vertical depth is 850 feet. We do not at present remember any case where the depth has 300 feet. This pipe-making, together with work on five steam boilers of various sizes, give employment to upwards of 300 men.

California Agricultural Notes.

THE wheat crop is being rapidly harvested and taken to market. At nearly all the stations on the line of the Vallejo Railroad, says the *Marysville Appeal*, immense piles of grain are stacked up to be taken to navigation. Trains are kept running night and day loaded with wheat, yet these great piles do not appear to diminish.

The Vallejo *Recorder* says that the crop along the line of the old Napa and Benicia road is unusually good this season, affording forty to fifty bushels to the acre. The farmers in that section are jubilant over the rich results of their labor, and receive this rich earth gift as the legitimate reward of attention and industry in their honorable vocation.

Especial arrangements are being made by the Central Pacific to accommodate the farmers along the line of that road. Temporary side tracks, and, where necessary, special trains will be run. Freight for the Stanislaus river has been fixed at \$2.70 per ton.

STOCK FROM SOUTHERN CALIFORNIA is being driven over the mountains, whenever practicable, in large numbers, to save it from the drouth. Sheep are, for the same reason, being forced into market in larger numbers than usual. It has been decided to reduce a flock of 50,000 on the island of Santa Cruz to 40,000 in order to increase the chances of saving the smaller number. The reduction will be effected by slaughtering 10,000, making the most of their pelts and tallow, and salting down the hind quarters. We may therefore look for an early and extensive supply of pickled mutton in this market.

SUMMER FALLOWING.—The following item from the *Monterey Republican* contains a useful and practical lesson, and one which the farmers generally, throughout the State, ought to profit from: "The vast benefits which issue from summer fallowing have been illustrated this year in many portions of the State, land which has been cultivated in this manner yielding an incomparably greater quantity of grain than the same character of land on which summer fallowing has not been practiced." An interesting article on summer fallowing will be found on another page of the present issue.

FLAX and flax seed is in great demand in this city for the supply of the linseed oil works at the foot of Third street. Both the seed and fiber of flax can be sold here at all times and at remunerative prices. Flax cannot, like wheat, barley, etc., be profitably produced on most soils; but only where the conditions of both soil and climate are favorable. An interesting article on flax culture in this State will be found in another column of our present issue.

EXPERIMENT IN RICE CULTURE.—The *Alta* says that "rice of the California variety" is now growing and standing a foot high on Andras Island, near Giorgia

Slough, in Sacramento county. Mr. Giogorn, who has sown about a bushel of seed at that locality, has had considerable experience in rice cultivation in South Carolina, and thinks it will do well on the fresh tle land of that portion of the Sacramento where it can be properly irrigated.

FROM SAN LEANDRO.—The farmers have commenced harvesting on the Estudillo ranch, where an average of wheat is expected of from thirty to forty sacks per acre. The fruit there has suffered much from the late excessive sun-heat, the large fruit especially, and in some instances even currants have been partially cooked. Much damage has also been done to vegetables by a species of plant lice.

CANARY SEED.—The Provost brothers, of Denver, have about 80 acres of canary seed now growing and looking well. They have also 1,000 acres in wheat and 200 in flax. They believe, to some extent at least, in diversified farming. They might undoubtedly still further improve their practice by adding to their products root crops, cattle and swine.

LATE CROPS.—Some of the farmers in the vicinity of Marysville have but quite recently planted potatoes and crops on their low grounds, which it is thought will do well. The editor of the *Sacramento Bee* says he never saw better potatoes than come from tule lands in that county planted in July, 1864—the dry year.

THE best crops in California, this season, are generally in the counties to the north of this city and Sacramento, where the greatest quantity of rain has fallen. To the southward, wherever the sea fog has prevailed to any considerable extent, the crops have suffered less than where they are usually absent.

CURRENTS are becoming an important article of small-fruit culture about the bay. The currant appears to do remarkably well here, is less perishable than most small fruit, is very useful to put up, and any surplus is readily converted into currant jelly, for which there is a large and growing demand.

CUTTING WHEAT FOR HAY—BAD SPECULATION.—Quite a number of parties in various sections of the State, anticipating a greater damage from the drouth than was actually realized, cut their wheat for hay; while their neighbors, who allowed their grain to mature, are now realizing fair crops.

FATAL CATTLE DISEASE IN THIS CITY. Chas. Imhourg informs the *Alta* that forty-three head of cattle in one herd and thirty-five in another have recently died in this city from a disease, the nature of which we infer is unknown, but which, among other symptoms, shows ulcers under the skin.

THE STATE FAIR.—The annual fair of the Agricultural Society will be held at Sacramento on the 17th of September. The usual facilities of half fare will be extended by the railroads and steamboats to visitors, and all packages intended for exhibition will be transported free.

LOOKING FOR LAND.—Parties from the East are now in Butte county looking for lands on which to settle. We suppose the land along the line of our railroads will first be occupied, and as the population is crowded back into the foot-hills, they will find that "the last shall be first." Experiments with our red soil proves it to be excellent grain-producing land.—*Butte County Record*.

SUIT AGAINST THE NEW ALMADEN CO.—The Commonwealth of Pennsylvania has brought a suit against the New Almaden Quicksilver Mining Company for the sum of \$100,000. The case is set for trial on the first Monday in December.

W. H. M. writes us that we mistook his figures in regard to the cost of the Elko Court House, which were \$25,000.

A Full List of Patents Issued to Pacific Coast Inventors.

[FROM OFFICIAL REPORTS TO DEWEY & CO., U. S. AND FOREIGN PATENT AGENTS, AND PUBLISHERS OF THE SCIENTIFIC PRESS.]

FOR THE WEEK ENDING JULY 5TH.
SUPPLEMENTARY PEDAL ATTACHMENT FOR PIANO-FORTES.—Gustav A. Scott and W. B. Frisbee, San Francisco.
APPARATUS FOR SAVING MERCURY FROM THE WASHINGS OF GOLD AND SILVER ORES.—Wells Spicer, Summit county, Colorado Territory.

NOTE.—Copies of U. S. and Foreign Patents furnished by Dewey & Co., in the shortest time possible (by telegraph or otherwise), at the lowest rates. All patent business for Pacific coast inventors transacted with greater security and in much less time than by any other agency.

The Mexican Pirate.

The crisis of the *Forward* has been glorious but brief. The patriotism of Placido Vega having waned before the hopes of plunder, he sent this vessel to sack the city of Guaymas, which operation was successfully performed. The pretence set up for the act was that Vega was carrying on a revolutionary war, and the flag of the republic of San Salvador was hoisted for the occasion. Having seized a large amount of booty, the pirate retired to a hiding place on the river Teacapan, the U. S. steamer *Mohican* following her and destroying her by fire, as the *Forward* was aground and could not be taken out of the river. In the skirmish with the pirates, who had erected a battery on the bank of the river, one of the *Mohican's* crew was killed, and several wounded, of the latter one, at least, fatally. The act of the United States steamer has created considerable excitement, and it would appear that many of the Mexicans are highly indignant thereat. But this cannot be wondered at. There has always existed a great hatred against the United States on the part of a large class of the Mexicans, and there always will be until that country gets civilized. Our only regret at the action of Commander Low is, that he thereby sacrificed the life of some of his men in behalf of a people who will hardly be grateful for the benefit done them.

THE STEAMBOAT RACE.—The greatest excitement for years in the Mississippi valley has been caused by a race, from New Orleans to Cairo, and thence on to St. Louis, between the R. E. Lee and the Natchez, two rival boats. The Lee started out ahead, followed immediately by the Natchez, and as the steamers panted up the stream, the excitement increased, and the amount of money bet on the result grew exceedingly large. At Cairo the Lee led her antagonist about twenty miles, and came in the victor at St. Louis, the Natchez being detained by a fog. Over a million of dollars, it is said, changed hands in consequence of the race. The event shows that this racing spirit still exists in its pristine vigor. A rather remarkable fact is that notwithstanding all improvements in building boats, this is the first time that a quicker passage has been made than that of the White, which ran against time twenty-six years ago.

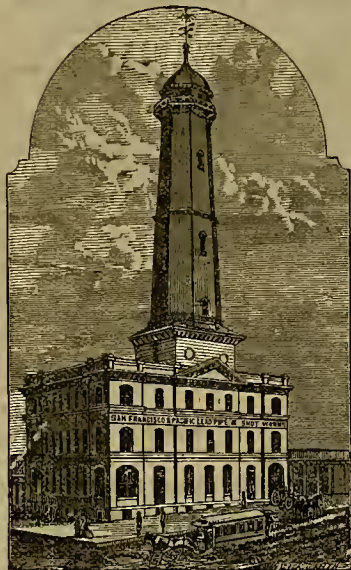
ANOTHER EXPLOSION.—On the morning of the 9th inst. an explosion occurred at the California Powder Works, which resulted in the death of one man and the wounding of two. Carelessness was the cause. It appears that the Assistant Superintendent, John Harry, attempted to dry some fulminating powder for filling caps. The requisite amount of care was not taken, as is said, and an explosion occurred, destroying a small building called the "cap-filling room," instantly killing Harry and knocking insensible a couple of Chinamen.

THE SECOND STREET CUT report shows that the assessments for benefits were \$626,773.28; the damages allowed to property, \$278,608.43; the cost of work and expenses of commission, \$348,164.85.

Our Home Industries.

The Facilities for Smelting Ores in San Francisco.

The *White Pine News* recently, in an article on the enlargement of the Newark, (N. J.) Reduction Works, alleges that this was rendered necessary by the increase of shipments of base metal ores, the smelting facilities in this city being so limited in capacity and slow in doing the work and making returns that miners of Utah and Nevada are obliged to send their ores to the Atlantic States for treatment. So far, however, from this being the case, as the *Bulletin* shows in the following article, we have in San Francisco the most extensive smelting works in the United States, which have been quietly growing up during the last four years, in a remote part of the city, and almost unknown beyond the large number of workmen immediately engaged and the mining and freighting interests which are employed in furnishing ores and crude bullion. We refer to the lead and silver smelt-



ing works of Mayor Thos. H. Selby, near Black Point, an establishment of the first importance as a means of developing the mines of the Pacific coast, and with reference to the value of its transactions. These works, which we have recently visited, consume the great majority of all the ore and crude bullion shipped to San Francisco, and they are being constantly increased in extent to keep pace with the expansion of the industrial interests with which they are associated. Their present capacity can be enlarged to an unlimited extent; but even now the quantity of crude bullion and ore consumed exceeds that of any other lead and silver smelting works in the country—probably working up twice the amount used by the Newark Reduction Works, which at one time were considered the largest in the United States.

Superiority of San Francisco as a Depot for Ores.

The legitimate place for smelting ores would seem to be at the mines from which they are extracted; but as they can be more advantageously treated where science, skilled labor and capital are concentrated, as at the seaboard cities, the nearest and most available locality is undoubtedly San Francisco. From the mines of Nevada and Utah to this city the distance is so small, compared with that to the Atlantic States, as to constitute the former the natural customer for their ores, rendering successful competition from the East out of the question. And we propose to show that in our city the facilities for smelting are superior to what are offered in any other locality. The small shipments of ores, which upon the opening of the Pacific Railroad went East as experiments, soon established these facts, as well that higher rates are paid at the smelting works here than can be obtained elsewhere in the United States, while the cost of transportation is at least

a half less in favor of San Francisco, to say nothing of the considerable percentage of ore that is lost by car shifting and the jolting and sifting incident to so long a transit.

Better Prices Paid in San Francisco.

Some of the shippers who for a time gave Newark a trial, soon became satisfied of this, and are now again sending their ores to San Francisco, not only because the work is done cheaper here and the charges are less, but the treatment is more thorough, and consequently the yield greater. This same rule as to cheapness applies to ores that have been shipped to Swansea for reduction, and there is this additional fact in connection with that market, that while miners complain of not receiving fair returns from Swansea, experience has shown them that at Mr. Selby's works they are honorably and promptly paid.

System of Making Returns.

As regards the time consumed in the treatment of ores, miners will find that the advantages, on account of the late improvements, will be largely in favor of San Francisco, and that returns will be made with very little delay. The rule adopted by Mr. Selby is to buy the ores, which is conveniently done, owing to the extent of his connections and agencies throughout the mining region. The works are always ready to pay shipping expenses on ore from anywhere, and meet freight bills promptly on delivery—the bills of all kinds following the metal.

Where the Ore Comes From.

Although a large and increasing amount of ore is received at the works from Nevada and Utah, they are by no means dependent on those States for their supply, which arrives from about every important lead and silver locality on the Pacific coast, including the distant mining regions of New Mexico, Arizona, Mexico, and along the Colorado river, whence they are brought by sea via the Gulf of California. No crude bullion nor ores are refused, unless the latter are of too low a grade to admit of profitable reduction. In the early history of the enterprise, ores for a while came too fast for the extent of the works; but with the present enlarged facilities it would be difficult to overtask their capacity, which can at short notice be increased so as to meet any demand likely to be made upon them in the future. They were originally designed by Mr. Selby, in joint interest with his New York partner, Mr. P. Naylor (now on his first visit to California, during a business association of 20 years), for the purpose of supplying their hot tower in this city with lead. The idea of manufacturing for Eastern markets, or for exportation, had not then been entertained. For a long time the business was not a financial success, and a less persistent man than Mr. Selby would have abandoned the attempt. Costly experiments were necessary, and heavy expenditures attended the enterprise before returns began to be realized. The result is the most important lead and silver establishment in the country, employing, directly and indirectly, more than a thousand men in the various callings with which it is associated. It is the friend of the workmen, for whom it acts as a reliable bank of deposit, and whose labor it converts into ready cash on demand.

Location of the Smelting Works.

The location of the works, which occupy four fifty-acre lots, is on Jefferson street, at the northern extremity of the city, on a point of land projecting into the bay opposite Fort Alcatraz, and at the northern terminus of Montgomery avenue, that is to be. On the bay there is ample wharf frontage, with depth of water sufficient to accommodate the vessels engaged in bringing ores and crude bullion to the works, and carrying away lead and silver. This bulkhead wharf is being steadily pushed out into the bay by the accumulations of slag and other matter—real estate being thus created at a rapid rate. A railroad for hand care extends through the works to the water front, serving the double purpose of conveying market lead to the vessels at the wharf and for dumping the refuse collections at the bulkhead. The works, which are indicated from a considerable distance by a large stack, are approached by a plank road laid through the sand drifts which here reach nearly to the shores of the bay. Formidable notices of "No Admission," posted over the gateway, remind one that the inmates are supposed to know how to keep their own counsel.

Outline of the Process of Reduction.

The entire works are under the general supervision of Prentiss Selby, a son of the proprietor, who, from the beginning, has aided in bringing them to their present

state of efficiency, and who has recently returned from a short visit to examine the smelting facilities in the Atlantic States—a tour of inspection, which, it may be added, showed that the business as conducted in San Francisco is far in advance of any Eastern competition. The immediate Superintendent, R. W. Thompson, who entered upon his duties when the works were yet in an experimental condition, explained to us in detail the various processes. We do not propose to risk violating confidence by an attempt at description. Suffice it to generalize by stating that the ore, landed at the wharf, is brought by railroad into the works, where it is crushed, sampled and prepared for calcining; thence it goes to the blast furnace to be smelted; thence to the refining furnaces, where it is cleared of its base matter; thence to the desilvering furnaces which separate the silver from the lead. Here it "splits" and takes two directions—the lead going to the refining furnace again, where it is converted into market lead, is stamped with the proprietor's name, and is piled away ready for shipment. The residue from the desilvering furnace goes back to the smelting and thence to the cupel furnace, where the small percentage of lead still remaining is extracted, leaving the silver pure or nearly so. This is melted again in crucibles, to still further refine it; for although it comes from the cupel furnace 990-1000 fine, which is suitable for the purposes of the Mint, it is not fine enough for shipment to China, where the standard is 996-1000. The perfection to which this art may be brought is shown in one lot of 10,000 ounces, which assayed nine hundred and ninety-nine and three-tenths one thousandths fine.

General View of the Works.

Upon entering the works, the visitor is impressed with their extent and the amount of business transacted. A powerful engine carries the blast furnaces and crushing mill; and far and near, through the smoke, the heat of intense fires, the clash of iron implements, the glare of furnaces, and the clank of machinery, indicate a hive of industry, where science and labor are intelligently combined to unlock the treasures of the mine to the purposes of trade and commerce. Everywhere the attention is called to interesting and instructive processes. In one furnace we are shown about 6,000 ounces of melted silver. From others liquid lead is being ladled into molds placed in rows ready to receive it. Beyond, streams of red-hot litharge are being run from cupelling furnaces. In another direction pyramids of pigs of crude bullion are being carefully sampled, by clipping off with chisels pieces from the corners and edges. Further on a gang of men are piling up 1,200 pigs of market lead, weighing 115 pounds each—the results of one week's work. In a huge iron safe are stored quantities of silver in sheets and heavy fragments, ready for transportation to the United States Mint. Near one of the desilvering furnaces is piled a mass of silver "dross" (the residue which has been separated from the lead, and carrying from 1,200 to 1,500 ounces of silver to the ton), awaiting the process of the cupel furnace. The lead, after each melting, is run into pig-molds, and is conveyed to the successive furnaces by a system of miniature railroads, branching off in all directions to distant parts of the works.

The Assaying Department.

Following our conductor, we enter the assaying department, where exist all the most approved modern appliances for dispatch and accuracy. This department is a scene of scientific industry, in which many interesting experiments are made in furtherance of the object of the works.

Fluxes.

Situated over the main works, and reached by an inclined road, is an extensive platform on which are collected and arranged the various substances which are fed down as fluxes into the smelting furnaces below, in quantities as required—such as scraps and cuttings of iron and other metals, lime, and a general mixture of the by-products of the works—dross, agglomerated ore, etc., which are worked over and made to serve a profitable purpose.

Difficulties Originally Attending the Enterprise.

The remarkable success now attending the works was only reached through years of heavy outlay and careful study. The idea that smelting is a simple affair, requiring only the throwing in of the ore and the running out of the metal, is effectually dispelled after the examination of the intricate processes—the skill and experience required in the business. To an uninitiated spectator there is a strange fasci-

nation in these rills of liquid metal pouring from flaming furnaces—these pools of molten lead confined within margins of glowing masonry and reflecting like mirrors the delicate and ever-changing colors produced by the mysterious action of heat and chemicals. In these smelting works fourteen furnaces are kept constantly employed, and that number will be doubled as soon as the supply demands it.

Disbursements and Practical Results.

The most valuable ores are received from Arizona and localities too remote for any Eastern market to admit of shipment there, even were it desirable. The works take without hesitation all available ores that are offered. One firm in the neighborhood of Salt Lake has received \$40,000 for ores shipped by the Pacific Railroad. Another located in the southern part of the State has been paid upwards of \$100,000 for lead bullion. So extensive has the business become under the intelligent management of Mr. Selby, that his works have stopped the importation of lead to the Pacific coast as effectually as his shot-tower has driven all other shot out of the market; although in both enterprises he commenced against heavy Eastern competition and with the general prediction that the attempt would prove a failure. If the 1,200 pigs of lead, above stated as the result of a single week's run, were to be taken as the yearly average, the actual yield of the establishment would be 7,000,000 pounds per annum, or about one-sixth of the lead product of the United States. With the completion of additional furnaces, and the increased shipment of ores, the works will turn out an annual amount of lead far exceeding those figures.

Smelting Gold and Silver Ores.

Not only have the works grown into the largest producer of lead in the United States (of which the shipments of Mr. Naylor, in New York, will this year be 1,200 or 1,500 tons, constituting a valuable item in our home industry), but they are yielding silver bullion at the rate of \$30,000 per month, which is extracted from the lead, all resulting from the enterprise of one firm, and redounding largely to the credit of California. The growth of this branch has been such that furnaces especially for smelting gold and silver ores are about to be erected. These will also work up the jewelers' and mint sweepings, which, in the long run, is a substantial item; and there is no reason why the smelting of copper and tin ore should not be successfully carried on at the same establishment, which, if its transactions continue to increase as rapidly as they have done for the few years past, seem likely to rank with the well-known ones of England, Wales and Germany.

The San Francisco Shot Tower.

We have alluded above to the shot tower and lead pipe works, for the supplying of which with lead these smelting works were originally intended. This establishment, an engraving of which accompanies our sketch, is situated at the southeast corner of First and Howard street. It has been in operation about five years, and, like the smelting works was commenced by Mr. Selby under many discouragements, and was made a success only by heavy expenditure and untiring perseverance. The tower, which is 175 feet in height, is a prominent and well-known landmark in San Francisco.

Importance of the Lead Product.

While the yield of all other branches of mining on the Pacific coast has declined, that of lead mining has steadily increased, under the encouragement created by the persistent energy of one business firm. Of the 30,000 tons of lead annually used in the United States, less than 20,000 tons are produced in our own country. Statistics show that the home product has been lessening since 1862, while the annual consumption, and consequently the importation from foreign countries, is largely increasing. Thus, there is no danger of overstocking the market. The above amount, annually consumed in our country, is used in a multiplicity of ways; for lead pipe, lining of tubs, vats, etc.; soldering, preparing chemicals and dyes; bullets, type-metal; weights, plumbing for houses, steamships, etc.; pipe and sheet lead and shot, of which 12,000,000 pounds—and paints, including white lead, of which no less than 40,000,000 pounds—are annually manufactured and used in the United States.

Mors Ores Wanted.

This conclusively shows that the demand for lead must always be very great, and it should stimulate miners to make larger shipments of galena ores to San Francisco, to meet the additional facilities which these works are preparing for them. In-

stead of there being insufficient smelting accommodations for ores, as has been represented, the works are not supplied to their full capacity. Now that the Pacific Railroad has opened direct and cheap communication with the silver regions of the interior, mining communities who lack the capital to build their own reduction works can realize the assay value of their ores with the assurance of perfect accuracy and uniform regularity.

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JOHN GORMAN,
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COMMISSIONER FOR
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No. 612 MERCHANT STREET. 5v20-3m

JAMES M. TAYLOR,
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JOHN ROACH, Optician,
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Surveying Instruments made, repaired and adjusted
2v17-3m

GILES H. GRAY, JAMES M. HAYEN,
GRAY & HAYEN,
ATTORNEYS AND COUNSELLORS AT LAW,
In Building of Pacific Insurance Co., N. E. corner California and Leidesdorf streets,
2v16 SAN FRANCISCO.

REMOVAL.

DR. BEERS, Dentist,
Has removed from Tucker's Building to
No. 109 Montgomery street, three doors
north, opposite the Occidental. 2v20-3m

Dr. J. H. PAINE, Dentist,
Wadsworth House, No. 225 Bush street,
between Cosmopolitan and Occidental
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For sale—Mahogany, Spanish Cedar, and other Woods.

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(25v20) HENRY G. HANKE.

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Marshall, Mich. 21v20-3m

The large majority of United States and Foreign Patents granted to inventors on the Pacific coast during the past few years, have been obtained through the agency of DEWEY & Co., publishers of the SCIENTIFIC PRESS. Established in the year 1860, we have an extensive patent library, with full record of cases on this coast, and can give the best and most reliable advice as to the patentability of new inventions.

The California Powder Works

No. 314 CALIFORNIA STREET,

SAN FRANCISCO.

Manufacturers and have constantly on hand

SPORTING,

MINING,

And BLASTING

POWDER,

OF SUPERIOR QUALITY, FRESH FROM THE MILLS. It being constantly received and transported into the interior, is delivered to the consumer within a few days of the time of its manufacture, and is in every way superior to any other Powder in Market.

We have been awarded successively

Three Gold Medals

By the MECHANICS' INSTITUTE and the STATE AGRICULTURAL SOCIETY for the superiority of our products over all others.

We also call attention to our

HERCULES POWDER,

Which combines all the force of other strong explosives now in use, and the lifting force of the best blasting powder, thus making it vastly superior to any other compound now in use.

A circular containing a full description of this Powder can be obtained on application to our Office.

16v20-3m JOHN F. LOHSE, Secretary.

HAYWARD & COLEMAN

IMPORTERS AND REFINERS

—OF—

Illuminating, Lubricating,

—AND—

PAINT OILS,

CONSISTING OF

KEROSENE, LARD, SPERM, ELEPHANT, POLAR, TANNERS, NEATFOOT, BOILED AND RAW LINSEED, CASTOR AND CHINA NUT.

—ALSO—

Spirits of Turpentine and Alcohol.

Lamps and Lamp Stock!

An elegant and complete assortment.

SOLE IMPORTERS OF

Devco's Illuminating Oil,

PATENT CANS.

5v17-11

414 Front street, San Francisco

LEA & PERRINS'

CELEBRATED

Worcestershire Sauce.



Declared by Connoisseurs to be the only good Sauce. The success of this most delicious and unrivaled Condiment having caused certain dealers to apply the name "Worcestershire Sauce" to their own inferior compounds, the public is hereby informed that the only way to secure the genuine is to ask for LEA & PERRINS' Sauce, and see that their names are upon the wrapper, labels, stopper and bottle.

Some of the foreign markets having been supplied with a spurious Worcestershire Sauce, upon the wrapper and labels of which the names of Lea & Perrins have been forged, L and P give notice that they have furnished their correspondents with power of attorney to take instant proceedings against manufacturers and vendors of such, or any other imitations by which their right may be infringed.

Ask for LEA & PERRINS' Sauce and see name on wrapper, label, bottle and stopper.

Wholesale and for export by the Proprietors, Worcester: Crose and Blackwell, London, &c. &c., and by Grocers and Oilmen universally. Agents, CROSS & CO., San Francisco. 1v20-1yeow

WIESTER & CO., PATENT BROKERS, No. 314 Bush Street, San Francisco. PATENTS BOUGHT AND SOLD ON COMMISSION.

For the benefit of those who live at a distance from the city, we give below a brief description of a few of the valuable Patents which we have in our office. It may be well to state here that no Patent is received by us for negotiation until it is first endorsed by reliable experts, to whom each is subjected for acceptance or rejection. We treat all patents alike, recommending only where true merit is found in the invention.

P. DAVIS' WIRE AND PICKET FENCE.



Although about two hundred different styles of fences have been invented and patented in the United States within the past ten years, yet this Fence, for GENERAL FARM USE, stands at the head of the list. This is a Virginia invention, and the actual cost of the Fence complete in that State is less than fifty cents per rod. Three men can put up six hundred yards per day. You men who are idle, why bang about the city talking hard times when you can make from five to eight dollars per day building this Fence? We will make a present of ONE FARM RIGHT in each county on the Pacific coast to farmers who will erect one hundred rods of the fence in good style within thirty days after the privilege is granted. We wish to employ several working men to travel in this State and Oregon. Price of territory, and circular with full description of fence, sent on application.

The only complete GRAIN CLEANER yet invented. County Rights, State Rights and Machines for sale. Every farmer should have one to clean his grain, especially his SEED WHEAT. Send for descriptive circular.

WIESTER & CO.,

314 Bush Street, San Francisco.

A NEW REMEDY.

As this Preparation of these plants, lately made public (Patented June 20, 1870), but long proven in Siskiyou county, Cal., owes its efficiency entirely to its remarkable power of INCREASING THE INSENSIBLE PERSPIRATION, or, in other words, the VAPORY EXHALATIONS from the millions of minute pores of the EXTERNAL SKIN, from the crown of the head to the sole of the foot, it is all important that the direction to pass a sponge, or towel, damped with saleratus water, under the clothing, twice a week, or oftener, be attended to.

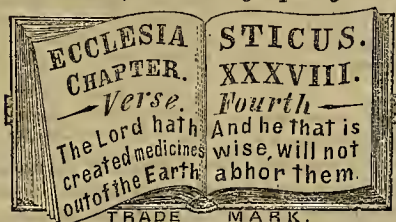
Also, that when taken by LADIES, for IMPROVING THE COMPLEXION, for which it is very successful, that it should be in half doses, often repeated; and that one of the Pills of Climate of Iron and Gum Myrrh, which are beneath the bottom label of each bottle, be taken at night, much aiding in restoring Color in the Cheeks and Lips. To CHILDREN also, give it "little and often." It is agreeable to them any way, but especially if sweetened a bit; and it is admirably suited to their Diseases, which generally are those of the MUCOUS MEMBRANES.

FOR the irritated throats of PUBLIC SPEAKERS, Lawyers, Ministers, Teachers, and FOR driving off threatened CONSUMPTION and Asthma, all Colds and Coughs; FOR irritated Stomachs, from Bad Liquor, Alkali Water, Strong Coffee, Saleratus Bread; FOR humors on the Skin, or MILD COMPLEXIONS, or, in a single sentence, FOR all Diseases of the MUCOUS MEMBRANES, the Sore, and by far the MOST PLEASANT MEDICINE yet found, in its TASTE and EFFECT, is

DR. FURBER'S CORDIAL OF MOUNTAIN BALM —AND— OREGON GRAPE,

Two Plants, abounding on the base of, and on the Mountains surrounding
MOUNT SHASTA, CALIFORNIA,

For all of the purposes of the various PREPARATIONS OF SARSAPARILLA, richer in quality and more efficient as a RESTORER OF GOOD BLOOD, and acting equally as surely,



and as well on the LUNGS as on the STOMACH, is superior to other COUGH MEDICINES, by bringing BOTH to bear with the stimulated action of the WHOLE SKIN in throwing off Disease of either.

FOR SALE AT SAN FRANCISCO BY
R. H. McDONALD & CO., Druggists.

INVALIDS of any of the classes named above will find this worthy of TRIAL. Its virtues, as above asserted, not being visionary, but improved from the SHASTA INDIANS' knowledge and use of these PLANTS for centuries back, made known by them to us.

Such an invalid, residing at a distance, wishing to try it, had better procure a package of one-fourth of a dozen, which can be done by sending in letter to the above a \$5 greenback, and directing that the package should be sent by WELLS, Fargo & Co's Express to that office which is nearest to the invalid's residence, and that person will be sure to get it. 3v21-12twr

DESIGNS AND PLANS

— FOR THE —

NEW CITY HALL

— OF —

SAN FRANCISCO.

Office Board of City Hall Commissioners, southeast corner of Sacramento and Montgomery streets, San Francisco, June 22, 1870.

The Board of City Hall Commissioners hereby give notice that they will be prepared to receive at their office, on or before the FIRST DAY OF NOVEMBER NEXT, designs and plans for the new City Hall of San Francisco.

The Commissioners, in order to obtain the very best design and plan, invite the fullest competition among architects, and to this end have resolved to offer the following premiums:

First—For the design and plan selected and adopted \$2,500
Second—For the second best design and plan 2,000
Third—For the third best design and plan 1,500
Fourth—For the fourth best design and plan 1,000
Fifth—For the fifth best design and plan 500

The premiums payable in City Hall warrants. As a guide to architects in the preparation of the designs and plans, the Commissioners have prepared a pamphlet containing full instructions and suggestions, as well as the terms and conditions upon which the premiums will be awarded.

Pamphlets can be had on application at the office of the Commissioners.

Any design or plan in which the requirements of the Board, as set forth in the printed instructions, have not been reasonably complied with, will be rejected from the competition.

P. H. CANAVAN, Chairman,
JOS. G. EASTLAND,
CHAS E. McLANE,

City Hall Commissioners.

26v20-4m



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OFFICE,

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Fire and Marine Insurance.

CAPITAL \$500,000 00

SURPLUS 267,115 63

TOTAL ASSETS \$767,115 63

D. J. STAPLES, President.
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CHAS. R. BOND, Secretary.

13v20-3m

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21v20-3m

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THE LARGEST AND MOST COMPLETE STOCK

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Orders for large or small quantities promptly filled. Packing performed in the most skillful and thorough manner. SMALL PARCELS forwarded by Mail when desired. Nurserymen and Dealers supplied on liberal terms. Descriptive and illustrated priced Catalogues sent prepaid on receipt of stamps, as follows:

No. 1—Fruits 10 cents.
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No. 4—Wholesale FREE.

Address ELLWANGER & BARRY,
ROCHESTER, N. Y.

25v20-6m

Reading for the Hour.

First Railway Trains.

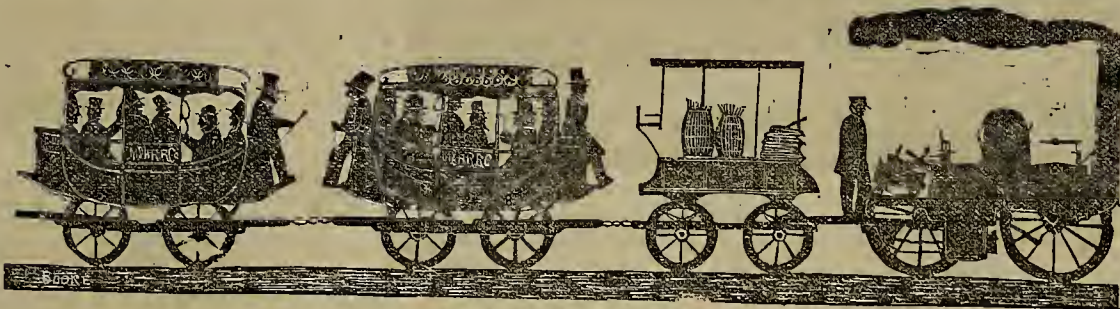
On Tuesday, the 27th of September 1825, the Stockton and Darlington Railroad was publicly opened. The road had been under construction over three years, and consequently the greatest interest was felt throughout England. Although locomotives had been in use for hauling coal wagons on colliery tramways over twelve years, comparatively few believed that they could extensively take the place of horses. On this road it was decided that horses should be largely employed. Nevertheless the directors ordered three of Stevenson's locomotives against the opening of the railway. How the road was opened, Smiles tells in his interesting biography of George and Robert Stephenson:

A great concourse of people assembled on the occasion. Some came from Newcastle and Durham, many from the Aucklands, while Darlington held a general holiday, and turned out all its population. To give eclat to the opening, the directors of the

left behind, and other wagons were taken on, with a hundred and fifty more passengers, together with a band of music. The train then started for Stockton—a distance of only about twelve miles—which was reached in about three hours. The day was kept throughout the district as a holiday; and horses, gigs, carts, and other vehicles, filled with people, stood along the railway, as well as crowds of persons on foot, waiting to see the train pass. The whole population of Stockton turned out to receive the procession, and, after a walk through the streets, the inevitable dinner in the Town Hall wound up the day's proceedings.

On the 15th day of September, 1830, the Liverpool and Manchester Railway was publicly opened. The completion of this railway was regarded as a national event and celebrated accordingly. Accounts of this opening have been published so often, that a description is unnecessary here.

The United States were not far behind England. On the 4th of July, 1828, work was commenced on the Baltimore and Ohio Railroad. In 1830 the Mohawk and Hudson Railroad, from Albany to Schenectady, was begun, while other lines were being constructed in Massachusetts, Pennsylvania and New Jersey. In 1840, 1,818; in 1850,



THE FIRST RAILROAD EVER BUILT.

company issued a programme of the proceedings, intimating the times at which the procession of wagons would pass certain points along the line. The proprietors assembled as early as six in the morning at the Brusselton fixed engine, where the working of the inclined planes was successfully rehearsed. A train of wagons laden with coals and merchandise was drawn up the western incline by the fixed engine, a length of 1960 yards, in seven and a half minutes, and then lowered down the incline on the eastern side of the hill, 880 yards, in five minutes.

At the foot of the incline the procession of vehicles was formed, consisting of the locomotive engine No. 1, driven by George Stephenson himself; after it six wagons loaded with coals and flour, then a covered coach containing directors and proprietors, next twenty-one coal wagons fitted up for passengers (with which they were crammed), and lastly six more wagons loaded with coals.

Strange to say, a man on a horse, carrying a flag, with the motto of the company inscribed on it, *Periculum privatum utilitas publica*, headed the procession! A lithographic view of the great event, published shortly after, duly exhibits the horseman and his flag. It was not thought so dangerous a place after all. The locomotive was only supposed to be able to go at the rate of four to six miles an hour, and an ordinary horse could easily keep ahead of that.

Off started the procession, with the horseman at its head. A great concourse of people stood along the line. Many of them tried to accompany it by running, and some gentlemen on horseback galloped across the fields to keep up with the train. The railway descending with a gentle incline toward Darlington, the rate of speed was consequently variable. At a favorable part of the road Stephenson determined to try the speed of the engine, and he called upon the horseman with the flag to get out of the way. Most probably, deeming it unnecessary to carry his *Periculum privatum* farther, the horseman turned aside, and Stephenson "put on the steam." The speed was at once raised to twelve miles an hour, and at a favorable part of the road, to fifteen. The runners on foot, the gentlemen on horseback, and the horseman with his flag, were consequently soon left far behind. When the train reached Darlington, it was found that four hundred and fifty passengers occupied the wagons, and that the load of men, coal and merchandise amounted to about ninety tons.

At Darlington the procession was rearranged. The six loaded coal wagons were

9,021; in 1860, 30,365; and 1870, over 50,000 miles of railway had been laid.

Our illustration to-day represents the trip made over the Mohawk and Hudson Railroad in 1831. The two carriages contained fifteen passengers, of whom, as far as is definitely known, the most prominent now living is Thirlow Weed. It is reported, however, that Thomas H. Benton, Henry Clay and Jefferson Davis were also on board the train. The engine was built at the West Point Foundry, N. Y., in 1831, and was named "De Witt Clinton," had wheels four and a half feet in diameter, a cylinder of 5½ inches bore and 16-inch stroke. The boiler was five feet long and had thirty copper tubes, four inches in diameter. The total weight of the engine was four tons. A representation of this train has been hanging for some time in the rotunda of the Merchants' Exchange in this city.

BISMUTH.—The *Druggists' Circular* is responsible for the following, which may be taken with a grain of suspicion:

The increased demand for this metal has occasioned the examination of new localities, and the search has, in several instances, been attended with success. A remarkably pure ore has been found in Peru, which, on analysis, gave: Bismuth, 93.372; antimony (with traces of tin), 4.570; copper, (with a little iron), 2.058—total, 100. The absence of arsenic and sulphur is noteworthy, and distinguishes this ore from the Saxon variety. Also, in South America, seams of bismuth have been found associated with copper.

MEANS BUSINESS.—There is a certain charm in the manner in which some one boldly puts up a sign on California street, going straight to the mark without minding the little details of orthography: "All kinds of Business sold on short notice." This is a free country and every one has a right to think and spell as he chooses. Besides, as Jones remarks, if "Business" doesn't spell *business*, what does it spell?

EARTHQUAKE AT GILROY.—Only a slight shock and reserved for this particular locality. Time, 8.25 A. M., July 9. Oscillation, from north to south. Duration, four seconds. No damage.

Sorcery in Alaska.

Our recent brethren of Alaska are addicted to sorcery to a certain extent. Dall, in his book on Alaska, gives the following example of the manner in which shamanism (as it is called) is practiced:

On the day appointed for the exhibition of the shaman's power, his relations, who act the part of a chorus of singers, are obliged to fast. Nay, more than that; they are obliged to use a feather as an emetic, and free themselves from such gross material substances as food. The performance commences at sunset and lasts till sunrise. All who wish to participate assemble in the lodge or hut of the shaman, where they join in a song, to which time is beaten on a drum. Dressed in his paraphernalia, with a mask over his face, the shaman rushes round and round the fire, which is burning in the center of the lodge; he keeps his eyes directed towards the opening in the roof, and keeps time to the drum with violent motions of his limbs and body. These movements gradually become more convulsive; his eyes roll till the whites alone are visible. Suddenly he stops, looks intently at the drum, and utters loud cries. The singing ceases, and all eyes are directed toward him, and all ears strained to catch the utterances which

The sale of spirituous liquors in Alaska is being attended with melancholy results. It seems that some of the population are leaving; at least the saloon-keepers are reported as anxious to retire. Only Ingerbeer is allowed. Massachusetts on the east and Alaska on the west of the continent are thus united by a bond of legislative prohibition. The *Alaska Times* thus complains:

"It is a pitiful sight, indeed, to witness the sad diminution in color that the hitherto ruby noses of our thirsty friends present. Could a few of our legislative Solons, who have but to choose their favorite brands from the cellars of Stetson or Leland, Willard or Delmonico, gaze on their forlorn and desiccated features, they would immediately cut the Gordian knot that binds the people of this Territory to a life of abstemiousness."

NEW WORK BY KUSTEL.—"Roasting of Gold and Silver Ores, and the extraction of their respective metals without quicksilver." Under this title Dewey & Co., of the Scientific Press, San Francisco, will soon publish an excellent work by Guido Kustel. The reputation of the author renders unnecessary any further recommendation of the work, which, it is said, will be a clear and complete treatise on these subjects, which are of so much interest at the present time. Miners and others will find it of great value. The various methods and furnaces employed in roasting, and chlorination and lixiviation with the different manipulations and apparatus, will be fully described, and amply illustrated, together with remarks on the various advantages and disadvantages of each process, and their special application on this coast.

We would be glad to see fifty copies of this work in the hands of those having charge of and interested in mining operations in Alpine. Kustel is on the right track, as time will show.—*Alpine Miner, Silver Mountain, Cal.*

The above work contains 120 pages, and the price is \$2.50 coin or \$3 currency.

MARAVILLA COCOA. For Breakfast.—The *Globe* says: "Various importers and manufacturers have attempted to attain a reputation for their prepared Cocoa, but we doubt whether any thorough success has been achieved until Messrs. Taylor Brothers discovered the extraordinary qualities of 'Maravilla' Cocoa. Adapting their perfect system of preparation to the finest of all species of the Theobroma they have produced an article which surpasses every other Cocoa in the market. Entire solubility, a delicate aroma, and a rare concentration of the purest elements of nutrition, distinguish the Maravilla Cocoa above all others. For homeopathic and invalid use we could not recommend a more agreeable or valuable beverage." Sold in packets only by all Grocers, of whom also may be had Taylor Brothers' Original Homoeopathic Cocoa and Soluble Chocolate, Steam Mills—Brick Lane, London. 5v20-ly

TO MINERS, MILLMEN AND METALLURGISTS. Kustel's new work on the Concentration of all kinds of Ores, and the Chlorination Process, for Gold-bearing Sulphurets, Arseniurets, and Gold and Silver Ores generally, is the best and most complete work issued. It contains 120 diagrams, illustrating machinery, etc., which alone are of the greatest value. Price, \$7.50, postage paid. Published by Dewey & Co., publishers of the Scientific Press, San Francisco.

LAYRIS' ELEMENTS OF COMPOSITION.—This is a valuable book of 166 pages, containing plain and simple instructions in the art of composition. It should be read by all intelligent persons who desire to write or speak English correctly or eloquently. Printed and sold by Dewey & Co., Scientific Press Office.

MULLER'S Brazilian Spectacles are just the thing for people fond of reading whose eyesight is beginning to fail. His great skill as an optician enables him to suit all conditions of sight. It is Muller who supplies the city with opera glasses. *

DR. HARTMANN, Physician, Oculist and Medical Electrician, cures all diseases of the eye, and the Gravel and Eye Lids, Inflammation of the Eye, Opacities of the cornea cured permanently. Also, Paralysis, Rheumatism and all Nervous and Chronic Diseases, and all Female Complaints. 314 Bush street. 25-520.

HAVING had numerous applications to purchase the right to manufacture CHAMPAGNE MEAD (the great temperance drink), we will state that we are now prepared to sell State and County Rights on reasonable terms. KENTON, GASS & Co. 2v21-3m

TO FARMERS.—Stevens & Bro's Egg Boxes, holding 30 dozen, supplied free of charge, by John Gray & Co., No. 210 Clay street, San Francisco, to all customers. The eggs are kept cool and free from moisture and mould, are in no danger of being broken, and require no re-counting. 20v20-3m

PAIN-STRUCK BEAUTY.—It is a terrible shock to a charming woman—indeed, to any woman—to find that her teeth are "beginning to go." Never will any human being who uses the fragrant *Sozodont* make that discovery.

* "SPALDING'S GLUE," no well-regulated family will be without it. 2v11-5

PHOTOGRAPHY.—For CABINET PHOTOGRAPHS, or Enamelled Cards, of the very best quality, you must go to the NEW YORK GALLERY, Nos. 23 and 27 Third street, San Francisco. Every picture warranted to give satisfaction. 10v18-6m F. F. HOWLAND.

THOMAS O'NEIL Ornamental Glass Cutter, No. 10 Stevenson street, up stairs. Stained, Ground and Ornamental Cut Glass to order on reasonable terms. 14v20

BOILER FELTS saving twenty-five per cent. of fuel, BERRY & PLACE'S MACHINERY DEPOT, No. 114 California street. 1v21-3m

CONTINENTAL Life Insurance Co., 302 Montgomery street, corner of Pine.

are supposed to be inspired. These ceremonies comprise the whole art of shamanism among the Thlinkets. The spirits of the different classes appear to the shaman in different forms. By changing the mask he places himself *en rapport* with the spirit to which each mask is dedicated. It is believed that this spirit inspires for the moment all the utterances of the shaman, who is for the moment unconscious. After the ceremonies are over, first tobacco and then food are distributed to those present, and all is concluded.

AN INTERESTING COMBAT.—San José has always prided herself on her tarantulas, and her pride was to be brought low. About a week ago, Messrs. Gates and Rhodes received from Elko, Nevada, by mail, in a small box, four of the large black spike-tailed crickets, members of the grand army now devastating the Central Basin, and a division of which actually succeeded recently in stopping a railroad train, by sacrificing themselves beneath the car wheels on the track, until it became so greasy they would not revolve. These foreign heroes were received by Messrs. Gates and Rhodes, and, with a full knowledge of their bravery, these gentlemen still believed that they could be vanquished by tarantulas of home production. So they sent and procured four large tarantulas, put them in a large glass jar with the spike-tailed warriors, and the fight began. The spike tails made the first charge, and, sad to relate, notwithstanding the largest tarantula fought fiercely, they vanquished him, tore off his legs, disregarded his bites, and proceeded, without the least ceremony, to eat him, which operation they performed in quick style. The other tarantulas took to flight, and now no inducement will cause them to leave their own contracted portion of the jar, while the doughty spike-tails seem eager for another fray.—*San Jose Independent.*

ADVANCING CIVILIZATION.—A pleasing little discussion occurred in the Chicago Common Council, during which the blood of Alderman Cox boiled up to such an extent that it caneled that gentleman's hand to propel a bottle of ink at Alderman Dixon, whose clothes were blackened thereby to a considerable extent, as was also the reputation of Alderman Cox.

A mistaken tourist was found weeping over the ice-house at Mount Vernon, thinking he was dropping tears at the tomb of Washington.

New Mining Notices.

Cordillera Gold and Silver Mining Company, Chihuahua, Mexico.

Notice.—There are delinquent upon the following described stock, on account of assessment levied on the eighth day of June, 1870, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
John L. Tilcomb.....	150	17	\$8.50
W. R. Cooper.....	50	52	26.00
S. T. Welch.....	276	10	5.00
S. T. Welch.....	277	10	5.00
D. W. Hildreth.....	123	33	16.50
J. Walsh.....	100	13	6.50
Henry Blackman.....	252	21	10.50
Henry Blackman.....	254	26	13.00
Henry Blackman.....	278	24	12.00
Henry Blackman.....	283	40	20.00
William N. Wade.....	223	50	25.00
William N. Wade.....	223	100	50.00
C. W. McLaughlin.....	280	225	140.50
P. M. Kelley.....	190	3	1.50
P. M. Kelley.....	226	2	1.00
O. A. Hall.....	251	32	16.00
O. A. Hall.....	259	20	10.00

And in accordance with law and an order of the Board of Trustees, made on the eighth day of June, 1870, so many shares of each parcel of said stock as may be necessary will be sold at public auction at the salesroom of Maurice Dorn & Co., No. 327 Montgomery street, San Francisco, on Monday, the first day of August, 1870, at the hour of 12 o'clock M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

HENRY R. REED, Secretary.
Office, 321 Washington street, San Francisco. jyl6

Latawana Mining Company—Near Hamilton City, White Pine, State of Nevada.

Notice.—There are delinquent upon the following described stock, on account of assessment levied on the second day of June, 1870, the several amounts set opposite the names of the respective shareholders, as follows:

Stockholders.	No. of Certif.	Shares.	On Acct.	Ass't Due
D. M. Hoamer.....	6	20		\$3.00
D. M. Hoamer.....	7	20		3.00
D. M. Hoamer.....	9	20		3.00
D. M. Hoamer.....	10	20		3.00
D. M. Hoamer.....	12	10		1.50
D. M. Hoamer, Trustee.....	150	1000		150.00
D. M. Hoamer, Trustee.....	151	10		1.50
D. M. Hoamer, Trustee.....	152	10		1.50
D. M. Hoamer, Trustee.....	153	104		15.60
R. Savage.....	20	50	2.50	5.00
R. Savage.....	164	300		45.00
R. Savage.....	165	40		6.00
S. A. Post.....	36	10		1.50
S. Conklin.....	104	400		60.00
S. E. Holcombe.....	127	10		1.50
M. M. Baldwin.....	114	10	50	1.00
M. M. Baldwin.....	149	490	24.50	49.00
Richard H. Savage.....	115	10		1.50
B. Canfield.....	128	40		6.00
D. Walker, M.D.....	123	20		3.00
A. P. Everett.....	134	100		15.00
A. P. Everett.....	166	50		7.50
William Krug.....	137	50		7.50
William Krug.....	138	50		7.50
William Krug, Trustee.....	147	100		15.00
William Krug, Trustee.....	197	227		34.05
William Krug, Trustee.....	198	40		6.00
John Clement.....	141	90		13.50
A. Martinon, Trustee.....	188	4248		637.20
Chas. C. Bowman.....	155	500		75.00
L. D. Simpson.....	157	95		14.25
E. B. Wilder.....	161	1000		150.00
R. Cohn.....	179	100		15.00
C. W. Burton.....	182	320		48.00
Botts & Wise.....	175	800		120.00
C. F. McDermott.....	176	100		15.00
S. Heydenfeldt.....	181	300	15.00	30.00
C. Wellington, Trustee.....	182	672		100.80
C. Wellington, Trustee.....	184	100		15.00
C. Wellington, Trustee.....	189	100		15.00
C. Wellington, Trustee.....	191	100		15.00
John G. Ayres.....	193	200		30.00
T. A. Round Charrard.....	195	100		15.00
R. E. Doran.....	200	200		30.00
G. W. Fawcett, Trustee.....	203	600		90.00

And in accordance with law and an order of the Board of Trustees, made on the second day of June, 1870, so many shares of each parcel of said stock as may be necessary will be sold at the office of the Company, 614 Merchant street, Room 26, San Francisco, Cal., on Saturday, the sixth day of August, 1870, at the hour of one o'clock P. M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

A. MARTINON, Secretary.
Office, 614 Merchant street, Room 26, San Francisco, California. jyl6

Nevada Land and Mining Company.—Location of Works: Steptoe, Johnson & Latham, Antelope and Clifton Districts, Elko County, State of Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the twelfth day of July, 1870, an assessment of one (1) cent per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary, at his office, Room 5, No. 302 Montgomery street, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on Thursday, the eleventh day of August, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the twenty-ninth day of August, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

WM. H. WATSON, Secretary.
Office, Room 5, No. 302 Montgomery street, San Francisco, California. jyl6

Mining Notices—Continued.

Jennie A. Consolidated Mining Company, White Pine District, Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the twentieth day of June, 1870, an assessment of ten (10) cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, Room 37 New Merchants' Exchange, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on the twenty-fifth day of July, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the fifteenth day of August, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

J. M. DUFFINGTON, Secretary.
Office, Room 37 New Merchants' Exchange, California street, San Francisco. july25

Block Tin and Solder Wire, broom wire, piano covering wire, etc., manufactured by Josiah Gray, 437 Brannan street. 24v19-3m

Evening Star No. 1 Silver Mining Company.—Location of Works: White Pine County, State of Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the first day of June, 1870, an assessment of five (5) cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary, at the office of the Company, Room 5, No. 302 Montgomery street, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on Saturday, the second day of July, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the twenty-fifth day of July, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

Office, Room 5, No. 302 Montgomery street, San Francisco, California. jyl6

POSTPONEMENT.—The day for deeming stock delinquent on the above assessment is hereby postponed until the first day of August, 1870, and the sale thereof until Wednesday, the twenty-fourth day of August, 1870. By order of the Board of Trustees.

W. H. WATSON, Secretary.

Globe Gold and Silver Mining Company.

NOTICE OF ANNUAL MEETING.—Location of Mine and Works: Monitor District, Alpine County, California. Notice is hereby given, according to law, that the Annual Meeting of the Stockholders of the Globe Gold and Silver Mining Company will be held on Tuesday, the 2d day of August, 1870, at 4 o'clock P. M., of that day, at the office of the Company, No. 401 Bryant street; the object of the meeting being to elect Trustees for the ensuing year, to serve till their successors shall be duly elected and qualified; also, to act upon a proposition to remove the office of the Company to Monitor; and for the transaction of such other business as may come before it. By order of

J. WINCHESTER, President.
B. SHRAFL, Secretary pro tem.
Dated San Francisco, June 30, 1870. 1m

Office of Eclipse Consolidated Mining Company, 210 Battery street, San Francisco, June 20th.

The Annual Meeting of the stockholders of this Company will be held on Saturday, July 23d, 1870, at twelve o'clock, M., for the election of Trustees for the ensuing year and the transaction of any other business that may be presented.

SOLON PATTEE, Secretary. july24-w

Pogonip Flat Silver Mining Company.—Location of Works: White Pine, Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the fifteenth day of June, 1870, an assessment of three (3) cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, No. 1 Express Building, northeast corner Montgomery and California streets, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on the twenty-third day of July, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the eighth day of August, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

T. J. OWENS, Secretary.
Office, No. 1 Express Building, northeast corner Montgomery and California streets, San Francisco. july25

Office of the Placer Gold Mining and Canal Company.—Location of Works: Township No. Six (6), County of Placer, State of California.

Notice is hereby given, that at a meeting of the Trustees of said Company, held on the eleventh day of June, 1870, an assessment (No. 2) of two dollars (\$2) per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary, at the office of the Company, No. 204 Montgomery street, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on Tuesday, the twenty-sixth day of July, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Tuesday, the sixteenth day of August, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

O. S. HALEY, Secretary.
Office of Company, No. 204 Montgomery street, San Francisco, California. july8

IMPORTANT BOOK!

Now IN PRESS.—Roasting of Gold and Silver Ores, and the Extraction of their Respective Metals without Quicksilver. By G. Kustel, Mining Engineer and Metallurgist; Author of "Nevada and California Processes of Silver and Gold Extraction," and "Concentration of all Kinds of Ore."

Published and sold by Dewey & Co., proprietors SCIENTIFIC PRESS, San Francisco.

This Book will contain 120 pages and be issued about July 16, 1870.

Price, \$2.50, coin.

SCIENTIFIC PRESS.—This paper is one of the most valuable published on the Pacific coast for miners, mechanics and farmers. It contains each week illustrations of new machinery, descriptions of new inventions and discoveries, information of scientific developments and mechanical progress, with valuable articles in relation to agricultural and farming interests. All claims of patents issued to inventors on this coast are published in this paper. We can recommend it to our citizens, and hope Mr. Murray may meet with success in obtaining subscribers among them.—Sonora Democrat

New Advertisements.

Thursday Evening.

Owing to the time necessary to mail the present large edition of the SCIENTIFIC PRESS, we are obliged to go to press on Thursday evening—which is the very latest hour we can receive advertisements.

PLATT'S HALL.

Commencing Monday Evening, July 18.

FRANK SMITH.....Business Manager
J. H. DAVIS.....TREASURER

CALIFORNIA ON CANVAS.

HOLDREDGE'S MAMMOTH OLEOGRAPHS

—OF THE—

Wonders and Beauties of the Golden State

THE PIONEER PANORAMA,

Covering OVER TEN THOUSAND SQUARE FEET of Canvas, showing the MOST REMARKABLE SCENERY on the face of the Globe.

Projected by California Citizens,
Painted by California Artists,
Endorsed by California Tourists.

ADMISSION.....FIFTY CENTS.
Children (under 12 years) half price.

GEO. T. PRACY'S MACHINE WORKS,

109 and 111 MISSION STREET,
SAN FRANCISCO.



MANUFACTURER OF
PRACY'S IMPROVED
PATENT STEAM ENGINE
GOVERNOR.

These Governors are the most sensitive built, running at a high velocity and maintaining a uniform speed.

SOLE AGENT FOR

L. W. POND'S CELEBRATED TOOLS,

—SUCH AS—

Lathes, Planers, Drills, Boring Mills, Milling Machines, Etc.,

Which I will offer at very low rates. Also,

MORSE'S TWIST DRILLS,
AND CHUCKS OF ALL KINDS.

MANUFACTURER OF

Steam Engines, and Mill Work Generally.

Sole Agent for TAFT'S PATENT SHEARS AND PUNCHES. 3v21

California Bonzest,

A CALIFORNIA PATENT, manufactured in San Francisco. A Condiment

Rare, Rich and Spicy.

Very palatable, productive of digestion and health. An ANTI-SCORBUTIC, and sure preventive

Against Diseases incident to Sea Life.

A SPLENDID APPETISER.

TRY IT ONCE, and you will never be without it.

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SOLD AT No. 53 CALIFORNIA MARKET,
And by authorized Local Agents. 3v21-3m

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FROM

San Francisco to New York

—AND—

BOSTON,

—VIA—

THE CHICAGO, BURLINGTON AND MISSOURI RIVER RAILROAD.

NEW YORK.....\$128 00
BOSTON.....139 25

Ticket Office, No. 208 Montgomery Street.

24v20 SAM. A. LEWIS, Agent.

ENGRAVING ON WOOD

DESIGNING AND ENGRAVING on wood and for electrotype cuts of every description, done by superior artists at the office of the SCIENTIFIC PRESS. Fine Cuts made for Book and Newspaper illustrations, and for Fancy Labels for printing in various colors; Monograms, Seals, &c., etc. Prompt execution and reasonable prices.

DEWEY & CO.,
No. 414 Olay street, S. F.

Railroads and Steamers.

Central Pacific Railroad.

Time Schedule, July 11, 1870.

EASTWARD.		Express Train Daily.	Passenger Train Sunday excepted.	Mixed.*
San Francisco	Leave	8:00 A.M.	4:00 P.M.	7:00 P.M.
Oakland	"	8:30 A.M.	4:30 P.M.	"
San Jose	"	8:55 A.M.	5:00 P.M.	"
Stockton	"	12:07 P.M.	8:15 P.M.	"
Sacramento	Arrive	1:50 P.M.	10:00 P.M.	7:40 A.M.
Sacramento	Leave	2:10 P.M.	"	9:00 A.M.
Marysville	"	4:00 P.M.	"	1:15 P.M.
Chico	"	6:45 P.M.	"	5:20 P.M.
Colfax	Leave	5:00 P.M.	"	4:00 P.M.
Reno	"	1:15 A.M.	"	3:45 A.M.
Winnemucca	"	3:10 A.M.	"	5:15 A.M.
Battle Mountain	"	12:00 P.M.	"	3:50 A.M.
Carlin	"	3:10 P.M.	"	3:15 A.M.
Battle Mountain	"	4:40 P.M.	"	12:30 P.M.
Elko	"	1:30 A.M.	"	7:45 A.M.
Kelton	"	5:00 A.M.	"	5:00 A.M.
Ogden	Arrive	"	"	"

WESTWARD.		Express Train Daily.	Passenger Train Sunday excepted.	Mixed.*
Ogden	Leave	6:00 P.M.	"	5:00 P.M.
Kelton	"	10:42 P.M.	"	1:30 A.M.
Elko	"	8:45 A.M.	"	7:15 P.M.
Carlin	"	10:15 A.M.	"	9:45 P.M.
Battle Mountain	"	1:35 P.M.	"	3:15 A.M.
Winnemucca	"	4:05 P.M.	"	9:00 A.M.
Reno	"	1:00 A.M.	"	11:30 A.M.
Colfax	"	3:45 A.M.	"	12:00 A.M.
Chico	"	6:30 A.M.	"	10:30 A.M.
Marysville	"	9:10 A.M.	"	2:30 P.M.
Sacramento	Arrive	11:25 A.M.	"	6:30 P.M.
Sacramento	Leave	11:45 A.M.	7:00 A.M.	1:30 P.M.
Stockton	"	1:40 P.M.	8:45 A.M.	"
San Jose	Arrive	6:30 P.M.	12:45 P.M.	"
Oakland	"	6:50 P.M.	2:10 P.M.	"
San Francisco	"	8:00 P.M.	12:40 P.M.	9:30 A.M.

"Local Trains."

From SAN FRANCISCO.	From OAKLAND.	From BURLINGAME.
5:50 A.M.	5:40 A.M.	5:30 A.M.
8:00 "	8:55 "	8:45 "
10:00 "	9:00 "	7:50 "
11:00 "	10:00 "	9:50 "
12:00 P.M.	11:00 "	"
2:00 P.M.	2:00 P.M.	11:50 "
4:00 "	3:00 "	2:50 P.M.
8:15 "	8:00 "	"
8:30 "	8:20 "	5:10 "
11:30 "	6:40 "	6:30 "
From SAN FRANCISCO.	From ALAMEDA.	From BAYVIEW.
7:20 A.M.	8:25 A.M.	8:40 A.M.
9:00 "	7:35 "	7:00 "
9:30 "	8:00 "	8:30 "
11:30 "	9:35 "	9:10 "
1:30 P.M.	11:35 "	11:00 "
4:30 "	1:35 P.M.	"
6:00 "	4:35 "	3:55 P.M.

Sundays excepted. D To Oakland only. C Sunday only. E To Alameda only.

A. N. TOWNE, Gen'l Sup't. C. P. R. R.

T. H. OODMAN, Gen'l Pass'r Agent, Sacramento.

SHORT ROUTE.



The following time will take effect

Sunday.....April 24, 1870.

GOING NORTH—DAILY (SUNDAYS EXCEPTED).

New World Leaves	Trains Arrive at S. Francisco.	Trains Arrive at Sacramento.
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San Francisco Metal Market.

PRICES FOR INVOICERS.

Jobbing prices rule from ten to fifteen per cent. higher than the following quotations.

TUESDAY, July 15, 1870.	
IRON.—Duty: Pig, \$9 per ton; Railroad, 60c @ 100 lbs.; Bar, 1@1½c @ lb; Sheet, polished, 3c @ lb; common, 1½@1¾c @ lb; Plate, 1½c @ lb; Pipe, 1½c @ lb; Galvanized, 2½c @ lb.	
Scotch and Eng. Pig Iron, ½ ton...\$21 00 @ \$32 00	
White Pig, ½ ton...28 00 @ 30 00	
Refined Bar, bad assortment, ½ lb...03 00 @ 04 00	
Refined Bar, good assortment, ½ lb...04 00 @ 05 00	
Boiler, No. 1 to 4...04 00 @ 05 00	
Plate, No. 5 to 9...04 00 @ 05 00	
Sheet, No. 10 to 13...04 00 @ 05 00	
Sheet, No. 14 to 20...05 00 @ 06 00	
Sheet, No. 24 to 27...05 00 @ 06 00	
COPPER.—Duty: Sheathing, 3½c @ lb; Pig and Bar, 2½c @ lb.	
Sheathing, ½ lb...26 00 @ 27 00	
Sheathing, Yellow...20 00 @ 21 00	
Sheathing, Old Yellow...10 00 @ 11 00	
Composition Nails...21 00 @ 22 00	
Composition Bolts...21 00 @ 22 00	
TR. PLASTER.—Duty: 25 per cent. ad valorem.	
Plates, Charcoal, 1½ @ box...12 00 @ 13 00	
Plates, I C Charcoal...10 00 @ 11 00	
Roofing Plates...10 00 @ 11 00	
Banca Tin, Slabs, ½ lb...42 00 @ 43 00	
STEEL.—English Cast Steel, ½ lb...15 00 @ 16 00	
QUICKSILVER.—½ lb...65 00 @ 66 00	
LEAD.—Pig, ½ lb...7 00 @ 8 00	
Sheet...10 00 @ 11 00	
Bar...9 00 @ 10 00	
ZINC.—Sheets, ½ lb...10 00 @ 11 00	
BORAX...35 00 @ 36 00	

Machinists and Foundries.

FULTON
Foundry and Iron Works.

HINCKLEY & CO.,

MANUFACTURERS OF.

STEAM ENGINES,

Quartz, Flour and Saw Mills,
Hayes' Improved Steam Pump, Brodie's Improved Crasher, Mining Pumps, Amalgamators, and all kinds of Machinery.

N. E. corner of Tehama and Fremont streets, above Howland street, San Francisco. S-47

THE RISDON
Iron and Locomotive Works.

INCORPORATED.....APRIL 30, 1868.
CAPITAL.....\$1,000,000.

Corner of Beale and Howard Streets,
SAN FRANCISCO.

Steam Engine Builders, Boiler Makers, Machinists, Foundrymen, and Manufacturers of Car Wheels equal to the best imported, and guaranteed equal to Eastern Wheels.

Directors:
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Wm. Norris, Joseph Moore, Chas. E. McLane,
John N. Risdon, John N. Risdon.
JOHN N. RISDON.....President.
JOSEPH MOORE.....Vice President and Superintendent.
LEWIS R. MEAD.....Secretary.
21v17-qy

UNION IRON WORKS,
Sacramento.

WILLIAMS, ROOT & NEILSON,

MANUFACTURERS OF

STEAM ENGINES, BOILERS,

CROSS' PATENT BOILER FEEDER AND SEDIMENT COLLECTOR.

WILCOX'S PATENT WATER LIFTERS,
Dunbar's Patent Self-Adjusting Steam Piston

PACKING, for new and old Cylinders.
And all kinds of Mining Machinery.

Front Street, between N and O streets,
16v1 SACRAMENTO CITY

CALIFORNIA BRASS FOUNDRY,
No. 125 First street, opposite Minna,
SAN FRANCISCO.

ALL KINDS OF BRASS, Composition, Zinc, and Babbitt Metal Castings, Brass Ship Work of all kinds, Spikes, Sheathing Nails, Rudder Braces, Hinges, Ship and Steamboat Belts and Gongs of superior tone. All kinds of Cocks and Valves, Hydraulic Pipes and Nozzles, and Hose Couplings and Connections of all sizes and patterns, furnished with dispatch.
PRICES MODERATE.
P. GALLAGHER. J. H. WEED V. KINGWELL

WM. W. OANTY, JNO. BUSH, F. FRETZHOUS, JNO. CONNER.
MINERS' CO-OPERATIVE BOILER SHOP.
228 FIFTH STREET,
Between Howard and Folsom, San Francisco.

ALL KINDS OF —
High and Low Pressure Boilers Built.
Sheet Iron Work, Etc., Etc.
Repairing promptly attended to.
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THOMPSON BROTHERS,
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129 and 131 Beale street, between Mission and Howard
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LIGHT AND HEAVY CASTINGS,
of every description, manufactured 21v16qr

ESTABLISHED 1851.

PACIFIC IRON WORKS,

First and Fremont streets,

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Steam Engines and Boilers,

MARINE AND STATIONARY,

IRON AND BRASS CASTINGS,

(Mining Machinery of Every Description,

And all other classes of work generally done at first-class establishments, manufactured by us at the lowest prices, and of the best quality.

Particular attention paid to Jobbing Work and Repairs.
N. B.—Sole Agents for sale of HUNTOON'S CELEBRATED PATENT GOVERNOR.
18v20-3m GODDARD & CO.

McAFEE, SPIERS & CO.,
BOILER MAKERS
AND GENERAL MACHINISTS,

Howard st, between Fremont and Beale, San Francisco.

Five or Tubular Boilers, with plain circular or spiral courses. Upright Five or Tubular Boilers, Locomotive and Marine Boilers, and Wrought Iron Tanks of every description.

Hydraulic Pipe supplied at reasonable rates. In ordering, give the quantity of water to be supplied, height of the fall, and total length of pipe, so as to enable the firm to determine the diameter of the pipe and thickness of iron to be used.

Repairs.—Boilers, Smoke Stacks, Pipes, etc., put in repair with promptness.
To Boiler Makers and Machinists in the Interior.—The firm is prepared to furnish estimates of Boilers, supply new Heads, drilled and punched, and attend to the selection and forwarding of iron for Boilers, Pipes and other purposes.

Plans, Drawings and Specifications.—The firm is prepared to make out Plans and Specifications, receive estimates, and superintend the Erection of any Machinery that may be entrusted to their care.

To Inventors.—The firm is prepared to assist in developing the plans of those who have the ideas, but not the practical experience necessary to put the same in form, by making Drawings of their Inventions, giving them the benefit of their practical knowledge in the construction of Machinery, and attending to the manufacture and introduction of their inventions. 1v16lf

MACHINERY
—AT—
GREATLY REDUCED RATES.Miners' Foundry & Machine Works,
235 TO 245 FIRST STREET.
SAN FRANCISCO.

This Establishment is now working upon the
CO-OPERATIVE PLAN,
And are thereby enabled to manufacture
MACHINERY, CASTINGS & BOILERS
AT EASTERN PRICES.
And better adapted to the wants of the Pacific States.
Ascertain our prices before purchasing. 8v20q

NELSON & DOBLE,
AGENTS FOR
Thomas Firth & Sons' Cast Steel.

MANUFACTURERS OF
Sledges, Hammers, Stone Cutters', Blacksmiths' and Horse-Shoers' Tools.
13 and 15 Fremont street, near Market, San Francisco.
16v14qr

CHOICE POULTRY.
—
Light Brahma and White Leghorns.

We are now hooking orders for a few trials of the above named fowls, bred from choice imported stock. Will commence delivering in July. All orders filled in rotation, as received.
A few clutches of eggs for setting from the above named breeds.

NICHOLS & WILLARD,
Importers and Breeders of Choice Poultry, Fruit Vale Avenue, Brooklyn, Alameda county, California.
20v20-3m

WONDERFUL
Scientific Discovery.
THE GREATEST EVER MADE.
Having baffled the Ingenuity of Chemists and Physiologists for Ages Past.
DR. CROWLY'S EMERALD HAIR BALM.

No EXAGGERATION, but a stern reality, verified by the undersigned:
Dear Doctor: I feel much pleasure to inform you that your "Emerald Hair Balm" has caused the growth of hair on my head—having only used one of your bottles, although I had been bald for twenty-five years. You are quite at liberty to use this intimation as you please. Yours truly,
JOHN STAPLETON,
California street, San Francisco.
To W. J. Crowley, M. D., No. 20 Montgomery street, San Francisco. 1v21-1m

HIBBERD, SANBORN & CO.,



South Point Mills, Berry street,
Between Third and Fourth, San Francisco. Orders from the country promptly attended to. All kinds of Stair Material furnished to order. Wood and Ivory Turners. Billiard Balls and Ten Pins. Fancy Newsels and Balusters.

Greatest Discovery Ever Made.

MR. J. W. MAC, while a resident in New Zealand, was so afflicted with the RHEUMATISM, that for years he was completely crippled and unable to attend to business. The symptoms were of the worst type—knees painful and swollen, with sinews contracted; shoulder, arm and hand rendered useless, and accompanied with continued excruciating pain. While in this state of suffering, he got acquainted with a native of the country, who applied to the parts affected a composition spread on coarse canvas, the properties of which were so wonderful that in a short time all the pain left him, the swelling disappeared, his sinews relieved, and he was able to resume his usual avocations. So effectual has been the remedy, that to this day he has enjoyed perfect health, without the slightest return of his former complaint. Knowing the great blessing such a remedy would be to those afflicted with this painful disease, he with great difficulty and expense obtained the secret of preparing the Plaster; and during the many years MR. MAC has applied these Plasters in New Zealand, Tasmania, New South Wales, and this city, their effect has been marvelous, giving to the most painful and longstanding cases sure and certain relief. The most incredulous will be convinced by referring to these persons: B. W. Owens, 405 Front street; F. B. Alderson, Traveling Agent for Dewey & Co., 414 Clay street; James Flynn, 519 Mission street; Michael Gorman, No. 6 Front street; Mrs. W. S. Wright—late of Gilmore House—518 Folsom street, now agent at Virginia City; E. Shenley, corner Montgomery and Filbert streets; W. M. McLeod, Depository American Tract Society, 557 Market street, and a host of others, who all bear testimony to the unparalleled healing powers of J. W. MAC'S (rightly termed Magic) Plasters, for the cure of Rheumatism, Gout, Weak Loins, Tender Feet and Neuralgia. J. W. MAC may be consulted at his office, rooms Nos. 34, 35 and 36, 128 Kearny street, San Francisco, between the hours of 9 to 12 A. M., 2 to 4 P. M. and 7 to 9 P. M.
18v20-3m

FROM THE WEED Sewing Machine TO \$500
\$65
WHOLE WORLD
BUTTERFIELD & SWIFT
THEY ARE THE BEST! Why? Because the WEED Machines work easy, simple and with more YANKEE! Buy the LATEST always. Call and see S. E. Horr, 329 Kearny St. S. E. Horr.

DR. ABORN
Has Consented to Remain on the Pacific Coast a while longer.

He can be consulted until the 10th of September, as follows: At the Anzerals House, San Jose, from the 1st to the 31st of July; at 22 Kearny street, San Francisco, from the 1st to the 5th of August; at the Yosemite House, Stockton, from the 6th to the 31st of August; and again at 22 Kearny street, San Francisco, from the 1st to the 10th of September.

Card from Wm. Hoskins, Notary Public, Oakland.

DR. ABORN—I take pleasure in bearing testimony to your skill and Treatment for Catarrh and Bronchial Affection, having been under your treatment the past ten weeks, and am myself now cured. As you are about leaving for San Jose, I cheerfully recommend you to all similarly afflicted.
Oakland, June 3, 1870. WM. HOSKINS.

No Painful Operations.
Dr. Aborn does not subject his patients to any painful or unpleasant operations. His treatment is mild, and safe for the most delicate child. The afflicted are hereby informed, that after the first visit, for many of the diseases which he makes a specialty, they can take the treatment home and use it until cured, without pain or interruption to their usual avocations.

Prominent Californians.
Hon. James A. Johnson, M. O., Lieut. Governor Holden, Charles N. Fox, Esq., S. O. Houghton, Esq., Gen. E. F. Beale, Melville Cottle, Esq., Wm. Hoskins, Esq., Messrs. Wm. B. Cooke, H. M. Jones, Henry Orman, Jr., J. H. Hardwick, Perry Dyer, J. S. Carter, Hubert Burgess, and many other prominent citizens of California, have written upon their cards to the public, testifying to the efficacy of Dr. Aborn's treatment. Many cures have been effected by the Doctor within a few days, and a number of those cures were of many years standing, and had resisted all the ordinary modes of treatment. The usual success attending Dr. Aborn's treatment should inspire new hope of speedy recovery even in the most hopeless cases. 1v21-2m

NEW VOLUME, JULY 1, 1870.

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Best Illustrated Newspaper

—FOR—

PACIFIC COAST READERS.

The Scientific Press,

[ESTABLISHED 1860.]

A large Illustrated, Practical Scientific Home Journal, devoted to

Mining, Farming, Mechanic Arts,
AND INDUSTRIAL PROGRESS.

Each weekly issue contains 16 pages (size of Harper's Weekly), except our double sheet, published on the first week of each month, which comprises 24 pages. It is ably edited, and contains, in concise and desirable form, all the most important discoveries, inventions, improvements and developments in the various branches of Science, Mechanic Arts and Industrial Pursuits, interesting to all intelligent readers on this coast. We make a live paper for the times, using plain, comprehensive language, giving information which cannot be had from books, or so readily and cheaply obtained from any other source. Each number often furnishes profitable hints to the reader worth many times its annual subscription price. Please examine sample copies and subscribe at once, and you will not regret it.

Terms, for six months, \$2.50; one year, \$4—payable in advance. Sample copies of the PRESS and illustrated Patent circulars sent free on receipt of postage stamp.

DEWEY & CO.,

Publishers and Patent Agents, No. 414 Clay street, San Francisco.

E. A. ARCHIBALD,

MANUFACTURER OF

Cast Iron Hubbed Wheels,
BY HIS PATENT PRESS PROCESS.

—ALSO—

Axles and Team Wagons of every Description.
METHUEN, MASS.

Particular attention given to Wheels for Portable and Fire Engines.

All my Wheels have my name cast on the hub, and are made by my Patent Press Process. By this new method the wheel is so compressed in every part that shrinkage or yielding of the part with all its attendant evils is wholly obviated, even in the driest climate. Any one understanding my process will be convinced of this. Send for illustrated circular.
20v20 E. A. ARCHIBALD.

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MINERS' RUBBER CEMENT.GRANDALL'S PATENT SPRING BED.
COOLEY & GREEN, Proprietors.

Manufacture, corner Front and M streets, SACRAMENTO. These Spring Beds, wherever known, are universally acknowledged to be superior to any other in use. They are light, durable and elastic, and present no harborage for bugs or any other kind of vermin, thus being free from the objections so often urged against the ordinary spring beds. Orders received at our manufactory, or at our agencies, as follows:

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22v20

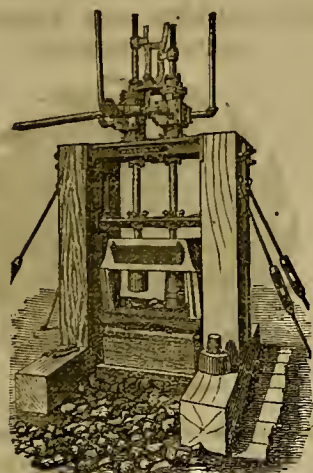
New York Metal Market.

[CORRECTED WEEKLY FROM THE AMERICAN ARTISAN.]

New York City, Saturday, June 25, 1870.			
IRON.			
Pig, Scotch, No 1 (cash), per ton..	\$37 50	@	\$42 00
Pig, American, No. 1 (cash).....	42 00	@	39 00
Pig, American, No 2.....	38 00	@	155 00
Swedish, ordinary sizes.....	140 00	@	92 50
Common.....	87 50	@	92 50
Red-hot.....	95 00	@	—
Rods.....	100 00	@	155 00
Horse-shoe.....	115 00	@	—
Hoop.....	125 00	@	180 00
Scroll.....	110 00	@	145 00
Nail-rods, per lb.....	—	8 1/2 @	— 9 1/2
Spring.....	—	9 1/2 @	—
Wire.....	—	9 1/2 @	—
STEEL.			
Bars, best cast, warranted, per lb...	23	@	23 1/2
Sheet, best cast.....	23	@	—
Sheet, second quality.....	20	@	—
Sheet, third quality.....	18	@	—
Saw-plates, circular.....	27	@	—
Double-shear, warranted.....	23	@	—
Single-shear.....	19	@	—
Montague & Co. (cast bars).....	18	@	—
Machinery, round.....	14	@	—
German, best.....	16	@	—
German, goat.....	13 1/2	@	—
German, eagle.....	12	@	—
Blister, warranted.....	16	@	—
Blister, common.....	15	@	—
Jewell & Sons, common.....	17	@	—
Double-refined.....	24 1/2	@	—
Stone ax shapes.....	26 1/2	@	—

Machinery.

THE WILSON
Patent Steam Stamp Mill.



This extraordinary Mill, now so justly popular in the East, is now offered to the miners of the Pacific Coast. Having been in operation now for about eighteen months, the Company feel confident that the

WILSON STEAM STAMP MILL,
For Durability, Efficiency,
AND ECONOMY OF WORKING,
HAS NO EQUAL.

The Wilson Steam Stamp Mill is the only Steam Mill that has had the severe ordeal of practical working, and proved itself eminently successful. It is now in operation in several of the Eastern States and Territories, and gaining an enviable popularity. The whole machine is so simple as to be readily understood by the most ordinary minds. In fact, its simplicity is its durability. The expense of crushing rock or cement with this Mill is less than one-half the expense of any other Stamp Mill, and less than one-half the cost. For further particulars inquire of

A. BICKNELE, Agent,
Nevada City, California,
Or of THE WILSON STEAM STAMP MILL CO., 326
Walnut street, Philadelphia, Pa.

NOTICE.—All persons are hereby warned not to manufacture or use any Steam Stamp Mills that are an infringement on the Wilson Patents, as they will be prosecuted to the utmost rigor of the law.

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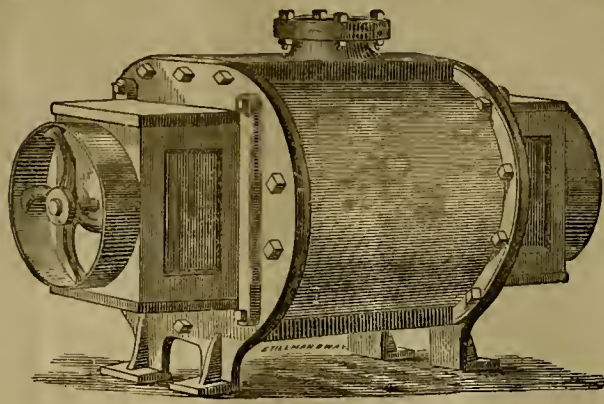
No. 418 CALIFORNIA STREET.
23v20-ay

ROOT'S PATENT FORCE BLAST ROTARY BLOWER.

MANUFACTURED BY KEEP & BARGION,

At the Globe Iron Works, Stockton, California.

Awarded the First Premium at
the Paris Exposition.

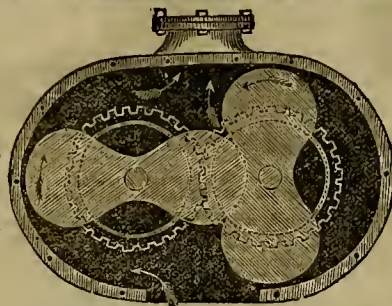


Patented Nov. 1st, 1864 July
21 1866 and Oct. 9, 1866.

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LESS POWER

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One of these Blowers may be seen on exhibition at W. T. Garratt's Brass Foundry, corner of Mission and Fremont streets. They are also in use at the Almaden Quicksilver Mine; Gridley's Foundry, Gold Hill, Nevada; Aetna Iron Works, San Francisco, and many other places.

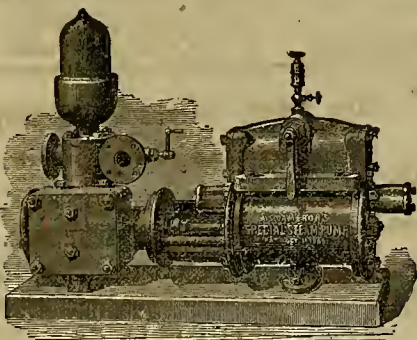
CAUTION.—Purchasers will find it to their advantage to apply direct to the Stockton Agency, as certain parties, not authorized to manufacture the Blower, have put in the market machines of inferior construction, which do not answer all the requirements of the genuine article.

Quartz, Saw and Grist Mill Irons, Steam Engines, Horse Powers, High and Low Pressure Steam Engines, Steamboats and Propellers, made at short notice.

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4v16-3m



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BAND SAW MILL MACHINERY,
FOR LOG SAWING OF ANY DEPTH.

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PATENT AMALGAMATOR

These Machines Stand Unrivaled.

For rapidly pulverizing and amalgamating ores, they have no equal. No effort has been, or will be, spared to have them constructed in the most perfect manner, and of the great number now in operation, not one has ever required repairs. The constant and increasing demand for them is sufficient evidence of their merits. They are constructed so as to apply steam directly into the pulp, or with steam bottoms, as desired.

This Amalgamator Operates as Follows:

The pan being filled, the motion of the muller forces the pulp to the center, where it is drawn down through the aperture and between the grinding surfaces. Thence it is thrown to the periphery into the quicksilver. The curved plates again draw it to the center, where it passes down, and to the circumference as before. Thus it is constantly passing in a regular flow between the grinding surfaces and into the quicksilver, until the ore is reduced to an impalpable powder, and the metal amalgamated.

Settlers made on the same principle excel all others—they bring the pulp so constantly and perfectly in contact with quicksilver, that the particles are rapidly and completely absorbed.

Mill men are invited to examine these pans and settlers for themselves, at the office, 229 Fremont street, San Francisco.

Mr. S. H. HERRING, agent for the Scientific Press, has called upon us, and is now in town. He informs us that the Press is rapidly increasing its circulation. We are pleased to hear it, for it is a journal that all should read. Valuable to farmers as well as miners, mechanics and others.—Pajaronian, June 18th.



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It is a speedy and safe remedy for burns, scalds, cuts, bruises, wounds and various other injuries, as well as for dysentery, diarrhea, and bowel complaints generally, and is admirably suited for every race of men on the face of the globe.

Be sure you call for and get the genuine Pain Killer, as many worthless nostrums are attempted to be sold on the great reputation of this valuable medicine.

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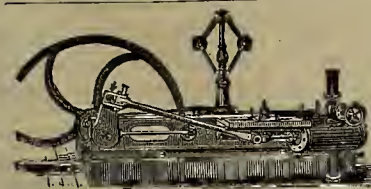
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Automatic Cut-off

Vertical Engines

Manufactured by the
Albany St. Iron Works,
NEW YORK.

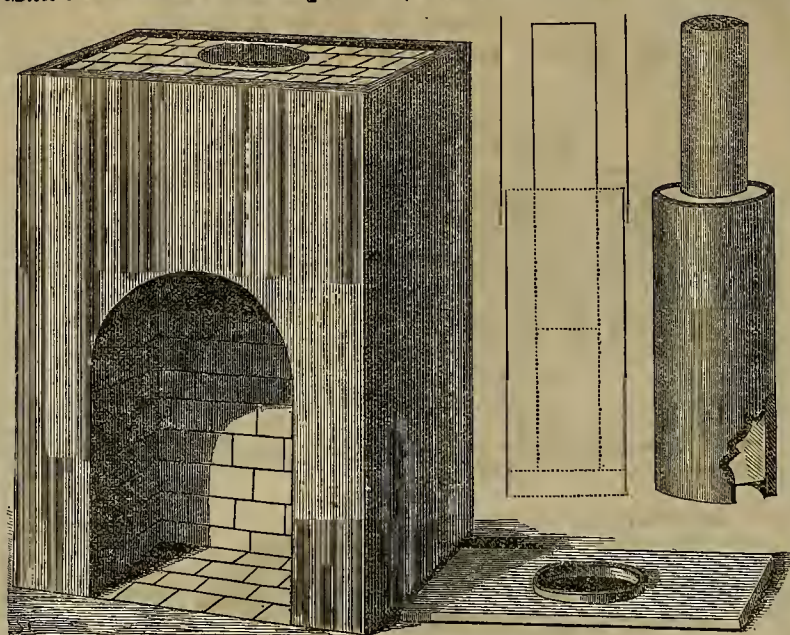
These Engines are simple, compact and durable, and in point of economy of fuel and space are excelled by none, and are cheaper than any other first-class cut-off Engines in the market. Descriptive pamphlets and price lists mailed free on application to the proprietors, HENDREN & RIPLEY, Corner Albany and Washington Sts., New York. 26v20-3m16p



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The chimney is constructed entirely of metal. The lower portion, made of cast, sheet or boiler iron, with a proper opening for a fire-place (which may be built of brick), is of any suitable shape and is intended to rest upon any foundation or upon the floor, if desired, as the whole weight of the chimney will not exceed six or seven hundred pounds. The left-hand figure shows the general appearance of this lower portion. On the right is the chimney-flue, shown in section also, in the middle figure, and below this, is the cover for the lower portion.

The flue is cylindrical and consists of two pipes, one inside of the other, with the annular space between them filled with cement, plaster of paris, asbestos, or other non-conducting material. This flue is secured to the cover, which is fastened to the lower portion of the chimney by rivets or other proper means. The illustration shows the device with one fire-place and one flue. But it can easily be constructed for two fire-places, opening into adjoining rooms on opposite sides of the chimney.

The chimney may be placed directly on the floor, if necessary, and any suitable fire-proof fire-place can be constructed in the recess in the lower portion. Heating stoves may be connected with it at any point, and thus the heat is utilized for warming rooms to a very great extent. It is so light that it is quite applicable when a fire-place is needed only in the upper story or stories of a building. The exposed part of the iron can be painted so as to represent brick-work, or ornamented as desired.

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It cannot be shaken down by an earthquake unless the house comes down with it.

It is absolutely fire-proof, as it is impossible by this construction to have such a thing as a defective flue. It does not take up one-half the room of a common chimney.

These chimneys can be constructed of different sizes and styles and kept on hand for sale, so that they can be ordered and set up at once, greatly facilitating rapid building in the country or city.

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THE SCIENTIFIC PRESS.—Mr. W. H. Murray, special

traveling agent for the Scientific Press, is a very sociable and pleasant gentleman. He speaks in high terms

of the mineral resources of Owyhee, and predicts for our camp a bright future. After examining the mineral

and agricultural resources of Idaho, he will proceed overland to Montana and Colorado. He has secured quite a large list of subscribers for the Scientific Press,

which is devoted to mining, farming and the mechanic arts, and is inferior to no publication of the kind in the

United States.—Avalanche, June 18th.

SCIENTIFIC PRESS

AN ILLUSTRATED JOURNAL OF SCIENTIFIC AND INDUSTRIAL PROGRESS,
Mining, Farming and Mechanic Arts.

BY DEWEY & CO.,
Patent Solicitors.

San Francisco, Saturday, July 23, 1870.

VOLUME XXI.
Number 4.

The War in Europe.

The topic of the day is of course the war between France and Prussia. The antagonism between the two people has at last come to an open rupture. To-day the Frenchman and the German stand face to face in deadly combat.

As to which party will conquer no one can now speak definitely. Both are powerful and well prepared. Prussia is, by her system, a nation of soldiers. Every Prussian is compelled to serve three years (or if he can pass the proper educational examination, and pays his own expenses as "volunteer," one year) in the regular army, four years in the reserve, and another period in the home guards. The Prussian army is said to number about 780,000, including a reserve of some 150,000. The whole of North Germany will be a unit against the French. On the other hand, France is by no means despicable. She can muster, it is said, an available force of some 700,000 men. She is burning to take the Rhine provinces, and is animated with a spirit of intense feeling. Against her enthusiasm is opposed, however, an equal one on the part of the Germans, who, however, are individually better educated.

Mere numbers, however, will have but small weight in this contest, where generalship will be more decisive. The Prussians have had an excellent training in their late wars, by which the French also, it is fair to believe, have profited. But the closer we look into the matter, the more incompetent we feel ourselves to say which will conquer.

Then another question arises:—how long will the war last? Will there be a settlement after one battle, or will the other powers intervene, or will there be a general European conflict? Time alone will answer these queries. One can only guess at present.

If France whips decidedly, then Germany will be resolved back into a number of small and separate States. If Prussia whips, probably the Orleans family will ascend the French throne. Although one might think that the other nations would desire to see the dismemberment of Germany, yet Napoleon has managed so poorly, or Bismarck so well, that the sympathies of the majority are with Prussia. Even Austria, although hating Prussia, is still sore against France on account of her inaction in 1866.

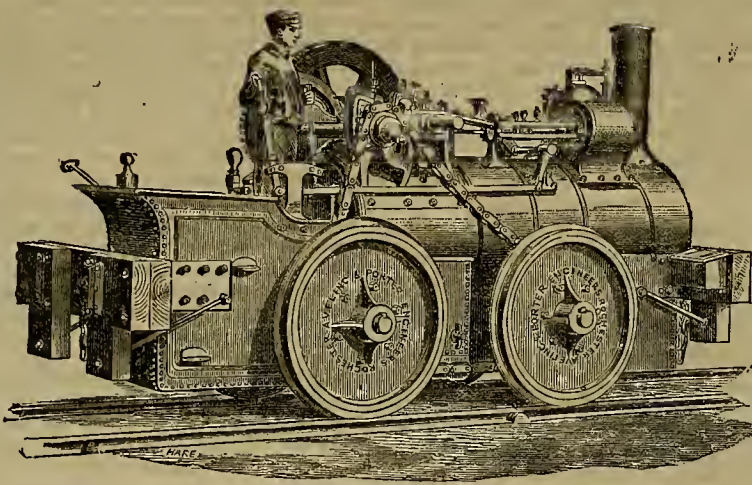
The principal effect in California will be to raise the price of wheat. Even now it is hard to get hold of this article at any reasonable prices, as parties are holding on to it for higher rates. Cotton, it may be remarked, will be unfavorably affected, and is falling rapidly; an important item as regards exchanges. The shipping interest will have now a chance for a revival.

The lecture on the Influence of Climate, last Saturday evening, before the Mechanics' Institute, was delivered by Dr. Rowell, and was most interesting.

Road and Tramway Engines.

It has been urged at times that, in the long level stretches on our Western coast, steam could be used in the place of animal power, with great success. Hitherto but little consideration has been given to this subject in our country. The English, however, have paid special attention to the matter of road and tramway engines, and

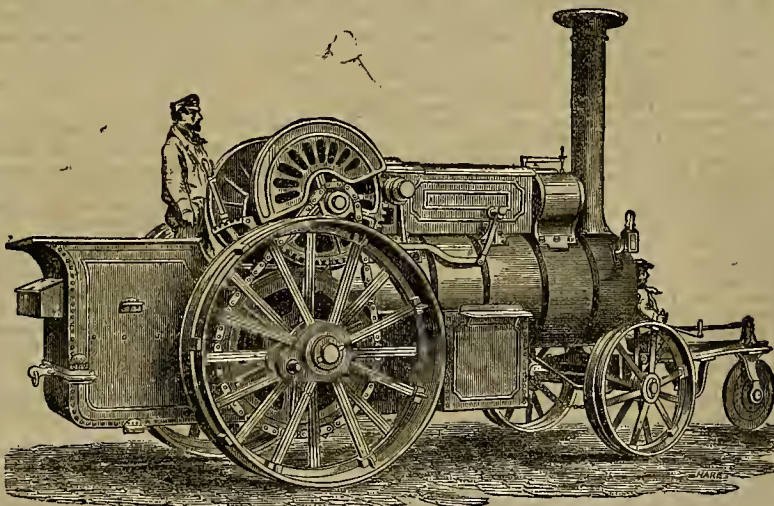
One of the tramway engines very generally used is that shown in the first figure. This is Aveling & Porter's patent. These engines are made from four to forty horse-power, to meet all requirements. The motive power is applied to the wheels by a chain-gear running over a wheel on one end of a counter-shaft, which is connected by spur gearing to the crank-shaft. The crank-shaft is provided with a fly-wheel,



AVELING & PORTER'S TRAMWAY ENGINE.

have introduced them into use in many parts of their country. Originally tried at the collieries, these have gradually become more and more general, and horse power

and the counter-shaft bearings are in curved slots in supporting brackets, so that the chain can be tightened when necessary. The total weight of a ten-horse-power en-



AVELING & PORTER'S ROAD AND AGRICULTURAL LOCOMOTIVE.

has now been replaced by steam-power in a great number of instances. This has been done, however, only after many and repeated experiments, by which the economy of the measure has been clearly demonstrated. Under these circumstances, and considering that road engines are made which will run over rough roads (at least this has been asserted repeatedly), it might well be thought that on our plains and in some of our large mines, machines of this kind might be used with advantage. And, as we hear, one road engine at least will be tried on this coast.

gine is nine tons. The cost in England of taking heavy loads at the rate of six miles per hour is given as 1½ cents per ton per mile. These engines are superior to the common portable and stationary engines for driving fixed machinery of every description.

The second figure shows the patent road locomotive engine, made by the same firm. Trials with single and with double cylinders have demonstrated that for general purpose there is a gain in power, simplicity and efficiency by using a single cylinder and reversing gear when con-

nected by the patent chain-gear to the driving axle. There is a double gearing arranged for a speed of two and a half, or one of five miles per hour. The cylinder is surrounded by a steam jacket, inside of which the steam pipes are brought up, the throttle-valve being at the top of the cylinder. This prevents priming on steep grades. The working parts are protected from dirt and weather by a housing. The driving wheels, which can be worked separately for better turning sharp corners, are six and a half feet in diameter and a foot and a half wide. On their faces there are spaces which hold small castings on ordinary ground; but when the soil is very soft, these are removed and angle-iron paddles substituted. The steering device is represented as perfect.

The agricultural locomotive is merely an adaptation of the last for the purpose of the farmer. The boiler is made larger, clothed with hair-felt, lagged and covered with sheet iron. Otherwise, it is essentially the same as the road locomotive.

Messrs. Aveling & Porter have been awarded for their engines the first prize medals at the International Exhibition, London, 1862; Hamburg, 1863; Odense, Denmark, 1863; Königshurg, Prussia, 1863, and the Universal Exposition at Paris in 1867. They have met with such success in Europe that they have established an agency in New York, with a view to introducing their engines into the United States. We see that last month one of their agricultural locomotives was shipped to New Orleans. Their agent is W. C. Oastler, No. 43 Exchange place, New York, who will, on application, be ready to give any further information desired.

THE last day of the session, Mr. Sargent's bill, giving preemption settlers three months after the filing of the plans of survey in the local land office, in which to file declaratory statements, passed both Houses. This is for the purpose of securing preemption claims from forfeiture; and under the Colorado law, as amended by the Senate, gives settlers eighteen months after filing to pay for their claims. A large amount of business, including the Australian steamship subsidy and the Texas Pacific Railroad bill, goes over until the next session.

TERRIBLE FIRES.—We have had some terrible fires on this coast, lately. Gold Hill wound up its Fourth of July celebration by a wholesale fire. Now comes the statement that on the evening of the 18th inst. a conflagration at Dayton destroyed the entire business part of the town, consuming forty five buildings. And the same night, according to accounts from Oroville, the town of Magalia, or Dogtown, was burnt down.

PRESIDENT MARK HOPKINS, of Williams College, one of the most prominent of College Presidents in the United States, and author of the "Evidences of Christianity" and other works, is now visiting California.

Communications.

Mines and Smelting Works of Inyo Co.

[Written for the Scientific Press.]

EDITORS PRESS:—This letter shall treat of operations and results of the different mines and mining works of the whole Owens River country. The Owens Lake Silver Smelting Company's works are situated on the eastern shore of Owens Lake, about eight miles from Cerro Gordo, and consists of two reverberatory furnaces and one blast furnace of the capacity of the one I described in my last paper; the whole driven by a forty-horse-power engine. In sinking a well about six weeks ago, to supply the boiler with water, at the depth of ten feet from the surface an artesian or underground stream of water was struck, which overflowed and still continues to overflow, and runs off in a quite large rivulet, until it loses itself in the sands surrounding the works. The ores are freighted from the mines in Cerro Gordo. Wood and charcoal are brought across the lake in a flat-boat from the Sierra Nevada, at the Cottonwood Cañon, a distance of fifteen miles. The company consists of gentlemen in New York and is under the superintendence of Mr. Jas. Brady, who is now shipping large amounts of bullion monthly. During the month of May Mr. Brady shipped for Los Angeles 2,000 bars, and he has made various shipments this month, but as to the exact amount I have no reliable authority.

Next in rotation comes the Eclipse, situated on the eastern bank of Owens river, ten miles southeast of Independence, owned by a large English firm, and under the superintendence of Capt. Jas. Barrett. This company have but commenced work. They are engaged in laying a tramway to the mine, four miles distant from the mill-site, and of course have no results.

The Chrysopolis Mill and Mining Company's property has changed hands, and the new company has dispatched a superintendent to look to the re-starting of the works, of which more anon.

Fish Springs is a gold mining camp situated on the western side of Owens Valley and river, twenty miles north of Independence, and is worked entirely by arastras. The mines have been worked with success for three years, although the veins are very small, not averaging more than six inches in thickness. The principal works, owned by Mr. Max Murray, are arastras driven by water-power, and are situated in and surrounded by a fine farming country, with wood and water in abundance.

Kearsage district is situated west of Independence in the Sierra Nevada, and fifteen miles distant. It contains three mills, one of four stamps, one of five stamps and another of ten stamps, and ledges innumerable, two only having been worked to any extent. The Silver Sprout mine is situated at the top of the Kearsage mountain, 12,000 feet above the level of the sea. The company owns a 5-stamp mill, containing three Wheeler pans, eight Knox pans, two large settlers, and a large oxidizing furnace. The mill is run by a hurdy-gurdy water-wheel, nine feet in diameter, and has power enough to run five additional stamps, which were intended, when the battery was built, to be added. This company for some cause is not running this summer.

The Kearsage Mill and Mining Company own a ten-stamp mill, which is running during the daytime at present, on ores that average \$70 per ton, and, as I have been informed by the Superintendent of the mill, the mine is yielding abundance of such ore. This mill is driven by steam-power, and is so situated that it can be run by water at any future time. The Alabama gold mines have remained in statu quo for the last two years, although when last worked they paid exceedingly well.

Messrs. Wolfskill & Co., of Los Angeles, have erected, two miles west of Lone Pine, large smelting works to be run by water-power, but as yet have not begun their operations. They intend to work upon Cerro Gordo ores.

Another series of furnaces are probably to be built on Cottonwood creek, of which, when in running trim, I will give you a description.

CROWQUILL.

Independence, Inyo Co., June, 1870.

Mining in El Dorado County.

[Written for the Scientific Press.]
Greenwood Township.

EDITORS PRESS:—Since my last letter I have wandered considerably over the county. At Greenwood, Neggle & Co. have several claims which are called seem diggings. One, the St. Lawrence, was opened last December by cutting through the rim rock of slate, some ten feet deep, when they struck porphyry and quartz, with more or less gold well distributed through both, the porphyry being soft enough to be easily washed by water through hydraulic pipe. The gold is ragged, much of it of a dirty harnt color and quite fine. The lead is about 400 feet in width and is worked to the depth of 150 feet. I was informed that their receipts were from 10 to 52½ ounces per week. The French claim, in which Neggle has an interest, is located on the same seam, several hundred feet to the northwest of the St. Lawrence, and has been productive for several years. A few days before my visit the company exploded some thirty kegs of powder in a tunnel dug for that purpose, with excellent success, loosening and shaking the ground so that the hydraulic washed away the dirt with wonderful rapidity. The Spanish claim, owned by Frank Curtis & Co., I was informed, has every prospect of success. Brown & Co., further north on the same lead, had, after months of perseverance and hard labor, struck pay in large quantities; but it was intimated that huzzards are hovering over, ready to pounce upon it if successful. Therefore, but few facts could be obtained.

At Pilot Hill, in the same township, quartz has been found high up on the hill, containing rich pockets of gold, the quartz being in porphyry like the late discoveries near this city. Six hundred dollars were taken out the first week in June. The huzzards have already commenced picking at the discoverers of the claim, notice of a suit at law for possession having been served on the occupants.

Placerville Township.

In this city and vicinity the mines continue to give down. Fisk is at work, but with less success than at first. Lewis & Alsberg have struck fine gold-bearing quartz 100 feet further up the hill, this being cross-wise of the vein. Hodge & Lammon have a pay-streak some thirty inches wide. They are working along the lead and have taken out from the surface to the depth of some thirty feet; blasting is resorted to. The claim is fabulously rich and it will take years to work it out. I am informed that Reed & Jaycox, south of Fisk, have fine prospects. The four last mentioned claims are located on the same vein. Kinney & Co., on the south side of the city and in a line with those on the north, is said to be rich, but as huzzards are beleaguering it, but little information can be obtained of what it produces. Gillett & Reed's claim, south of Kinney & Co., is remarkably rich, so I am informed by the owners, and specimens exhibited show hard quartz and the gold beautifully distributed through it. The Hook and Ladder, a hill claim spoken of in a former communication, is showing great richness. A few days ago one of the owners struck a dark gray cement, quite soft; taking his pan to prospect and seating himself in a convenient position, he did not leave the place until he had picked eleven ounces of the "filthy lucre" called gold into his pan; about one hour's work. This same streak has been found in the Blacklock & Co's claim, some thousands of feet from the Hook and Ladder company.

Poverty Point, situated between Big Cañon and the South Fork of the American river, one mile north of this city, has been worked more or less since 1852, principally by quartz miners, there having been five or six quartz mills built on and removed from this point of less than one and a half miles square. One of the last mills was built and worked by Joseph White & Co., but not with success. Van Hooker and others lately found pockets in the porphyry of great richness. Napier & Truett, a few days ago, procured a small head of water and commenced washing to discover a vein of quartz which they had the faith to believe ran through the hill. On Wednesday the 29th, after their water had nearly dried up, they were examining the water-course, and, like magic, the quartz and gold loomed up before them. They took out on that day what lookers-on claimed to be more than \$1,000, which was probably near the amount, for I am informed that \$600 has been pounded out and there remains considerable for the mortar yet. One specimen is valued at more than \$100. A considerable amount of fine specimens was taken from the claim on Thursday, as your correspondent can vouch for. Below this claim, on the South Fork, is situated Kanaka Bar, from which enormous chunks of gold were taken out in 1850, 1851 and 1852, weighing from three to more than eleven pounds. I saw the chunks at the time they were taken out, but then money was plenty and it created but little excitement. Napier is of the opinion that some of the big chunks yet remain in the hill for him to pocket. The Pocahontas Company, near Hind Springs, have come upon a fine lead of rich quartz, a specimen of which was shown me last week by Mr. Burlingham, one of the owners. "Shepard & Co's quartz mill, on Oregon Hill, is at work again. It was feared that their lead had "petered," but a new discovery shows that they have only been at work on a spur of their main vein. On examining the "gouge" which lies between the vein and wall rock usually,

they found instead of wall rock the main vein, which is more than eleven feet wide, without bottom, top, or end being in sight. Quartz sufficient to run their mill for months is in sight.

Diamond Springs.

A rich vein of quartz has been discovered about one mile southeast of Diamond Springs, by a German, formerly an engraver for some of the early money-coiners of San Francisco. Buzzards are here, I am informed, seeking to devour the owner and appropriate the discovery. When will this system of adverse claimants cease? Will Sargent's bill for the sale of the mineral lands remedy the evil?

The excitement of the day is ditch, a bill having been introduced in Congress to donate land for that purpose. A subsidy of that kind to the right parties would be hailed with joy by the community, as it would certainly result in a full supply of water for irrigation and mining.

In a future letter, with your permission, I may have something to say on ditches and canals, past, present and prospective in this county. [We are always happy to receive opinions from the miners on such subjects.—Eds.]

E. N. S.

Placerville, July 11th, 1870.

Notes from Idaho Territory.

[Written for the Scientific Press.]

Boise City.

Boise City, the capital of Idaho Territory, is 300 miles to the northwest of Salt Lake City and 450 miles to the northeast of San Francisco. It is situated on the west side of Boise river in a beautiful location and at an altitude of 2,800 feet above the sea. It is well laid out, and has two large hotels, two National Banks, a Government assay office, three flour mills, two distilleries and a Penitentiary; besides it supports several newspapers—one tri-weekly, two semi-weekly and one weekly. It has been for years a trading-post of the Hudson Bay Company, and is now the central point of stage travel, and through it pass all the supplies for Boise Basin. It is the largest place in the Territory, being, I find, larger than Silver City, as I previously stated.

I am informed that this valley is about 50 miles long with an average width of 5 miles, although it widens out in places to an extent of 15 or 18 miles. It is a fine agricultural spot and prosperous, owing to the combination of its farming and mining resources. The crops look well this year and promise to yield largely. I have been told that hundreds of acres in the Boise Valley have been taken up and are now under cultivation, and that the returns made by the farming districts have always been very good; and they will be better than ever this season according to present appearances. The miners also predict a good year in their line.

The Boise City Flour Mill, owned by C. Jacobs, is located to the west of the city. It is run by water-power, the water being supplied from a ditch which leads from the river through the town and from which all the gardens are supplied. The mill has two large stones and runs six months in the year. Last year it ground some 25,000 bushels. Near by is a distillery, which in the past year (1869) manufactured 15,000 gallons. Mr. H. P. Issacs also has a very large distillery and a flour mill.

The Idaho Penitentiary, now being built, is situated two miles east of the city, at the foot of what is known as Table Mountain. The contractor and builder is Mr. C. May, formerly of London, England, who came here in the early times and built the first brick building erected here. The Government Superintendent is Mr. Donaldson, and the foreman is Mr. H. S. Wolf. Mr. May obtained the contract for \$35,000. He has the reputation of being a very energetic and skillful workman. The complete building will be 180 by 44 feet, but the present contract is only for one wing 70 by 40 feet. The building will be principally of granite and will contain in all 42 cells on a model plan, well ventilated, with hot and cold air. The wing now being constructed was commenced on the 27th of June and will be finished by the 1st of October.

I also visited the grounds where the U. S. Government is to build a large assay office, the specifications for which I send you. The General Superintendent is the Hon. John K. McBride, formerly of Oregon, who has just come on from Washington to commence operations. The appropriation is \$75,000 but the Superintendent tells me he thinks it will cost only about \$60,000.

Boise Basin—Its Discovery.

Boise Basin is about 36 miles from Boise City. To get to the different mining camps in the "Basin" (as the miners here call it) one takes Pinkham & Co's stage line. Here, with steep hills on each side, are located Idaho City, Centerville, Pioneer City, Placerville and Granite Creek, all lively towns indeed in certain times of the year. The first one I came to was Idaho City, on Moore creek, the county seat of Boise county, and a fine placer mining camp. There are several churches, a court house, a branch agency of the Bank of Boise City, doing a fine business in buying gold dust and making exchanges for the miners, Wells, Fargo & Co's Express office, etc. The buildings are mostly wood. By the way, I may mention that, as I am informed, Meredith & Co. cleaned

up from their claim near this place some \$17,070 after a run of 45 days.

Before 1862 (this and the following items I get from a letter in the Idaho Times) but little was known of the mineral wealth of Southern Idaho. That summer a prospecting party of six found their way up the cañons of Moore and Grimes creeks, but when about six miles above where Pioneer City now stands, a party of Indians attacked them, killing one of their number, Mr. Grimes. The rest retreated to Walla Walla, raised a large company (of 52 men) and returned to this region. They camped at Pioneer City, where a fort was built for protection against the red-skins. Others came to the spot and located near Centerville. Considerable fault was found with the number and size of the claims made by the Pioneer City miners, and the name of *Hog'em* was applied to that place. The bar on which Idaho City now stands was soon discovered by a party, who first concocted a bear story to keep off others; hence the name of *Bear Run* applied to the gulch here. In June, 1863, some of the miners made a trip up the North Fork of the Boise river to Rocky Bar, in Alturas county. The districts of Southern Idaho were most speedily populated and developed, and one year from the time the first party arrived, there were 5,500 votes polled within the limits of Idaho. Since that time the number has fluctuated and decreased somewhat.

Centerville—Pioneer City—Placerville.

After stopping at Idaho for a few days I went to Centerville. This is, as its name indicates, the central point of the mining towns, being 10 miles from Idaho City, 5 from Pioneer City, 6 from Placerville and 9 from Granite Creek. There is a strong feeling that this ought to be made the county seat, instead of Idaho, on account of its location. To get to Idaho City people from these other places pass through Centerville, and they might as well be spared the extra journey of ten miles, and then they would be able to return home the same day.

I have visited some of the large mining claims and found the boys piping away merrily. The large claim of Messrs. West and Laws, on Bumner Hill, has paid and will pay handsomely. Near this is the large claim of Mr. L. Law, which employs 16 men. The flume is 2 feet wide end 800 feet long; work can be done, however, only two or three months in the year on account of the short supply of water. The bed-rock is granite, the top of which is decomposed and is washed down by the miners. In this town I see the Masonic fraternity have a fine two-story building, which, when completed, will cost \$8,000.

Five miles due north is Pioneer City, or *Hog'em*, as you please. Here I find many of the miners busy at work getting out the *oro fino*. This camp has a population of some 500 persons and looks prosperous.

Going back again to Centerville we go off six miles west to Placerville. Here I found the miners hard at work, as the water was about giving out. Many of the claims here are worked out and some few large ones are paying well. The ditch here cannot accommodate all and so the large claims have the preference. There will be enough water for these for a few weeks longer, and then there will be a general clean-up and some handsome sums realized.

W. H. M.

Boise City, June 30, 1870.

[TO BE CONTINUED.]

THE NEVADA SODA MINE, says the Carson Appeal, which is situated about 60 miles hence on the old Reese River road, proves to be a more extensive deposit, and consequently a greater fortune to its proprietor, than was at first supposed. It is in the midst of a great desert—the lower portion thereof—is about seven acres in extent and of unknown depth, having been prospected in the pure article, with but slight interruption, down 18 feet. At a depth of a few feet the soda is quarried with sledges and wedges, being more solid than ice, which in some respects it resembles in appearance. The supply would seem, from present prospects, to be inexhaustible, as the article is in constant process of formation. In the spring the mine is frequently several feet under water. We are informed that the quartz mills supplied with ore from the Comstock lode use about 20 tons of this soda per month, at a cost of about \$80 per ton.

MANCHESTER, England, has lately had a cooperative Congress, at which the following statistics were furnished by a gentleman named Nuttek: In 1860 there were 150 cooperative societies in England; in 1862 it had increased to 330; and at present the number is 1,000. In 1864 the number of members did not exceed 100,000; it now numbers about 250,000. The annual trade now done amounts to about \$50,000,000. He stated that the wholesale society in Manchester did an annual business with the Manchester and County Bank amounting to \$5,000,000, and the societies with which they transacted business did a trade amounting to about \$20,000,000.—Exchange.

URANIUM IN WALES.—Oxide of uranium has been discovered on the Wheal Edward lode, and it is thought that it can be extracted with profit. The London Mining Journal states that uranite was found on the Great Wheal Edward lode (in the same mine) during the former working about forty years ago.

Mechanical Progress.

Steam Saw-Mill for Siam.

Engineering for June 24th describes a complete establishment now building in London, for teak-sawing in Bangkok, Siam. "The machinery comprises two large circular cross-cutting machines, four timber frames—the smaller being adopted for logs up to 24 inches; and the larger for logs up to 42 inches—two 42-inch self-acting rope feed saw benches with carriages and rails; two double edging benches and a 62 inch rack circular saw bench with self-acting traveling table. Besides these there are also two saw-sharpening machines, lathes, two travelers, etc. The whole of the machinery is driven by a 30-horse power horizontal condensing engine worked by two boilers of large dimensions adapted for burning sawdust, etc., an extra boiler being provided in case of emergency. * * Each frame is made sufficiently strong to carry a saw to every inch of width, at the same time margin is allowed for a greater number. The feed motion for the timber is obtained by means of Worssam's patent silent frictional feed wheel, which is a great improvement over the old ratchet. Every part of the machine requiring strength, such as the connecting rods, crossheads, cranks, and crank-shafts, is made of wrought iron or steel. The carriages of the roller feed frames are fitted with a lateral motion to adjust the saws for cutting crooked logs. The cross-cutting machines consist of large circular saws revolving on spindles, in journals affixed to carriages, which may be worked two and fro by a rack and pinion arrangement actuated by a band wheel. The larger of these machines carries a saw 7 feet 6 inches in diameter, and the smaller one of 6 feet in diameter. * * The saw-sharpening machines are introduced to lessen, as much as possible, the cost of files and labor. Files are almost entirely dispensed with, and replaced by discs of consolidated emery. Each disc revolves on a spindle carried by a counterbalanced arm which can be set at various angles to suit the form of tooth required, and for gulletting, topping, beveling, etc. The lathes are placed in the repairing shop, which is also furnished with a drilling machine, smith's forge, anvils, vices, and sets of hand tools. The two travelers are capable of longitudinal, lateral, and vertical motions, and have a lifting power of 6 and 10 tons respectively."

CUSHION-SLEEPER FOR RAILWAYS.—A new form of permanent way designed by J. Gregory is illustrated by *Engineering*. Iron sleepers have rests for the rail three inches above their surface. "Wooden wedges or cushions cut to the angle of 1 in 20 are driven in beneath the rail and upper part of the sleeper, half jaws and double-headed wrought-iron keys holding the rail in position. The wedges cannot work out of place, serrations on the upper part of the sleepers where they are driven preventing this. The weight of each sleeper is 80 pounds, with a surface of about 2½ square feet, their dimensions being 2 feet 1 inch by 16 inches; the wedges are 20 inches wide and 3 inches thick; with five of these sleepers to a 21-foot rail, it will be supported by 10 feet of bearing on timber. The rails are put into the half jaws, the wrought-iron hooked keys inserted within recesses, the rail is prized up by levers, and the wooden wedges or cushions driven tightly up from the outside."

TRANSFORMATION OF CAST IRON BY ALKALINE METALS.—The *Engineer* for June 24th gives from the *Moniteur Scientifique* the particulars of the process of MM. Girard and Poulain. We quote: "In order to cause the vapors of sodium and potassium to act on cast iron in fusion, we heat one of the former metals in an iron retort to 392 deg. or 482 deg. under a pressure of five or six atmospheres. When this heat is reached we direct the vapor thus obtained into the heart of the iron in fusion; the mass swells, and an alloy of the iron is the result. These alloys, although very hard, are malleable, and may be forged and welded. They oxidize rapidly in air or water, and are easily decomposed if a current of air, steam, or carbonic oxide is injected into them when in fusion. By these compound effects of the vapor of sodium and of air, for example, the whole of the metalloids in the iron are attacked, and the final result is pure wrought iron that can be hammered and welded with ease. Under certain circumstances the metal may present the properties of steel."

HYDROSTATIC WEIGHING MACHINE.—We find the following in the last number of *The Engineer*: "The principle of Mr. Duckham's machine is very simple, and consists in the filling of an open-top cylinder with water, or oil by preference, and suspending the machine to a crane. A piston passes downwards through the cylinder and terminates in an eye, to which the articles to be weighed are attached. The machine is connected with a dial gauge, the indicator of which is worked by the liquid displaced from the weigher. On the load being removed the liquid is returned to the machine. A peculiar merit of this machine is its lightness, an 84-pound weight machine being equal to weighing ten tons. Others much lighter are capable of performing very delicate work, and others again can be made proportionate in weight, which can weigh up to 100 tons. The machine has been tested, in weighing the armor plates of the iron-clad turret-ship *Abyssinia*. These are from eight inches to ten inches thick, weigh from seven to ten tons each, and are shipped and weighed by one process—lifted, slung and weighed all at once."

"DOMESTIC" STEAM ENGINE.—M. Fontaine has designed a small engine as a motor for domestic use. A specimen was exhibited at the recent *Conversations* at the Institution of Civil Engineers. *Engineering* says: "The apparatus consists of a small vertical boiler, heated by several Bunsen burners, the supply of gas to these burners being governed by a simple automatic arrangement dependent for its action upon the pressure of the steam. Thus, as this pressure rises the supply of gas is diminished, the adjustment being such that practically the steam is maintained constantly at any pressure to which the apparatus is set. The engine, which is of very simple construction, is carried by the boiler, and the latter is of such capacity as to contain sufficient water for a day's supply. In using the apparatus all that is necessary is to charge the boiler in the morning and light the gas, and the engine will run the whole day without further attention."

LORD ROSSE'S POLISHING POWDER.—The method of preparing the powder used by Lord Rosse, for polishing the speculum of his great telescope, is thus described by him: "I prepare the peroxide of iron by precipitation with water of ammonia, from a pure dilute solution of sulphate of iron. The precipitate is washed, pressed in a screw press till nearly dry, and exposed to a heat, which, in the dark, appears a dull low red. The points of importance are, that the sulphate of iron should be pure and the water of ammonia should be decidedly in excess, and that the heat should not exceed what I have described. The color will be a bright crimson, inclining to a yellow. I have tried both potash and soda, pure, instead of water of ammonia, but, after washing with some degree of care, a trace of the alkali still remained, and the peroxide was of an ochraceous color and did not polish properly."

CYLINDERS IN NARROW-GAUGE LOCOMOTIVES.—An exchange describes a new arrangement which is spoken of as especially applicable to locomotives on narrow-gauge railways: "The steam cylinders are placed one above the other in a center line between the driving-wheels, the piston-rod from one being connected by the connecting-rod to the crank of the front driving axle, and that from the other to the crank of the hind axle. The cranks are placed at right angles. By applying the power to both cranks in a central line between the rails, the tendency of the engine to oscillate is removed; whereas in the ordinary mode of applying the power first on one side and then on the other, the strain is constantly in opposite directions, and the flanges of the driving-wheels are moved more or less towards the rails, thereby producing oscillation."

IMPROVED WATER METER.—A Glasgow inventor's device is thus described: "The improvement admits of a comparatively small meter being used, the supply-pipe being fitted with a small branch, which leads a portion only of the liquid through the meter, whence it passes on by a small pipe into a small cylinder provided with a piston, and having an outlet slit in its side. The piston moves a large valve through which the main portion of the liquid passes, and proportionately opens the outlets from the meter and from the supply-pipe."

Scientific Progress.

Circulation of the Latex in Plants.

Dr. H. C. Perkins, of Newburyport, sends the *American Naturalist*, for July, some notes of his observations with the microscope upon the circulation of the latex, or the milky fluid which in plants seems to correspond to the lymph in animals. His experiments were upon a leaf of the *Chelidonium majus*; and he adds in a note at the end that he observed the same phenomena in the dandelion. The young leaf was placed between two strips of glass, upon which a drop of glycerine had been put, its underside uppermost on the stage of the microscope, so as to throw a strong light upon it from the mirror below. We quote: "While watching the circulation as seen through the lenses in the reflected sunlight, if I move the diaphragm from left to right, so as to make the shadow enter upon the right of the field of view, a brisk circulation (no matter how quiet it had been before) is instantly witnessed, which appears to be changed in direction as we move the diaphragm back again; and that the direction of the circulation can thus be changed at will by the interception of the sunlight. This same result can also be witnessed by the passage of clouds between the sun and mirror. The actual direction in the plant is from the apex of the leaf in sunlight and toward it in the shade. The change in direction is so rapid when produced by the shadow of fast-flitting clouds across the sun's disc that it would seem that the change of temperature could hardly be felt by the plant, it certainly could not be by an ordinary thermometer; but a heated body properly placed will quicken the circulation, as will cold retard it. If I mistake not we have here a fine demonstration of the conversion of light into heat by its passage through the vegetable tissues, and of heat into motion by its action upon the laticiferous vessels."

PROF. HUXLEY DEFINES HIS POSITION.—In a lecture recently delivered at Cambridge, Prof. Huxley used the following language: "I hold, with the Materialist, that the human body, like all living bodies, is a machine, all the operations of which will sooner or later be explained on physical principles. I believe that we shall, sooner or later, arrive at a mechanical equivalent of consciousness, just as we have arrived at a mechanical equivalent of heat. If a pound weight falling through a distance of a foot, gives rise to a definite amount of heat which may properly be said to be its equivalent, the same pound weight, falling through a foot on a man's hand, gives rise to a definite amount of feeling which might with equal propriety be said to be its equivalent in consciousness."

FIRST ISOLATION OF CHLOROFORM.—The discovery of chloroform is attributed to Soubiran, Leibig, and our American Gutrie about 1830, but Gautier shows satisfactorily that Serullas had it in his hands in 1824, six years previously, without recognizing its true nature, he having actually obtained chloroform by the action of perchloride of phosphorus on iodoform, which latter body he had then just discovered. Serullas thought the product was iodoform deprived of a portion of its iodine, and called it *protohydriodide of carbon*. Boutlerow afterwards concluded it was *iodide of methylene*; but Gautier now finds that it was nothing more or less than chloroform.—*Chemical Abstracts*.

BISULPHIDE OF CARBON IN COAL GAS.—A Vogel's new method of detecting bisulphide of carbon in coal gas, consists simply in passing the gas, after all sulphuretted hydrogen has been separated, through a glass bulb containing strips of bright copper. The latter assumes a red tint, and nitric acid boiled with it afterwards, gives a precipitate of sulphate with a barium salt. This, if reliable, is an exceedingly valuable method. It will at once be tested by us.—*Prof. Wurtz*.

PREPARATION OF PURE NITROGEN.—Berthelot recommends to agitate air in a flask furnished with a safety tube with aqua ammonia and copper turnings. He then pours in, through the tube, water which has been previously treated with ammonia and copper turnings, and drives the nitrogen through sulphuric acid to dry it and absorb ammonia, and collects it over quicksilver.—*Soc. Chimique de Paris*.

ALL PHYSICAL FORCES DUE TO GRAVITATION.—We take the following from Prof. W. A. Norton's article on "Molecular and Cosmical Physics" in *Silliman's Journal*: "In the act of formation of the existing cosmical masses by condensation, the motions of their elementary parts have been directed toward the center of gravity of the mass, and the mutual destruction of such opposing motions has developed an equivalent amount of living force in the form of heat. By the continued operation of the gravitating force in the sun and earth, and probably in innumerable other worlds, the transformation of the work of condensation effected by this force into an equivalent store of heat-work is constantly going on. The heat of chemical combination, as well as that of liquefaction and solidification, are attributable to the gravitation of the electric ether toward the atoms of ordinary matter. All the heat and attendant light evolved since the creation, form a store of accumulated work equivalent to the work done by the force of gravitation in effecting all the condensations that have hitherto taken place. This heat and light force has been in its natural operations opposed to the force of gravitation, and so essentially a separating and decomposing force. It has been the great physical agent in all the processes of vegetable and animal life. It has ever been passing through cycles of transformation into other physical forces, but in all its transformations the entire amount of energy, actual and potential, has remained invariably the same. Chemical combination, the electric current, liquefaction, and solidification, are instances of motion directly due to the general gravitating force operating on the electric ether. All motions of translation or rotation of bodies at the earth's surface are traceable directly to the same force, or to that of heat repulsion and therefore indirectly to that of gravitation."

FERMENTATION.—At a meeting of the Chemical Society, in London, June 16th, Mr. Jas. Bell read a paper on this subject. The following was one of the conclusions given as the result of a series of experiments: The addition of glucose to fermenting liquids, especially to the juice of the grape, is advantageous, inasmuch as it assists to exhaust the juice of its fermentative element, and thus imparts to the wine a greater keeping power. In the course of some remarks which followed, Prof. Williamson, the President, said that though called a "plant," the yeast organism appears rather animal than vegetable. The products of its secretion are less complicated than those it takes in; it does not require light for its vital process; and it gives off heat rather than absorbs it.

ORGANIC MATTER IN WATER.—Dr. Heisch, being informed by a lemonade manufacturer that he had suddenly found it impossible to make an article that would keep, experimented upon the water used, and found that a few grains of pure sugar would cause it to be filled in a few hours with small spherical nucleated cells. It turned out that the water had been slightly contaminated with sewage. A minute quantity of sewage water to a sugar solution, soon brought forth similar cells. Filtration through the finest paper would not remove the germs, nor would boiling for half an hour destroy their vitality. Filtration through animal charcoal, however, removed them.

DANA ON DARWIN.—Professor Dana, in his recent lecture before the Seniors, in which the subject of Darwin's theory was considered, stated that belief in a development theory was not Atheism; that the facts of science clearly indicate of some plan of development; that Darwin's book was a work of great merit and that his theory accounts for the origin of some species. As for genera and higher groups, there will probably be found other laws to account for them. Let no one fear scientific investigation. As for Atheism, give it no quarter!—*Courant*.

INSECT AID TO PLANT FERTILIZATION.—Delpino, in Italy, in a late paper notices the successive disappearance from the tropics northward of certain tribes or groups of plants with the disappearance of the tribes of insects, or of bumbling birds, etc., which effect their fertilization: Roses, Peonies, etc., disappearing with the larger Coleoptera, many Silenes and Lychnises with nocturnal Lepidoptera, until in the arctic zone there are only such flowering plants as are fertilized by the aid of Hymenoptera, Diptera, and the wind.

Mining Summary.

The following information is gleaned mostly from journals published in the interior, in close proximity to the mines mentioned.

California.

ALPINE COUNTY.

GLOBE.—This tunnel on the east wall of one of the lodges yesterday, having passed through ledge matter 23 feet, the whole of which promises to work from \$12 to \$15 per ton in gold and silver.

AMADOR COUNTY.

THE AMADOR.—*Ledger*, July 16th: We have the report for 1869. The receipts were \$706,080.66, and there was disbursed for mining 33,000 tons of ore, \$160,447.71; improvement of mine, \$25,835.70; milling 32,510 tons of ore, \$64,186.64; improvements and construction of Eureka mill, \$32,366.53; sundry accounts, \$36,253.53. After paying the above there remained \$384,800, which was paid to the stockholders in dividends.

CHLORINATION.—The works of Breedlove & Burr, Sutter creek, are running on sulphurates from the Keystone mine, at Amador City, paying about \$150 to the ton.

BUTTE COUNTY.

SPRING VALLEY WATER CO.—*Chico Enterprise*, 16th: Work on the canal, between Concow valley and Cherokee, is progressing rapidly. They are working 250 men, and about 1,000 feet of the pipe is on the ground. The timber for the bridge across the west branch, to hold the pipe, is on the ground. The iron work is being manufactured in Marysville. The 30-inch pipe is to be buried in the earth, and the trench for this in many places has to be blasted out.

CALAVERAS COUNTY.

SAN ANDREAS.—*Chronicle*, 16th: Placer and bill mining is conducted on a more extensive scale in that vicinity than for years. A gravel mine at the upper end of Main street is paying handsome dividends. One of the partners recently sold a share for \$1,500.

ANGELS.—By a letter we are informed that all the quartz mills in that town are in constant operation, and results favorable.

CHILI GULCH.—Shaw, proprietor of the big hydraulic, is trying to transpose Stockton ridge and Chili Gulch, and we think he will be successful.

EL DORADO COUNTY.

GEORGETOWN.—Cor. of Placerville *Democrat*, 16th: The mines are generally paying well. The Eureka keeps on, and there is talk of running nights. The Taylor mill Co. have started up to push things. As an evidence, they have let a contract for 300 cords of wood, and are negotiating for more. The claims on Georgia slide are all paying. Wood & Co., on the Parson's claim, are making money. Quite a number of claims are laid up for want of water.

INYO COUNTY.

CERRO GORDO.—*Independent*, 9th: H. A. Halt started up Belshaw & Co's smelting works on the morning of June 29th, and ran out 434 bars of bullion by the evening of July 2d, averaging over 108 bars each 24 hours.

NEW STRIKE.—We learn that W. Witherell has discovered ore in the Whits mountains, near the Hutch cañon, paying from \$200 to \$5,000 per ton.

SILVER BARS.—A Los Angeles telegram of 13th says: A train, with bullion from Owen's lake, has arrived with 532 bars of silver-bearing lead for San Francisco. It contains silver valued at about \$11,000. The smelting works are running night and day.

KERN COUNTY.

JOE WALKER MINE.—A Los Angeles telegram, dated 18th, says the mine has been purchased by Los Angeles parties, and the mill is now running.

NEVADA COUNTY.

EUREKA.—*Transcript*, 14th: This mine has been producing more gold in the last six months than ever before. From the 1st of January to the 1st of July, the yield was \$536,857, or an average of \$56,143 monthly. The sulphurates saved from several months work will add some thousands.

BLUE TENT.—But little has been done since the Fourth. The water in the ditch was closed off the day before. Work was resumed yesterday in most of the claims.

GREENHORN CREEK.—Same of 15th: W. L. Townsend, owner of the Lincoln Fluming claims, has leased the ground to a company of thirty-five Chinamen for five years, for which they paid \$2,000 down, and are to pay \$1,000 in two months. The tailings are from 20 to 40 feet deep.

DIAMOND CREEK.—G. G. Vleit, who has been running a tunnel for a year, struck

very rich gravel Tuesday. Mr. Vleit showed us a prospect from four wheelbarrow loads of gravel, which amounted to over \$20. One piece weighed half an ounce. The gold is all coarse, and sells at \$18.75 an ounce.

STAR.—Same of 16th: Stevens & Brook discovered a quartz ledge a day or two ago, near their claims on the Gold Flat road, and have taken out some rock which shows free gold.

PITTSBURG.—*Gazette*, 14th: This mine shut down Monday on account of bad air. A new shaft will be finished in four days. The mine was never looking better.

GOD'S COUNTRY.—This region, so named by the miners on account of its roughness and inaccessibility, is on the Yuba river, between Cañon and Fall creeks. It has some of the best gold ledges in the State. The Star mines are now well opened. The Lindsay will put up another 10-stamp mill. The Fidelity will have its mill running by Sept. 1st.

NORTH BLOOMFIELD CANAL.—Grass Valley *Union*, 13th: Upon this work are now engaged 350 laborers—200 Chinamen and 150 whites. When the canal is completed the company will have control of 3,000 inches of water. This, with the exception of 400 inches on the Union Co's claim at Columbia Hill, will be used in working the gravel mines at North Bloomfield.

PERRIN'S MINE.—The mill at Perrin's mine was cleaned up Monday. The result shows for 134 loads of rock crushed \$5,899.11. The profit to the owners is something over half the amount.

OMEGA.—*Transcript*, 19th: We learn that some of the hydraulic miners have commenced cleaning up. The supply of water has held out well, but is now beginning to fail.

PLACER COUNTY.

ITEMS.—*Herald*, 16th: The St. Patrick shows gold in both shaft and drifts. The more it is opened, the better the prospects. Elliott West has commenced running a tunnel to strike his quartz ledge on Rich Flat. It is believed that the same tunnel will tap a paying gravel deposit. The neighborhood was once very rich.

THE NORTH AMERICA.—*Stars and Stripes*, 14th: Jenkins & Northcutt, of this claim, in Ophir district, had 17 tons of rock crushed last week, which yielded \$10.12½ per ton. This is their third crushing. The first, of 152 tons, yielded \$10 per ton; the second, from a spot known to be poor, gave but \$3.75 per ton from thirty-five tons.

PLUMAS COUNTY.

RICH STRIKE.—Quincy *National*, July 16th: A rumor is going the rounds, in which we place considerable reliance, that a wonderful strike has been made at Hungarian Hill, near this place. Three thousand dollars is reported to have been taken out of four pans of dirt.

MINING PROJECT.—A company has been organized to tunnel through the Devil's Elbow on Spanish creek, four miles from this place, with the view of working the bed of the creek, together with the tailings that have accumulated from the washings of Badger Hill, Curtis Point, Gopher Hill and vicinity. We understand that this tunnel will give them 20 feet additional fall for getting rid of the tailings. The parties are Sacramentans.

CLERMONT HILL.—Messrs. Myers & Siley, who have been prospecting Clermont Hill for ten years, have discovered flattering indications. We also learn that another company have struck excellent prospects. This is doubtless the locality of the Blue Lead.

SAN BERNARDINO COUNTY.

Los Angeles telegram, 18th: A new silver lead has been discovered 30 miles from San Bernardino. The rock, by analysis, shows \$56 to the ton. A new mining district, embracing the late quicksilver discoveries, is organized.

SHASTA COUNTY.

QUARTZ.—*Courier*, 16th: John Shed has got down thirty feet on his ledge near the Four Mile House, and the quartz prospects rich. The ledge is a foot wide and well defined.

TRINITY COUNTY.

CLEANED UP.—*Journal*, 16th: The principal mining companies have nearly completed their work for this season. The shipments of gold dust have been about over. On Thursday of last week over \$22,000 was sent down. The season has been an encouraging one, considering the scarcity of water.

Arizona.

Mr. I. R. Ryan, recently returned from Arizona, publishes the following items: The Big Bug mill has stopped running, and the hands have all been discharged.

Failure of the ore to pay is said to be the cause.

At the Vulture mine, the lowest level was 240 feet in depth, at which the ledge did not appear to pay. Consequently the superintendent, Mr. Taylor, had discontinued work on this level, and recommenced at the surface. At the second deepest level the ore was remarkably rich.

At the Ravanna Conquest mine at La Paz, ore going over \$1,000 a ton is being taken out. Shipment of a few sacks of this ore have recently been made to San Francisco and New York.

At the Martinez district, near Date creek, an arastra was crushing some of the ore, which was remarkable rich. Mr. Robert Barton went down on the last steamer, and will probably proceed to the erection of a small stamp mill at once. These are all gold ledges.

Colorado.

ITEMS.—Central City *Register*, June 13th: The Coaley and Gilpin are yielding lean ore at present. Mr. Valentina, on the Stuh-tail lode, is down 40 feet, and has ore that pays six ounces per cord. The three Denver banks shipped in June \$127,000 in gold bullion. This represents only a small proportion of the amount produced.

GEORGETOWN.—Cor. of same: Mr. Snyder, agent of the Snyder and Trenton Co's, in June sent 10 tons of second-class ore to Hupeden & Co., that run \$200 per ton. He will ship a small lot of first-class ore to Europe the present week, having several tons on hand that will yield \$600 per ton. On the Terrible there are 27 men at work. There is 60 feet of water in the shaft. There is 100 tons mixed ore, that will yield \$100 per ton, on dump. Fourteen tons of ore sent to Swansea a short time since. The first-class ore runs \$600 per ton. The Co. raised during June 25 tons of this quality.

The Brown Co. shipped a silver button weighing 512 pounds, last week. They have a body of rich ore in their mine, in which ruby and brittle silver predominates, from which they smelt out from 600 to 1,300 ounces of silver per ton. Burlingame tunnel is in 575 feet. Baltimore has reached 475 feet. The Helmick has made the best headway of any in the county, and work continues vigorously. The Equator mine owners refuse to pay the prices demanded for labor, and have closed down the work in the mine for the present. Wages range from \$3.50 to \$4.50 per day.

ITEMS.—*Herald*, 13th: Ore from the Sovereign People (silver) lode of Grand Island district, assayed \$1,214.46 to the ton. This lode has a crevice 18 inches in width, and is owned by Mr. Pugh, of Black Hawk.

CLEAR CREEK ITEMS.—Hupeden & Co. have now a very complete establishment for the reduction of silver ores. They have two cylinders and five barrel amalgamators, and treat seven or eight tons per day. The Gentry has a vein of first-class ore, from a foot to eighteen inches wide, and rich. Select specimens assay as high as 800 ounces per ton. The lode has been stripped for several hundred feet. Stewart's saw mill is rapidly approaching completion, and it is hoped will be ready to run by the first of August. Its capacity will be twenty tons per day. It cost \$75,000.

ITEMS.—Georgetown *Miner*, 7th: The tapping of the Equator vein through the Marshall tunnel has been accomplished at last. The tunnel has been driven into Leavenworth mountain 680 feet. This morning one of the walls of the Equator was pierced, and pieces of the vein matter, identical with that mat in the shaft, were taken out. Mountain Ram lode, Dailey district, is turning out very rich ore.

Idaho.

STRIKE.—*Avalanche*, 9th: On Wednesday another quartz discovery was made in the bed of the creek, a mile up Long Gulch. We are informed that the vein is five feet in width, with a 20-inch streak of decomposed quartz in the middle. The prospects obtained by panning out the stuff shows it to be exceedingly rich in gold.

FLINT DISTRICT.—Within the last three days 475 pounds of bullion have been brought over from there. Some of the rock yielded \$200 per ton. Black's mill is running on ore from an extension of the Leviathan.

BULLION.—The bona fide bullion product of this camp for month ending July 8th, as shown by Wells, Fargo & Co's treasure shipments, is \$100,000.

COON CREEK.—A friend writes from Oro Grande, July 3d, that times had been dull on account of high water, but now more lively.

The *World* of 7th says of Loon Creek: At one place all the water is running through the flume, and last week \$1,400 feet additional was put in. In eight days nearly all the miners will be at work. Good prospects were struck eight miles below town.

SNAKE RIVER.—Cor. of *Chronicle*, July 13th: The miners are waiting until water falls. A great many will commence working on Monday; several are selling their claims from \$50 to \$500. The river is falling slowly; in about two weeks mining will commence in full blast.

Montana.

GREENHORN.—Helena *Gazette*, July 11th: About thirty men are at work and getting fair pay. A good head of water is still running, and the prospect for summer's work is good.

ST. LOUIS GULCH.—Lyster & Co. have sluiced off a wonderful amount of ground this season, and have done well. The last clean-up of two weeks' run (five hands) was \$2,000, with considerable bed-rock still to clean up. Silver creek is turning out more dust than usual. There are eighty men at work.

GOLD BRICKS.—We yesterday saw three handsome gold bricks, cast by Professor Steitz. One weighed 300 ounces and was valued at \$5,204 coin; another, 236 ounces, valued at \$4,320; and the largest, 420 ounces, valued at \$7,416.

ARGENTA.—From Maj. Boyce we learn that the T. E. Tootla furnace run out at the last cupel one hundred and sixty pounds of silver, and left four tons of lead, equal to sixty pounds of silver, uncupelled.

CANON FERRY.—The ditch from Avallancha Gulch is being finished rapidly. This will bring water to some of the safest and best mines in the Territory. The water in Hornbuckle's ditch is rather scanty; but they do some mining and take out some pay.

PILGRIM BAR.—Cor. of same, date June 26th: Holcomb & Berry cleaned up yesterday \$4,446, the result of one week's run; Smith, Hick & Co. cleaned up \$1,033.75; Steel, Ketchum & Co., \$900, and Joseph Kitchen, \$1,200, for one week's run. There are between sixteen and twenty hydraulics running on the bar. There is 2,000 inches of water in constant use, day and night, most of it is used over three or four times, and finally sold to Chinamen in Pika's Paak gulch. The bar averages in depth 10 to 15 feet. Fly & Co. are putting in a 20-inch flume. Brown & Blake have just started in on a new discovery on Granita creek. This is a bar and prospects 50 feet deep. Wilson and party are prospecting on Willow creek, three miles from Pilgrim Bar, and get two to three cents per pan.

WASHINGTON GULCH.—Cor. of same: We have but a far supply of water. The gulch yet pays from \$3 to 20 a day to the hand, when water can be had. The Delany boys are making good wages. Michael Harrison and Jack Milgrave work eighteen out of the twenty-four hours. The Kaneek brothers and Brian O'Neil have ground enough piped off now to keep ten men cleaning bed-rock for the season. The next company, Bill Reid, John Ryan, John Counners and Ned Doran, are cleaning bed-rock. Their first clean-up, four men, three days' work, was \$500; their next, four men, seven days' work, \$900. John Ferris is cleaning bed-rock with three men. His first clean-up for four days was \$700; the next six days, three men, was \$1,100. Nic. Barrens has finished piping off, and is going to commence to clean bed-rock. The Matt Grayson and James Ferris claim has created the greatest excitement yet. Mr. Ferris stated that after working with the hydraulic a few days, the water being turned off one morning, he and Pat. Williams picked up, in about ten minutes, \$1,300; one piece weighing \$106. He has now commenced cleaning bed-rock, and has picked up another piece still larger, weighing \$210.

UPPER RACE TRACK DITCH.—*New North-West*, July 8th: This is now completed six miles. The capacity is 1,700 to 2,000 inches. It is believed that when it is finished, the region will be as good as Pilgrim Bar.

GOLD DUST.—The receipts of gold dust have been largely in excess of any previous week, and from the cloostat estimate we can make will aggregate over 6,000 ozs.—nearly \$120,000—a large proportion being exchanged for currency. The stringency that has been felt here for the past year is clearing up.

CEDAR CREEK.—A tunnel penetrates hill claim No. 58 above discovery, Barratt district, and pays from \$90 to \$110 to a set of timbers, six-foot cap. No. 66 above, in the same district, has three feet of pay gravel, which averages 75 cents to the pan. The stampede out of Cedar has altered

somewhat. Prospectors from the St. Regis Borgia river have returned, reporting just gold enough not to pay. McWhirk, Warren & Co., 52 to 55 above discovery, cleaned up last week, five day's run, \$612. Two nuggets, \$39 and \$25, were the largest pieces in the clean-up. Prospect Gulch is the only paying tributary of Trout creek.

Nevada.

COPE DISTRICT.

ITEMS.—Elko Independent, 13th: Since Saturday, Wells, Fargo & Co. have received \$2,000 bullion from Cops.... This Galena mine at Lone Mountain is developing into a valuable property.... Walbridge & Presson commenced taking down their 5-stamp mill at Silver City, Idaho, on Wednesday, for the purpose of removing it to Mountain City, to crush ore from the Monitor mine.... Same of 16th: Whitney & Co. yesterday shipped to Reno from the Porter mine, Bull Run district, 141 sacks of ore, weighing 12,683 pounds.... Bullion received by Wells, Fargo & Co., from Cope, in this last three days, \$2,143.

HUMBOLDT.

PLACER MINES.—Register, 16th: We understand that a number of men are engaged in placer mining on Rehol and Willow creeks in the northern part of this county, 50 miles from Winnemucca.

ONEIDA.—Silver State, 15th: The smelting works are under full blast. The Rochester mine, in Sacramento district, has closed for a time.

BUENA VISTA.—Jack Cavanaugh has struck a body of fine looking ore near Unionville. Several new mines have had work commenced upon them within the last week. All look well as far as worked.

BATTLE MOUNTAIN.—The English Co., in Copper Cañon, have 26 men constantly at work underground, and are shipping 100 tons of copper ore, monthly, to England. The ore ranges from 30 to 90 per cent. copper.... Mr. Emerson is owner of some fine copper mines, in this same neighborhood.... The Bryer Bros. have contracted with the owners of the International, to sink a shaft 110 feet, for half their ground.... The Cherokee mine is turning out splendid mineral.... The Avalanche has just struck some of the finest Galena ore ever discovered in the district—at the depth of 40 feet, when the water rushed in in such quantities as to compel them to leave. The owners have leased the mine for one year to Mr. Waddleigh from San Francisco; he paying \$20 per ton for all the ore taken from the dump, and guaranteeing to sink the shaft 125 feet.

WASHOE.

CHOLLAR POTOSI.—Gold Hill News, 16th: Daily yield 230 tons, assays averaging \$60. The ore-producing sections are showing improvement, both in quantity and quality. The Annual Report, just published, gives the profit at \$420,000. The cost of working has been reduced, and the yield increased.

OVERMAN.—Annual Report shows total receipts \$531,000, and expense \$517,000. Receipts for June, \$18,700.

YELLOW JACKET.—Daily yield 350 tons, of which 200 is from the upper levels, and the balance from the rich section between the 800 and 900-foot levels. The prospects for developing new and valuable bodies of ore shortly are good.

HALE & NORCROSS.—Daily yield, 250 tons, principally from the 7th or lowest level. Work has been carried north to the Savage line, in good ore all the way except the last 30 feet.

SAVAGE.—There appears to be little prospect for finding any new and good bodies of ore except near the Hale & Norcross line at the lowest levels.

IMPERIAL-EMPIRE.—The shaft is now 1,230 feet deep, and sinking progresses slowly, owing to the hardness of the rock and trouble from water. The winze connection gives excellent circulation of air.

OPHIR.—The southwest drift, No. 2, has cut into promising ledge matter, but the rock being hard, it was thought advisable to hack out and drift south.

WHITE PINE.

REVIEW.—The News of 17th gives figures to show the importance to the mining interest of separating works on the ground. It reports "increased activity in the principal free metal ledges on the Hill, and an enhanced feeling of improved times among the miners themselves."

ITEMS.—The Original Hidden Treasure has a larger force than for some time, in order to fulfil previous contracts to furnish rock for mills.... The Silver Wedge and Silver Wave—or the Hidden Treasure Extension, as they are now consolidated—are taking out ore of fair quality.... The Philadelphia Co. is working the Wabash and Hemlock; and the Anchor Consolidated is running into encouraging ore.... In the

Base Metal Range the Trench mine looks fine. The Maggie Consolidated Tunnel, on the eastern slope of White Pine Mountain, is nearly into the body of ore sunk upon from the Golconda shaft. The mines west of Sawmill Cañon are progressing, and good ore continues to be sent to the smelting works. The Jennie A Consolidated is lively.... In Blue Hill work goes on.... Two mines have been opened with encouraging prospects, on the Illapah side of Momomoke Mountain. In one a shaft has been sunk 25 feet, and assays have run as high as \$60.

SMELTING WORKS.—The Eagle furnace at Swansea is doing splendidly on ores from a variety of mines. A run of 18½ tons yielded \$242 per ton in silver, exclusive of the lead. The White Pine Works, have met with a legal obstruction raised by a part of the company itself. The Weiland runs right along, and when we last heard from this Rathburn, it was in full blast. The Alsop will fire up shortly.

BULLION.—The amount of fine bullion forwarded by Wells, Fargo & Co. during the week was \$32,773.22—\$20,783.08 to the East, and \$11,990.14 to the West. Of this \$6,452.55 came from Reville.

OUTSIDE DISTRICTS.—Some 5,100 ounces amalgam from Reville, the product of the first run of six days, made by the New York Co., which recently purchased the property, yielded, at Van Wyck's in Hamilton, five bars, worth \$6,452. The ore was chiefly from the Spy mine.... Jos. Williams, on a newly discovered 6-foot ledge in Reville, sunk sight feet through \$100-ore all the way.... Everything is lovely at Pinto, and the prospects never were more flattering. A number of mines have recently changed hands. The Nevada Land & Mining Co., of English capitalists, is opening the Champion mine, which is believed to be as good as the Maryland. The latter is shipping ore regularly. Governor Bladell has purchased the water power of Piute creek, and intends to erect furnaces and a mill.... The negotiations to consolidate a large amount of mining property and the Buel Furnace into one company at Eureka have been finally accomplished. The consideration was \$100,000. The Eureka Consolidated Co. is now composed of D. E. Buel, I. Bateman, Wm. M. Lent, George Heart, Wm. Thompson, Gen. G. S. Dodge and Major Conley.

Telegram. Hamilton, July 18th: Ex-Governor Mattison, of Illinois, broke ground this morning for large smelting operations in base ores.

New Mexico.

THE NEW MINES.—Cor. of Santa Fé Post, July 9th: The miners' meeting, on June 11th, threw open to re-location all the paper claims, and a number have been taken up.

ELIZABETHTOWN.—Cor. of same: There is now 250 inches of water in the big ditch. The branch ditch will be finished Saturday, then several claims in Little Negro and Michigan Gulches will go to work. The machinery and cars for the tramway for the Chester lode arrived a day or two ago.

The Press and Telegraph gives part of a letter dated Rio Membras, June 11th: "I have been to a new district, Silver Flat, 10 miles southwest of Pinos Altos. I am here for an outfit, and shall start back here to-morrow. I saw over an ounce of silver taken from four ounces of rock. The extent of the ore is immense. Nothing doing at Ralston."

Mr. Lynch informs the Press and Telegraph that "the California company that own immense interests in that region, have, as yet, expended but little in the development of their mines, and have no machinery on the grounds."

The rolling stock of the Chester proves too heavy, and therefore useless. About 200 feet of the wire rope was apolied by the careless Mexican drivers.

Utah.

BRIGHAM CANON.—Salt Lake Tribune, July 16th: The richest leads so far are in Ophir Hill, on the north side of the creek. The ore is argentiferous galena, and has assayed from 22 to 150 ounces silver and from 30 to 75 per cent. lead to the ton. J. W. Cooley and Harrison Severe, of Grantsville, have a lead which they said had assayed as high as \$1,500 in silver to the ton; but the piece was probably a choice specimen. The Lincoln, ore at a depth of 25 feet, assayed 73 per cent. lead and \$90 silver to the ton. The croppings of the Fairview gave over 60 per cent. lead and 31 ounces silver to the ton, with a ledge 14 feet wide. In Dry cañon, three miles to the north, very rich discoveries have been made. Work is being pushed forward with vigor. The great drawback is the lack of water.

The Grain Market.

The wheat now being harvested will be somewhat less in quantity, but better in quality, than the year preceding. The increase in prices, however, will probably more than make up for loss in quantity. Now that the war in Europe is a settled fact, the grain market must keep up, and if it lasts any considerable length of time, high figures will be reached, and very high figures if other nations than France and Germany become involved.

The opening prices of wheat this present year in this city was \$1.70@\$.1.90 per cental, against \$1.60@\$.1.80 at the opening of the previous year. Freight to Liverpool are a trifle lower than last year.

The excitments of the Liverpool, New York and Chicago markets, growing out of the French government purchases, some five or six weeks since, met with a prompt response in San Francisco. The advance at that time in Liverpool was from 10s. on the 21 of June, to 10s. 6d. on the 11th, at which figure it remained until the 16th, when a further advance to 10s 11d. was reached on the 21st. From that time to July 10th there was a gradual decline to 10s. 31., when the European complications being such as to render war imminent, wheat again commenced to advance, reaching 11s. on Saturday last, the day after war was declared. Since that date the advances has been as follows: Monday, the 18th, 12s.; Tuesday, 12s.; Wednesday, 12s. 3d.; Thursday, the latest date previous to our going to press, 12s.

In this State farmers and other holders have become so much slated by the above advances as to be utterly unfit or disinclined for business. Not being disposed to sell on a rising market, transactions for the past week have been confined to small lots, for local milling, for which from \$1.95 to \$2 is being paid for new, and \$2 @\$.2.10 for old. Shippers say that they are paying only \$1.85@\$.1.90, asserting that English orders are no better than before the excitement commenced. No large purchases will probably be made until the war status is well understood. The wheat now loading is from purchases made before the advance.

Mining Shareholders' Directory—Meetings, Assessments and Dividends.

[Compiled weekly from advertisements in the Scientific Press and other San Francisco journals.]

ASSESSMENTS.			
NAME, LOCATION, AMOUNT AND DATE OF ASSESSMENT.	DELINQUENT.	OF SALE.	DAY
American, G. H., June 13, \$3.....	July 18—Aug. 6		
Aurora Cons. W. P., July 7, \$5.....	Aug. 10—Sept. 1		
Alpha Cons. G. H., July 13, \$1.....	Aug. 22—Sept. 20		
Belcher, G. H., June 8, \$4.....	July 11—July 30		
Cosala, Mexico, June 2, \$1.....	July 7—July 27		
Cardilla, Mexico, June 10, \$1.....	July 9—Aug. 17		
Cherokee Flat, B. G., June 17, \$5.....	July 19—Aug. 9		
Cons. Virginia, Storey, July 6, \$1.....	Aug. 10—Sept. 1		
Daney, Lyon co., July 8, \$1.50.....	Aug. 11—Aug. 30		
Excelsior, Argentina, June 22, 20c.....	July 30—Aug. 20		
Evening Star, No. 1, W. P., June 4, 5c.....	Aug. 4—Aug. 24		
Featherstone, W. P., June 14, 20c.....	July 20—Aug. 11		
Gould & Curry, July 14, \$12.50.....	Aug. 18—Sept. 8		
Hall & Van Dyke Cons., June 7, 50c.....	July 23—Aug. 20		
Jennie A. Cons., W. P., June 20, 10c.....	July 25—Aug. 15		
Latawana, W. P., June 2, 15c.....	July 14—Aug. 6		
Mountain City, Elko co., July 14, 25c.....	Aug. 29—Sept. 26		
Nooudey, W. P., July 20, 20c.....	Aug. 21—Sept. 30		
Novade L. & M. W. P., July 12, 1c.....	Aug. 11—Aug. 29		
N. Bloomfield Gravel, June 20, \$5.....	July 23—Aug. 23		
North America Cons., June 10, 5c.....	Aug. 17—Sept. 7		
Oriental, Sierra co., July 7, 25c.....	Aug. 9—Aug. 30		
Pogonip Flat, W. P., June 16, 3c.....	Aug. 2—Aug. 18		
Placer G. & C. Placer co., June 11, \$2.....	July 26—Aug. 16		
Silver Vault T. & M., W. P., July 20, 5c.....	Aug. 25—Sept. 15		
Sophia Cons. 50c.....	July 27—Aug. 16		
Wheeler, Pine Grove, June 28, 50c.....	July 30—Aug. 20		
MEETINGS TO BE HELD.			
Columbus.....	Annual Meeting Aug. 1		
Globe.....	Annual Meeting Aug. 2		
Ida Elmore.....	Annual Meeting Aug. 1		
Maxwell.....	Annual Meeting Aug. 4		
Union.....	Annual Meeting Aug. 8		
White Pine Smelting.....	Annual Meeting July 28		
West Point.....	Annual Meeting July 28		
LATEST DIVIDENDS—(Within Three Months).			
Amador, div. \$10 per share.....	Payable April 7, 1870		
Eureka, div. \$7.50.....	Payable July 7, 1870		
Golden Rule, div. 50c.....	Payable March 26, 1870		
Hale & Norcross, div. \$6.....	Payable July 9, 1870		
Ida Elmore, div. \$1.....	Payable Dec. 14, 1869		
Kentuck, div. \$3.....	Payable Feb. 14, 1870		
North Star, div.....	Payable May 5, 1870		
San Marcial, div. 50c.....	Payable June 10, 1870		
Union, div. \$1.....	Payable July 7, 1870		
—Advertised in this journal			

ORE FORWARD.—Four big teams, loaded with Leviathan ore, passed our windows to-day, outward bound. This is a trial lot of ten tons or so sent out to a quartz mill in Dayton to be used in working Comstock ores, in lieu of sulphate of copper, now used.—Alpine Miner.

San Francisco Mining Stock Market.

During the week under review the bulk of the sales were confined to Savage, Yellow Jacket, and Original Hidden Treasure, while the general list exhibits a recession from the opening rates of the week. There is not as much vitality apparent during the last month and more as a legitimate dealer would desire, and for the alleged reason that mines are not now managed in the interest of shareholders, but in the interest of mill-owners. As will be seen by the bullion tables published herewith, the receipts are quite fair; but when we look at the heavy assessments levied by the various companies it cannot be concealed that the combined expenses, in most instances, far exceed the receipts, and with most of the Comstock mines in this condition we cannot expect to have a very healthy market. In some instances ore are reduced that actually do not cover the expenses of milling alone. A few mines, it is true, are paying dividends, and the prospects of several others are very fair; nevertheless, the depression is very general.

CHOLLAR POTOSI—has been well maintained during the week under review, sales being fully as large as the previous week. During the six days ending July 15th, 1,730 tons of ore were extracted, against 1,370 tons the previous week. The sample assay value is \$62.36, against \$64.20 per ton. The various faces throughout the mine from which ore is being extracted, have fully maintained their previous good appearance, while the number of tons extracted has been materially increased. The Belvidere section, at the south end of the 18th and track floors, shows considerable improvement in quantity of ore, and the quality remains about the same. At the new shaft, the south drift from the top of the mine has improved, and is said to look favorable for finding good ore soon. On the 19th inst., \$54,306 in bullion was sent forward to the office in this city.

HALE AND NORCROSS—sold to a moderate extent, at a lessened price. During the week ending July 16th, they extracted as follows: from 175 level, 313½ tons; 300 level, 150; 535 level, 68½; and from the 7th station level, 1,097½ tons, making 1,633½ tons, against 468 tons the previous week. They have on hand in the dumps 4,023½ tons. The winze below the seventh level is now down 50 feet, and the quality of the ore is reported to be good. As yet they are but little troubled by the water. The ore breasts on this lower level look favorable at present.

IMPERIAL—obtained a uniform price during the past week, On the 19th inst. they experienced a little change in the bottom of the shaft, and has at least given them better ground for sinking. The Superintendent reports a vein making in on the east side, which seems to be pitching west about 45 degrees. No change to note in the cross-cut. They started another cut east, and will soon start a cut about fifty feet up the winze.

YELLOW JACKET—has been taking quite a sharp downward turn in the open market. By telegraph from Virginia City the following figures are obtained from the Superintendent's annual report: Product of the mine, \$1,779,227; receipts from assessments, \$528,000—total receipts, \$2,307,227. Indebtedness, July 1, 1869, \$305,605; expenditure during the year, \$1,722,725; balance on hand July 1, 1870, \$278,897, as follows: On deposit, \$119,609; due on railroad account, \$129,056; supplies on hand and paid for, \$30,232—\$278,897, and to balance debit side adds up \$2,307,227.

KENTUCK—has been dull of sale. For the week ending July 16th, 146 tons of ore were extracted, showing an assay value of \$1,637.10, equal to \$11.21 per ton. On the 80-level quite an improvement is said to be visible. A stratum of ore about four feet wide has been cut, which promises to yield say \$20 to the ton, and may reach to the surface. Quite a large amount of ore is known to exist on and above the 600-level, and a large number of workmen have been unsuccessfully attempting to reach the ore. A raise is now being made from the track floor of the 700-level to connect with the drift from the Kentuck shaft on the 600-level of the burning section, and if this can be done, they expect to get at the smouldering timbers, and so reach the ore bodies.

CROWN POINT—sold to a larger extent than last week, but at a lessened figure. During the week ending July 15th, 351½ tons of ore were extracted, valued at \$4,595.47, or \$13.07 per ton. On the 16th inst. the incline was 146 feet in depth below the 1,000 level, and the quartz encountered is very hard, but is said to show signs of improvement. The prospecting in the old "wet workings" has not yet developed any new bodies. The water in the 1,100 level "makes" so fast that the pump has to be kept constantly at work. On the 18th sent forward \$6,431.54 in bullion.

SIERRA NEVADA—was in the market to a considerable extent at slightly improved rates. For the run ending July 15th, 400 tons of ore were taken from the ledge and 390½ from the gravel deposits. On the 18th bullion to the extent of \$9,000 was sent to the office in this city. OCCIDENTAL levied an assessment of \$5 per share on the 15th inst. GOULD & CURRY rapidly declined during the week, but at the close had more than regained the decline, under very considerable sales. For the week ending July 18th they extracted 236 tons of ore, showing an average assay value of \$32.60 per ton. No favorable developments have been made during the past week in any portion of the mine. An assessment of \$12.50 per share was levied on the 14th inst.

DURING a heavy rain-storm on the 12th inst., a freshet damaged farms and crops to a great extent in the vicinity of St. George in Utah.

THE Vallejo City water-works, to cost \$250,000, will, after next December, supply 3,000,000 gallons daily.

THE artesian well for the water works at Stockton has been completed. It is 136 feet deep.

Farming and Gardening.

COMMUNICATIONS for this department are solicited from all parts of the Pacific States and Territories.

THE CABBAGE FLEA, whose ravages upon the cabbage plants in Nevada and other localities was noticed last week in the first column under our agricultural head, is doing much damage the present season in the vicinity of New York. In past years its depredations have been chiefly confined to the young plant, when just coming leaf; but this year it has attacked full grown plants, so as to either destroy them in great numbers, or seriously affect their growth. Instances are noticed where they have even attacked old stumps set out for seed; eating off the leaves so fast as they were developed, and thus preventing the production of seed.

The remedies applied are those usually employed to destroy plant lice, such as strong tobacco water, a solution of soft soap, etc. Lime and dry earth applied as described on page 42 of our last issue would no doubt be quite efficacious.

ORANGES FROM LOS ANGELES.—The cultivation of oranges in Los Angeles is rapidly increasing. In 1868 there were 724,450 oranges and 91,500 lemons shipped to this city. In 1869 the orange crop fell off to 334,200, but the shipment of lemons increased to 111,000. Thus far this year 2,540,000 oranges and 181,000 lemons have been received here, and at least one more considerable shipment is expected.

Our importations of fruit from Tahiti during the first six months of the present year have been 3,302,000 oranges, 265,000 limes and 53,250 coconuts. At the present rate of increase in Los Angeles we may expect that importations of oranges from abroad will very near or quite cease in a year or two, while the competition among home producers will materially decrease the present price of this fruit.

CULTIVATING THE POPPY.—The Lower Lake *Bulletin* says that a Frenchman in Lake county, Mr. Guillardon, has thirteen acres of land planted with the poppy, which now presents a beautiful appearance, with its red and white flowers, in fullest bloom. We presume Mr. G. cultivates for the opium as well as for the oil, which is extracted from the seed; although the *Bulletin* makes particular mention of the latter, while no reference is made to the former and most important product. A most excellent salad oil is extracted from the poppy seed. This experiment in the cultivation of the poppy, on so large a scale, is a very important one, and we shall endeavor to report the result of the same for the benefit of our readers.

CORN ROOTS SIX FEET DEEP.—A gentleman stated at a late meeting of the Farmer's Club of the American Institute, in New York, that a friend of his in digging a well recently traced corn roots to a depth of six feet. Of course deep plowing and a dry season did it. Corn is not naturally a deep-rooted plant; but when it is threatened with drouth if the farmer will only help it a little through or into the hard pan, it will make wonderful efforts to find moisture.

PERUVIAN BARK IN INDIA.—The English are cultivating in India the plant which produces the famous "Peruvian bark." There is an area of 965 acres at one locality, on which over 3,000,000 plants are growing. The plant grows to a height of 15 to 20 feet. Might not this plant be successfully cultivated in the southern portion of California?

THE CATTLE DISEASE.—Mr. Bookstaver, the City Market Inspector, publishes a card in which he says he can find no ground for the statement of Mr. Imbourg, that a disease exists among the cattle which are now furnishing meat for this city.

Broadcast Sowing.

We have already, in past numbers, endeavored to show the importance of a thorough mechanical preparation of the soil for the reception of grain seed. This is all the more necessary when dependence for support of the plant is sought for from the natural fertilizing elements in the soil, rather than from the addition thereto of artificial or extraneous fertilizers.

Experience in this and in every other region has abundantly proven that lands well and deeply pulverized (when deep plowing is at all applicable) withstand drouths much better than when they are subjected to imperfect preparation or shallow tillage. In fact, a favorable season does but little more in producing a good crop than does thorough mechanical culti-

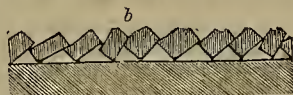


FIG. 1—IRREGULARLY-PLOWED FURROW SLICES.

vation in an ordinary one. But our object in the present article is more particularly to show

How the Seed Should be Placed in the Soil.

We have heretofore shown the results of placing it in soil too wet and too dry; we have also alluded to the advantages and disadvantages of deep and shallow sowing. No general rule universally applicable can be given for the depth at which seed should be placed in the ground. Grain seeds in a moist, heavy soil usually germinate most surely when sown at a depth of not exceeding one to three inches; but in light porous soils, they will do better at a greater depth, say from three to five inches, or even more.

Prof. Newberry says that the Moqui Indians who cultivate the table lands of the higher Colorado are obliged to deposit



FIG. 2—IRREGULAR DEPOSITION OF SEEDS.

the seed of corn from twelve to fourteen inches below the surface. Corn or wheat planted in that soil and climate, at the depth usually employed here and in the Western States, would never germinate, for the reason that the country is almost without rain, while but very little dew falls. It is at a depth of a foot or more that moisture sufficient for germination can there be found. Hence, in sowing or planting, reference must be had not only to the character of the soil, but also to the kind of weather which is expected during the period of germination.

Seed Should be Sown at Regular Depths

Whatever depth may be decided upon for sowing, it should be uniform throughout the field, or at least on such portions of the field as are uniform in soil and moisture. The disadvantages arising from sowing at irregular depth are strikingly and faithfully shown by the figures 2 and



FIG. 3—IRREGULAR GROWTH FROM IRREGULAR SOWING.

3, herewith given; while a not uncommon cause of irregular depths of sowing may be understood by an examination of Fig. 1, with the accompanying explanation.

Fig. 1 shows a section of an irregular, ill-plowed field. It is evident that grain sowed upon a field so plowed cannot be evenly covered or spread. In some places the seed will work down into the air spaces below the furrow; while in other places, as

b, in Fig. 1, it will be barely covered. Harrowing the land previous to sowing, as is usually done, cannot fully remedy the defects of bad plowing; for even if the surface is made even, it is impossible to properly cover, with merely the action of the harrow; and the after assistance of a roller or surface mould will still leave the work imperfect. Smooth the ground, as evenly as possible, still much of the seed, after harrowing, will be left upon or near the surface, while more or less will slide into the ruts after the tines of the harrow, and be buried at twice or thrice the depth of that which has the least covering.

Fig. 2 shows the positions which the seed will assume after such covering; while Figs. 3 exhibits the growth consequent upon the same.

We have already, in previous numbers, shown the disadvantage of uneven growth in a field of grain. If a portion of ground, as at a, in Figs. 2 and 3, is planted shallow, and the season and soil is such as to allow of such shallow depth giving a vigorous plant, those plants will completely overshadow and greatly retard the growth of the deeper covered seeds, as at b, in the same figures. The consequence will be that the less vigorous plants will merely cumber the ground, taking away, so long as they grow, nourishment from a, and come to nothing in the end—as they will either produce a small, shriveled, imperfect grain, which will be rejected by the separator, or the plant will cease growing before the seed is formed. Every cultivator knows that if his crop does not mature alike, the grain cannot be alike in the sample. Hence the importance of good plowing and uniform covering. We shall continue this subject next week, with further illustrations.

ORCHARDS AND POULTRY.—An experienced orchardist says: "The public has yet to learn the full advantage of keeping poultry. Few seem to appreciate what they may do among trees in an orchard of a quarter of an acre, where they may be kept by a picket fence four or five feet high, putting in about one hundred and twenty five fowls, and observe the result. He will avoid the annoyance in the garden, of which so many complain, while they will work among the trees, doing just what is needed; keeping the ground well cultivated and destroying everything that can injure the fruit trees in shape of bugs, worms or other insects, lay a large number of eggs, which are a cash article, to say nothing of the chickens, which will pay for raising at the present time. I have tried it, and know it to be so."

Some valuable hints on orchards will be found in Mr. Greelsy's No. 27 on "What I Know of Farming," which will be found in another column of our present issue.

TO REMOVE MOTES AND CHAFF FROM THE EYE.—M. Tinkham, St. Louis, Kansas.—Calomel is one of the very best remedies for motes or chaff in the eye of horses or cattle. I had a cow that got an oat chaff on her eye-ball which resisted all efforts at removal. Her eye became so swollen she could not open it, and a white film had begun to grow upon the ball. I was speaking to one of my neighbors about it; he recommended the above remedy, which I applied, blowing it into the eye with a goose-quill, about the bulk of a grain of wheat. Twenty-four hours after, no one would have supposed anything had ever ailed the eye. I know of other instances where it has been used with equal success.—*Exchange.*

BAULKY HORSES.—A Maine man gives his method of treating baulky horses as follows: "Let me inform humane men and hostlers, and all who hold the rein, that the way to cure baulky horses is to take them from the carriage and whirl them rapidly around till they are giddy. It requires two men to accomplish this—one at the horse's tail. Don't let him step out. Hold him to the smallest possible circle. One dose will often cure, but two are final with the worst horse that ever refused to stir."

POTATOES.—Mr. Hexamer has growing upon his farm near New York more than 200 varieties of potatoes.

Our Late Horticultural Visitors.

Our late horticultural visitors from the East, who left Wednesday morning on the train, homeward bound, have expressed themselves much pleased with their visit. They have avoided all ovations, but have constantly received the favors of friends. Of this party, Mr. Charles Downing, brother of the late lamented A. J. Downing, is now well known as the author of a revised edition of his brother's work, entitled "Fruit and Fruit Trees of America," a new edition of which has just been published. This is a magnificent book of 1,100 pages, and, in the words of Marshall P. Wilder, "constitutes an encyclopedia of American pomology." He was a partner in the nursery with his brother when the latter wrote this first book. Mr. Downing is sixty years of age, and has devoted a lifetime of study and labor to this noble work. Two of the other gentlemen, Messrs. Ellwanger and Barry, of Rochester, N. Y., have the largest nurseries in the world. While the largest one in Europe is 400 acres, this covers 600 acres, and constantly employs 200 men. Mr. Barry succeeded A. J. Downing as editor of *The Horticulturist*. He is chairman of the General Fruit Committee of the American Pomological Society. He is also author of a book—"The Fruit Garden."

It was my good fortune to meet this party of gentlemen, and to enjoy

An Interview with President Wilder.

It is a pleasure to fall in company with a worthy gentleman who has earned a reputation and a fame by energetic devotion to a good cause; and it was a real pleasure to me to spend a half hour in earnest conversation with the pioneer President of the American Pomological Society, the Hon. Marshall P. Wilder. Although venerable with the imprint of years, his face beamed with the frank enthusiasm of youth when he spoke of the wonders he had seen in his journeyings among the farms and orchards in this State; the prodigious growth of vegetation, almost tropical in its luxuriance, on moist river bottoms and irrigated tracts; the effect of soil and climate, of mountain and valley, of sea breezes and interior drying winds; the immense grain fields upon the plains of our vast valleys; the grand mountains with their forests of evergreens; the plants that are so delicate in the green-houses of the East here lavishing a profusion of foliage and flowers in the open gardens, and the elegant ornamental trees—natives of far-off southern climes—flourishing under our bright skies; and not the least interesting of all, the fruit trees and the fruits of California!

Mr. Wilder had expected to find a grand and generous country; but the vague conception of it which he had formed from his surroundings in the East were so completely bewildered by the startling reality that he admitted he was surprised and delighted continually. The half had not been told, and imagination must yield the palm to reality.

He considers this country incomparable. The rapid growth and early and prolific bearing of the trees are remarkable, while the fruit is free from injurious insects, and is greatly superior in size and beauty to that of the East.

A Second Visit Promised.

I called his attention to the desire of the Oregonians, as expressed through the journals of that State, to secure a visit from the party, and inquired if he designed visiting Oregon. He regretted that he could not this season; but he expects to revisit this coast another year, when he hopes to be able to travel more extensively and include that State. This, I know, will be received as good news by our culturists, for we needed to be better understood by our Eastern friends; and more than that, we need the instruction and the system which such influence can best bring to us. While our visitors appreciate our natural advantages, we must not suppose them blind to defects and careless ways, nor to the many grinding evils that greed and speculation have brought upon us.

S. H. HERRING.

FLAX IN OREGON.—The Willamette Farmer says that a large warehouse is being fitted up in Salem to receive the incoming flax crop of Linn county.

What I Know of Farming—No. 27.

Peaches—Pears—Cherries—Grapes.

Our harsh, capricious climate north of the latitudes of Philadelphia, Cincinnati and St. Louis—so much severer than that of corresponding latitudes in Europe—is unfavorable, or at least very trying, to all the more delicate and luscious fruits, berries excepted. Except on our Pacific coast, of which the winter temperature is at least ten degrees milder than that of the Atlantic, the finer peaches and grapes are grown with difficulty north of the fortieth degree of latitude, save in a few specially favored localities, whereof the southern shore of Lake Erie is most noted, though part of that of Lake Ontario and of the west coast of Lake Michigan are likewise well adapted to the peach.

It is not the mere fact that the mercury in Fahrenheit's thermometer sometimes ranges below zero, and the earth is deeply frozen, but the suddenness with which such rigor succeeds and is succeeded by a temperature above the freezing point, that proves so inhospitable to the most valued tree fruits. And, as the dense forests which formerly clothed the Alleghanies and the Atlantic slope, are year by year swept away, the severity of our "cold snaps" and the celerity with which they appear and disappear are constantly aggravated. A change of 60°, or from 50 above to 10 below zero, between morning and the following midnight, soon followed by an equally rapid return to an average November temperature, often proves fatal even to hardy forest-trees. I have had the red cedar in my woods killed by scores during an open, capricious winter; and my observation indicates the warmest spots in a forest as those where trees are most likely to be thus destroyed. After an Arctic night, in which they are frozen solid, a bright sun sends its rays into the warmest nooks, whence the wind is excluded, and wholly or partially thaws out the smaller trees, which are suddenly frozen solid again so soon as the sunshine is withdrawn; and this partly explains to my mind the fact that peach-buds are often killed in lower and level portions of an orchard, while they retain their vitality on the hill side and at its crest not 80 rods distant from those destroyed. The fact that the colder air descends into and remains in the valleys of a rolling district contributes also to the correct explanation of a phenomenon which has puzzled some observers.

Unless in a favored locality, it seems to me inadvisable for a farmer who expects to thrive mainly by the production of grain and cattle, to attempt the growing of the finer fruits, except for the use of his own family. In a majority of cases, a multiplicity of cares and labors precludes his giving to his peaches and grapes, his plums and quinces, the seasonable and persistent attention which they absolutely require. Quite commonly, a farmer visits a grand nursery, sees with admiration its trees and vines loaded with the most luscious fruits, and rashly infers that he has only to buy a good stock of like trees and vines to insure himself an abundance of delicious fruits. So he buys and sets, but with no such preparation of the soil, and no such care to keep it mellow and free from weeds, or to baffle and destroy predatory insects, as the nurseryman employs. Hence the utter disappointments of his hopes; borers, slugs, caterpillars, and every known or unknown species of insect enemies, prey upon his neglected favorites. At intervals, some domestic animal or animals get among them, and break a dozen down in an hour. So, the far greater number come to grief, without having had one fair chance to show what they could do, and the farmer jumps to the conclusion, that the nurseryman was a swindler, and the trees he sells scarcely related to those whose abundant and excellent fruits tempted him to buy. I counsel every farmer to consider thoughtfully the treatment absolutely required for the production of the finer fruits before he allows a nurseryman to make a bill against him, and not expect to grow Dutchess pears as easily as blackberries, or Ionas and Catawbas as readily as he does fox-grapes or the wilows which overhang his brook; for if he does he will surely be disappointed.

Some of our hardier and coarser grapes—the Concord preëminent among them—are grown with considerable facility over a wide extent of our country; and many farmers, having planted them in congenial soil, and tended them well throughout their infancy, are rewarded by a bounteous product of two or three years. Believing their success assured, they imagine that their vines may henceforth be neglected, and in the course of two or three more

years they are often utterly ruined. I know that there are wild grapes of some value, in the absence of better, which thrive and bear without attention; but I do not believe that any grape which will sell in a market where good fruit was ever seen can be grown north of Philadelphia but by constant care and labor, or at cost of less than five cents per pound, under the most judicious and skillful treatment. In California, and I presume in most of our States south of the Potomac and Ohio, choice grapes may be grown more abundantly and more cheaply. Yet I think the localities are few and far between in which a ton of good grapes can be grown as cheaply as a ton of wheat, under the most judicious cultivation in either case.

I do not mean to discourage grape-growing; on the contrary, I would have every farmer, even so far north as Vermont or Wisconsin, experiment cautiously with a dozen of the most promising varieties, including always the more hardy, in the hope of finding one or more adapted to his soil, and capable of enduring his climate. Even in France, the land of the vine, one farm will produce a grape which the very next will not; no man can satisfactorily say why. The farmer, who has tried half a dozen grapes, and failed with all, should not be deterred from further experiments; for the very next may prove a success. I would only say be moderate in your expectations and careful in your experiments; and never risk even \$100 on a vineyard, till you have ascertained, at a cost of \$5 or under, whether the species you are testing will thrive and bear on your soil.

In my own case, my upland mainly sloping to the west, with a hill rising directly south of it, I have had no luck with grapes, and I have wasted little time or means upon them. I have done enough to show that they can be grown, even in such a locality, but not to profit or satisfaction.

I would advise the farmer who proposes to grow pears, peaches, and quinces for home use only or mainly, to select a piece of dry, gravelly or sandy loam, underdrain it thoroughly, plow or trench it very deeply, and fertilize it generously, in good part with ashes and with leaf mold from his woods. Locate the pig-pen on one side of it, fence it strongly, and let the pigs have the run of it for a good portion of each year. In this plat or yard, plant half a dozen cherry and as many pear trees of choice varieties, the Bartlett foremost among them; keep clear of all dwarfs, and let your choicest trees have a chance to run under the pig-pen if they will. Plant here also, if your climate does not forbid, a dozen well-chosen peach trees, and two each year thereafter to replace those that will soon be dying; and give half a dozen quinces moist and rich locations by the side of your fences; surrounding each tree with stakes or pickets that will preclude too great familiarity on the part of the swine, and will not prevent a sharp scrutiny of borers in their season. Do not forget that a fruit-tree is like a cow tied to an immovable stake, from which you cannot continue to draw a pail of milk per day unless you carry her a liberal supply of food; and every fall, cart in half a dozen loads of muck from some convenient swamp or pond for your pigs to turn over. Should they leave any weeds, cut them with a scythe as often as they seem to need it; never allowing one to ripen seed. There may be easier and surer ways to obtain choice fruits, but this one commends itself to my judgment as not surpassed by any other.—*Horace Greeley.*

A NEW USE FOR WHISKY.—A Scotch correspondent of the *London Farmer's Chronicle* finds a use for whisky at once novel, interesting, and original. His apple and cherry trees had been greatly injured by blight, and every experiment to arrest the disease was unsuccessful. Finally he concluded to dose his trees with whisky. This he did in June 1869. The effect has been magical. No blight has since appeared. He also rid his plum trees of insects by the use of whisky; and he found it effectual in curing his dogs of mange. We believe it would cure sheep of the ecab. Great is whisky when used for proper purposes.

AN IMPROVEMENT IN HORSE COLLARS.—J. Trumbull Smith, a harness dealer in New York, has brought out a collar that is remarkable. It is made of linen pressed in as hard as horn and fully as tough—will outlast three or four leather collars, and he has found it to gall and blister less than a soft collar. It costs less and is made to order to fit a horse after measurement.

A Day Among the Nurseries at Oakland.

Oakland has a reputation for producing fine trees and plants, and a visit to the different nurseries is well repaid.

It would puzzle a professor to name any sort of superior fruit, or ornamental tree, or any vine, shrub, rose or flowering plant, that cannot be found in some one of the several Oakland nurseries; and whoever rambles about the town and observes the shaded streets and the elegant gardens and yards, filled with a rich profusion of various choice trees and plants, must admit that the nurseries do not lack for home patronage. Leaving the railroad depot at the corner of Seventh and Broadway, a short ride in the street cars will take you to the nearest one—

F. A. Hering's Nursery.

This place has been started within two years and is mainly devoted to the culture of greenhouse plants and ornamental trees of choice varieties, shrubbery, etc. The proprietor has imported a great variety of the finest sorts of plants from Germany, and aims to excel in producing the nicest and best of everything. It is interesting to follow him through the houses and grounds and observe the wonderful effects of careful training and culture. Mr. H. takes a pride in his business, and his plants are his pets. A few blocks further along on Telegraph avenue bring us to

W. F. Kelsey's Nurseries.

Established since 1852. The grounds first occupied have been laid out in streets, and divided into house lots, and much of it covered with fine residences. He has, however, reserved a few acres, laid out a nice park and built up some greenhouses here. These are in charge of Mr. Gustafson, a superior gardener, who has succeeded in obtaining and producing an extensive collection of plants, that will compare favorably with any other establishment. I may make especial mention of his assortment of Australian trees and plants that are adapted to California and are becoming favorites here. Mr. Kelsey's main nurseries, covering some twenty acres, are out near the Deaf and Dumb Asylum. There he has a very large and excellent assortment of fruit trees, in variety, also of deciduous ornamental trees. This is the principal fruit nursery in the place. Mr. Kelsey has issued a descriptive circular of fifty pages, which enumerates the principal varieties cultivated by him. This he will mail, postpaid, to any party who will inclose in a letter of application 20 cents. The work contains much valuable information in connection with the remarks. Nearly opposite to Mr. Kelsey's is

Hutchinson's Nursery.

This occupies three acres, and is devoted to the cultivation of ornamental trees and plants. Mr. H. has been established here three years. He has a large and fine lot of California evergreens. His greenhouses are well stocked with salable plants, and in his grounds he can show what wondrous three year growth can do for standard trees and plants in California. Mr. H. has a salesroom not far from the depot in Oakland, near Hutchinson's.

Mr. King's Nursery.

This is a new place, started this year. Greenhouse plants and evergreen trees and fancy shrubbery are the principal things started here. Mr. K. is carrying on only what business he can personally attend to, and his young place is interesting, mainly, in showing the progress that one man may make with little expense in so short a time. His fine showing is a success and quite creditable to him. I next visited

Noland's Botanical Gardens.

This well known place, so liberally laid out and supplied with standard specimens of so many kinds of trees and plants, is not only a beautiful resort, but it is a study as well. Evergreen and deciduous trees in variety from all parts of the world, apparently at home in the soil and climate of California, growing side by side with the luxuriance of nature; and then the shrubbery and vines and plants so numerous and fine. Mr. Noland's place occupies five acres.

He has several greenhouses, which he is using as propagating houses. He has a fine lot of bulbous and flowering plants;

but his speciality is evergreens. These he can furnish in great variety.

Close up to the hills near the new residence (now building) of J. Ross Browne is

Pryall's Nursery.

Mr. Pryall has quite a variety for a small place. His collection of roses is very fine. He has a lot of orange and lemon trees started, and thinks that the cultivation of these fruits will yet be a success in this section of country. He showed a fine lot of tea plants, the first that I have seen in this part of the State. These he values highly. Mr. Pryall is devoting much attention to hybridizing. He has produced some elegant roses in his experiments. His experiments with the potato is a triumph, and he is now devoting much attention to the cultivation and production of new varieties of this useful vegetable. He has already produced a sort superior to all others, and he believes it possible to bring this tuber to a degree of perfection not now dreamed of by others.

Mr. Pryall has written several interesting articles on the cultivation of the potato, as also other matters relating to this business—some of which have appeared in the columns of the *PRESS*. Anything like a detailed description of the nurseries of Oakland would fill a volume. To mention the names of ranches, etc., would be writing a long catalogue. My observations here are necessarily restricted to a few general remarks. The nurseries of Oakland are a credit to that beautiful town. The oaks that were the former glory of the place, are fast yielding to the inexorable necessities of encroaching business. Only such as are accidentally in line with sidewalks are being spared in the busy streets. But the magnificent shade trees of American, European and Australian forests, are fast finding place along the streets, and give a rare beauty to the many magnificent grounds around elegant residences.

S. H. HERRING.

COPPER-COLORED HOGS are being extensively introduced in the Atlantic States. They originated from two sources.—a cross with the Black Berkshire and Suffolk, and with the Berkshire and Chester County Whites. From a continued careful selection of the best specimens of these crosses for breeders, a perfectly amalgamated breed has been obtained, which is distinguished by its peculiar red or copper color. They are said to be a very superior animal—fully equal to any, either of the full or mixed breeds.

JOHN ON THE FARM.—Farmers in many parts of the State are compelled to employ Chinamen in harvesting, owing to the refusal of unemployed white men to leave this city for work, even when offered a good price therefor—at least what they, themselves, would consider a good price in this city.

San Francisco Market Rates.

Wholesale Prices.

THURSDAY EVENING, July 21, 1870.		
Flour, Extra, 48 lbs.	\$5 00	@ \$5 00
Do. Superior, 48 lbs.	5 50	@ 5 75
Coru Meal, 48 lbs.	2 25	@ 2 50
Wheat, 48 lbs.	1 50	@ 1 80
Oats, 48 lbs.	1 50	@ 1 80
Barley, 48 lbs.	1 15	@ 1 25
Seeds, 48 lbs.	1 15	@ 1 25
Potatoes, 48 lbs.	75	@ 1 15
Hay, 48 lbs.	3 00	@ 4 00
Grass, 48 lbs.	2 00	@ 4 00
Beef, extra, dressed, 48 lbs.	7	@ 12 1/2
Sheep, on foot, 48 lbs.	2 50	@ 3 00
Hogs, on foot, 48 lbs.	7 1/2	@ 8 1/2
Hogs, dressed, 48 lbs.	9	@ 10

GROCERIES, ETC.

Sugar, crushed, 48 lbs.	14	@ 14 1/2
Do. Hawaiian, 48 lbs.	8	@ 11 1/2
Co. Costa Rica, 48 lbs.	1	@ 19
Do. Rio, 48 lbs.	1	@ 19
Tea, Japan, 48 lbs.	75	@ 1 00
Do. Green, 48 lbs.	60	@ 1 25
Hawian Rice, 48 lbs.	8	@ 10
China Rice, 48 lbs.	6 1/2	@ 7 1/2
Coal Oil, 48 lbs.	40	@ 52
Candles, 48 lbs.	14	@ 17
Butter, 48 lbs.	20	@ 25
Ranch Butter, 48 lbs.	20	@ 25
Butter, 48 lbs.	20	@ 25
Eggs, 48 lbs.	15	@ 45
Lard, 48 lbs.	15 1/2	@ 16 1/2
Ham and Bacon, 48 lbs.	15 1/2	@ 16 1/2
Shoulders, 48 lbs.	9	@ 10

Retail Prices.

Butter, California, fresh, 48 lbs.	35	@ 40
Do. pickled, 48 lbs.	—	@ —
Do. Oregon, 48 lbs.	—	@ —
Onions, 48 lbs.	20	@ 25
Honey, 48 lbs.	25	@ 30
Eggs, 48 lbs.	40	@ 50
Onions, 48 lbs.	18	@ 20
Ham and Bacon, 48 lbs.	22	@ 25
Greenberries, 48 lbs.	1 00	@ 1 25
Potatoes, 48 lbs.	2	@ 3
Potatoes, sweet, 48 lbs.	50	@ 75
Tomatoes, 48 lbs.	2	@ 3
Onions, 48 lbs.	2	@ 3
Apples, 48 lbs.	4	@ 5
Pears, 48 lbs.	5	@ 6
Plums, dried, 48 lbs.	10	@ 12
Peaches, dried, 48 lbs.	10	@ 15
Grapes, 48 lbs.	10	@ 15
Lemons, 48 lbs.	—	@ 1 00
Chickens, 48 lbs.	75	@ 1 00
Turkeys, 48 lbs.	—	@ 25
Soap, Fale and Co., 48 lbs.	10	@ 12
Soap, Castile, 48 lbs.	15	@ 18

Scientific Press.

W. B. EWER.....SENIOR EDITOR.

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San Francisco:

Saturday Morning, July 23, 1870.

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Notices to Correspondents.

I. H. T., Visalia, Cal.—There is no ice-machine, to our knowledge, now at work on this coast. We hope, however, to be able to chronicle the successful operation of one or more in a short time. At New Orleans the Carré machine has proved a success, after considerable trouble at the commencement, producing ice which sold at \$4 per ton. A machine making 7,500 pounds of ice in 24 hours, costs from \$10,000 to \$12,000.

H. AND H., Humboldt City, Nevada.—A Diamond Drill, of the size you give, will cost from \$5,000 to \$10,000, according to the extent of country where it is to be used, and the style of machine required.

SANTA CRUZ FARMERS CLUB.—The proceedings of this association, at their meeting on the 16th inst., were received too late for insertion to-day. They will appear next week.

AN AGRICULTURAL DELEGATION.—Another and quite a large body of excursionists are now on their way to this State from the East. The party consists of some twenty-five writers and correspondents, who will represent all the leading agricultural papers of the Atlantic States. They come with the special view of looking into our agricultural resources and witnessing for themselves the wonderful evidences of the productiveness of California soil. It is to be hoped that they will meet with a cordial welcome, and receive every attention which the object and importance of their mission demands.

The party will include, among others, a special committee of the Farmers' Club of the American Institute, consisting of Dr. J. V. C. Smith, formerly Mayor of Boston. Mr. P. T. Quinn, the noted horticulturist, and Jas. A. Whitney, Professor of Agricultural Chemistry of the Institute, and associate editor of the *American Artisan*. Mr. Whitney comes also in the capacity of a mechanical engineer, and whatever of engineering or mechanical interest may fall under his observation during the trip will in due time be laid before the readers of the *Artisan*.

PROF. MARSH, of Yale College, heads a scientific expedition, which is among the Rocky Mountains. The party will visit this State, it is said, before returning home.

Securing the Interior Trade.

Before the completion of the Pacific Railroad, San Francisco merchants could sit quietly in their arm-chairs and wait for the interior trade to come to them; when, however, direct communication by rail was opened with the East and wide-awake Chicago came into the field, it behooved San Francisco to get up and shake itself.

There has been considerable feeling in the interior on account of the apparent apathy of our city, and this has resulted favorably to Chicago to some extent. We saw this ourselves last summer when traveling about the mines, and our correspondent (W. H. M.) has also alluded to the subject. The inland merchants have thought that if San Francisco was so careless about the matter and Chicago so ready and obliging, that Chicago should have their trade. And so far they acted perfectly naturally and justly.

We are glad to believe, however, that there is to be an end to this thing. The advantages of position, etc., are all in our favor, and our merchants are about to secure those advantages. The interests of the interior and of this city are intimately connected. We believe in this statement, and the PRESS has always sought to act for the benefit of the whole coast—not for San Francisco alone.

Some short time ago, a young man, Mr. M. S. Wehh, determined on taking active steps for securing the inland business. His plan was warmly seconded by prominent merchants here, and the result is that a party has gone to the interior on mercantile business. At Salt Lake they have been well received; the general tone of the newspapers there is favorable, and we hope that they may meet with success everywhere. The Central Pacific will aid in their plans, and the result will doubtless be for the benefit of the whole coast. The names of the party have been published elsewhere, but the enterprise of the gentlemen deserves a still wider publication, and so we give them here. They are: T. C. Merrill, Esq., of R. A. Swain & Co., importers of glassware and crockery; G. Reed, Esq., of Macdonay & Co., importers of teas; M. S. Wehh, Esq., of Marsh, Pillsbury & Co., importers of hardware; Wm. Reddington, Esq., of Reddington, Hostetter & Co., importers of drugs; H. Reese, of Heynemann & Co., importers of dry goods; G. W. Arms, Esq., of Arms & Dallam, woodenware manufacturers; C. H. Kingsley, Esq., of Greenbaum Bro's, manufacturers of clothing; R. S. Knight, Esq., of Chenery, Souther & Co., importers of liquors, etc.; M. Leventritt, Esq., of Rosentock, Price & Co., manufacturers of boots and shoes; J. M. Pike, Esq., of Weil & Co., importers and manufacturers of tobacco and cigars; G. B. May, Esq., of Goodwin & Co., manufacturers of furniture; J. H. Ham, Esq., of G. W. Clark & Co., importers of paper-hangings.

STATE UNIVERSITY SCHOOL.—We have received the catalogue of this flourishing institution, which is situated most pleasantly in our pleasant neighboring city of Oakland. Formerly known as the Oakland College School, its name was changed when the College of California became the University of California, as the former is in full sympathy with and a large contributor to the latter. This institution has always sustained a high reputation, of which it is still worthy. The names of 327 students show that its advantages are appreciated. The principal is F. M. Campbell, A. M., and all business communications should be addressed to Geo. Thit or S. T. King, Oakland.

FOR MONTANA.—Mr. L. Miner, an excellent and reliable business man, of this city, goes to Montana this week, and will represent the SCIENTIFIC PRESS for a short season in that Territory.

California Agricultural Notes.

STATE FAIR.—The managers of the State Agricultural Fair are making strenuous exertions to secure a superior exhibition this year—particularly of fine stock. To that end societies in the Eastern States are invited to coöperate, and bring hither improved horses, cattle, sheep, etc. Nothing could be devised better calculated to advance the stock interests of California. A full exhibition of improved stock would draw a large crowd of visitors to Sacramento, and secure a ready sale for the same.

RAPID GROWTH.—George Hohson, of Santa Clara, has a willow tree on his place 27½ inches in diameter, which he planted three years ago, a twig not larger than a pipe stem. The same gentleman last fall gathered 50 pounds of fine apples from a young apple tree which was set out in the spring of 1867. What country under the sun, asks the *Argus*, can heat this? There are seven-year old Australian gum trees in Los Angeles which are upwards of 60 feet high!

LONG LAMB'S WOOL.—Wool eight inches in length was clipped, a few days since, from a Cotswold lamb eight months old, and a sample eleven inches in length from one fourteen months old, both animals belonging to Mr. Thomas Brewer, of Lincoln. This is a very extraordinary growth; yet the *Butte Record* says it can be excelled by George Hamblin, of Dry creek, who has wool six inches long on a three-months' lamb.

THE CORN WORMS IN TULARE.—The corn in Tulare, according to the *Tulare Times*, is being much injured by worms, which enter the ear at any point at which they strike it, and eat out the grain. We believe no remedy has been found for this corn pest, which is so prevalent, generally, throughout California. The *Times* says that those who have wet land, and plant it late, generally escape the ravages of the worm.

GRAIN from the southern coast is coming rapidly forward, the harvest in that section being earlier than usual. The grain thus far received is in good order, and brighter than in previous years—a fact which is attributed to moderate rains, light fogs, and an early harvest.

THE olive crop promises everywhere to be abundant. Indeed, the olive is a never-failing crop, and always a profitable one. The manufacture of olive oil, in this State, promises to become an important one in the counties south of this city.

BROOM CORN.—Mr. Hamilton, two miles below Colusa, has a field of broom corn 80 acres in extent, which is already six and seven feet high. This is probably the largest field of broom corn in the State.

QUICK TRANSMISSION OF FRUIT.—Fruit picked and packed in the morning near Marysville, if shipped at 2.30 P. M., will arrive in this city, by rail, at 9 o'clock the next morning.

NORWAY OATS.—Large stories are told of the growth and promise in yield of Norway oats in this State and Oregon, the present season.

HONEY IN LOS ANGELES.—Several hundred tons of honey will be shipped to this city from Los Angeles county the present season.

THE hay crop, generally, throughout the State will be fully up to the average yield and quality the present season.

THE barley crop in the best districts of Los Angeles county is from forty to fifty bushels to the acre.

PREMIUMS to the amount of \$6,000 will be offered at the coming San Joaquin Agricultural Fair.

TOBACCO.—Daniel Woodford has a flourishing tobacco plantation at Fredericksburg, Alpine county.

Cultivation of Figs—How to Preserve Them.

The fig crop this season is large in quantity, and the fruit much larger in size than usual. So plentiful are figs in California this season that it will not pay to gather and send them to market. If parties who understand drying and packing them would publish a reliable recipe, they would confer a benefit on those who have quantities on hand that are spoiling on the trees for the want of knowledge to properly preserve them.

We clip the above paragraph from the *Folsom Telegraph*, and should be pleased to hear from any persons who may have experience or special knowledge in preserving or packing figs. In the meantime, we think we are not mistaken in saying that the process is very simple and may be described substantially as follows: Allow the fruit to remain on the tree until it becomes "dead ripe," then pick and dry upon boards or mats, care being taken that no rain falls upon it, as a few moments of rain will spoil the same. Care should also be taken that the drying process is not carried too far. While the pulp is yet moist and pliable, the fruit should be snugly packed (round boxes or "drums" are preferable) and stored in a moderately dry place about four months, during which time the gummy or mucilaginous pulp will be partially converted into grape sugar, a portion of which will find its way through the pores of the skin to the surface. During this process the peculiar flavor of the fresh dried fig, so unpleasant to some tastes, will gradually disappear by the chemical action which takes place. No sugar, or any other substance, should be added to the fruit. The most of the California produced figs which find their way to this market are dried too much before being packed.

The fig should be more generally cultivated in this State; our climate seems to be especially adapted both for growing and curing it. From the first settlement of the early missionaries, it has taken kindly to the soil here, particularly in the southern part of the State, where it yields abundantly, and where the fruit is nearly or quite equal to the same species grown in Greece or Turkey.

Figs form an important article of commerce in the Mediterranean, on the shores of which millions of dollars worth are dried and packed. Turkey, Palestine, Greece, Syria, Barbary, Italy and Spain are largely sustained by this product.

CALIFORNIA ON CANVAS.—The pioneer panorama of California, to which we hopefully alluded last week, was exhibited last Monday evening for the first time. We were pleasantly surprised at the views, for although we had previously had faith that they would be good, they were even better than we had expected. The scenes are painted with a care and fidelity very unusual in such cases. As one view after another was unrolled, the audience testified to its pleasure by applause, and when the well-known scenes about this city came into view the applause was very enthusiastic. The explanations were given by Prof. Knowlton, whose remarks were well calculated to interest and please. We doubt not that the panorama will prove the success which it certainly deserves to be.

CROPS IN OREGON.—The hay crop in Oregon has been damaged to some extent by the June rains. It is said that the last was the wettest June ever known in Oregon since its earliest settlement. Corn was slightly injured by frost, but, as a general thing, will do well. The *Sentinel* says the farmers are now cutting their wheat, and if the weather should continue favorable, there will be an abundant harvest. Small fruits are abundant and of excellent quality. Peaches, pears and apples are looking exceedingly well.

The Cincinnati Industrial Exposition.

Next September there will be held in Cincinnati a grand industrial exposition of manufactures, products and arts, to which artisans, manufacturers, inventors, and all engaged in the production of works of art and ingenuity are invited to contribute.

The influence of such expositions is so great and so beneficial, bringing together the various sections of our country and making them acquainted with one another, and inducing a generous rivalry in the peaceful arts, that we gladly give space for a notice of the present one, which is to be held under the auspices of the Chamber of Commerce, Board of Trade, and Ohio Mechanics' Institute of Cincinnati.

For the Exposition a large building, shown in the accompanying illustration, is expressly erected. Here ample arrangements will be made for the display of articles of all kinds. For running machinery there will be adequate power provided. The halls and grounds will be open for the reception of articles from the 1st to the 20th of September inclusive. On the 21st the Exposition will be opened to the public, and will continue opened daily from 10 A. M. to 10 P. M. until the evening of October 15th. Articles may be entered for exhibition only, or for exhibition in competition with other articles for premium. In the latter list only products of the United States will be admitted. Each exhibitor pays an entry fee of two dollars, receiving therefor a badge which admits him at all hours to the Exposition.

Applications for space must be made by the use of the blank forms which will be furnished, and should be made and entered on or before September 20th. Space allotted to applicants and not occupied by them on this date may be assigned to others. Contributors are requested to exhibit goods in glass cases, when possible. The management reserve the right to exclude articles of an explosive, dangerous or offensive character. Exhibitors will be furnished by the entry clerk with duplicate cards, describing each article entered for exhibition. These will be countersigned by the Department Superintendent on the receipt of the article into the Exposition. One of the cards are to be attached to the article which it describes and the other retained by the exhibitor and be presented as his order for the delivery of the article specified at the close of the Exposition.

Machines and other articles exhibited for premium will be subjected to thorough practical tests to determine their efficacy, economy, or other alleged merits. The judges will be selected from among those persons eminent for their skill and knowledge, and will be entirely disinterested. The hours from 8 to 10 A. M. each day will be appropriated exclusively to them, during which time no exhibitor will be admitted, unless at the request of the judges; and when the presence of an exhibitor is required, all others in the class in which he is a competitor will be permitted to attend. The premiums will consist of the General Committee's gold and silver medals and diplomas; also the General Committee's grand gold medal for best displays in several prominent departments. And in the published report honorable mention will be made of all meritorious articles.

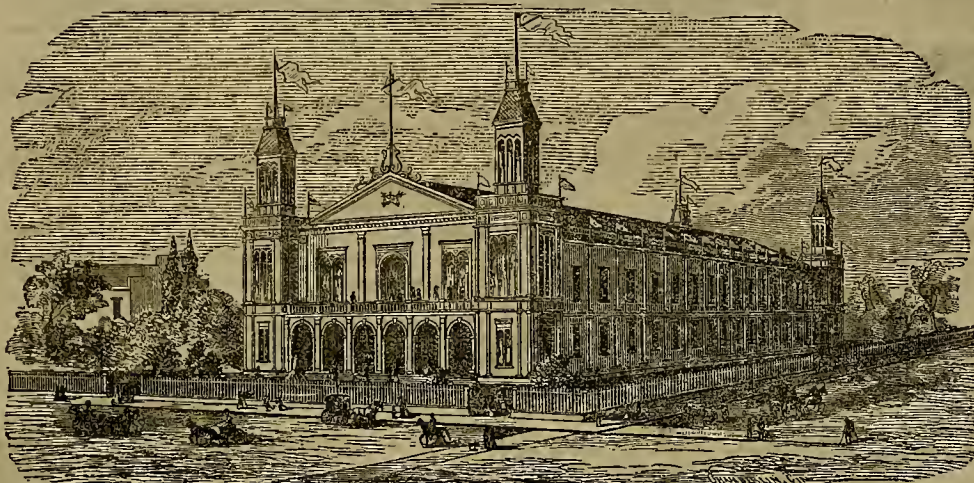
No exhibited article can be removed during the Exposition without the consent of the General Committee; but all appropriate facilities for making sales of articles for delivery at the close of the Exposition will be afforded, and after the close there

will be an auction sale of such articles as the owners desire to offer, under the direction of the General Committee. During the Exposition adequate police force will be provided night and day, and insurance against loss by fire will be effected by the General Committee in behalf of all exhibitors who apply and provide for the same.

All communications relating to the Exposition, and all boxes or packages containing articles for the Exposition, should be directed to "Cincinnati Industrial Exposition," with the name and residence of the sender plainly marked thereon. A detailed statement of the contents of each box or package should be enclosed with the same or sent separately by mail.

Commencement Day.

The commencement exercises of the University of California were held at Brayton Hall, Oakland, on Wednesday last. The Regents left San Francisco for Oakland at 10 A. M., and on their arrival at the



CINCINNATI INDUSTRIAL EXPOSITION BUILDING.

SOUTH-WEST CORNER ELM AND FOURTEENTH STS.

ERECTED EXPRESSLY FOR THE EXPOSITION.

DIMENSIONS OF MAIN BUILDING AS SHOWN IN ABOVE CUT.

Front—Elm Street.....	110 feet.	Gallery Floors.....	12,000 square feet.	Clear height from center of main floor, 67 ft.
Depth.....	250 feet.	Stage.....	57 by 110 feet.	Clear height Gallery above main floor, 20 ft.
Main Floor.....	27,500 square feet.	.....	6,270 square feet.	Clear height from gallery floor.....
Power Hall (in the rear, not shown in the above cut), 150 by 150 ft.				20 ft.
				Main floor of Power Hall, 22,500 sq. ft.

Broadway spot were received and escorted to the hall by the military companies, Col. John Scott, Marshal of the Day, commanding. At the hall the programme of the exercises was as follows: 1. Music. 2. Prayer. 3. Music. 4. The Twentieth Century—Lucio Marinatus Tewksbury, San Francisco. 5. Music. 6. Will—Robert Livingston McKes, Oakland. 7. Music. 8. The Best Possible World—Charles William Anthony, Santa Cruz. 9. Music. 10. Conferring of Degrees, by Prof. John LeConte, Acting President. 11. Address to the Graduating Class. 12. Music. 13. Closing Exercises. Prof. LeConte delivered the annual address, and Hon. Edward Tompkins, in conclusion, made an eloquent speech, during which he was repeatedly applauded. It was a proud day, for the Regents, he said, to see these young men, the three first graduates of our young University; the three first graduates of what was absolutely the first free University in the world. He spoke of the future prospects and growth of the institution and of the great influence on the country which it was certain to exert. He concluded amid great applause. The degree of Bachelor of Arts was conferred on David L. Emerson, an absent member of the graduating class.

IMMIGRATION.—We have in a late issue spoken at length concerning the California Immigrant Union. We have lately received from this association a pamphlet entitled "All About California." This is published for general distribution, and contains much information concerning our State, especially the available lands. It can be read with advantage by many here as well as by people abroad.

Notices of Recent Patents.

Among the patents recently obtained through Dswey & Co's Scientific Press American and Foreign Patent Agency, the following are worthy of mention:

SUPPLEMENTARY PEDAL ATTACHMENT FOR PIANO FORTES.—G. A. Scott and W. B. Frisbee, S. F.—In playing on a piano, the proper management of the pedals is an important item. It happens, however, that often the performer is not provided by nature with the requisite length of the lower extremities (commonly called legs) to reach these as generally constructed. To remedy this is the object of the present invention, which gives to the shortest person the full control of the instrument. It serves, moreover, to partially support the feet of the performer, and thus render him or her more secure upon the seat, which must always be high enough to be convenient for the key-board. The device consists of a box or frame of suitable size and shape, which stands upon the floor, partly over the pedals, the upper surface

Academy of Sciences.

At the regular meeting, on Monday evening, Mr. H. G. Hanks was elected Cor. Secretary, *vice* Eloesser, resigned. Dr. Blake read an interesting paper concerning the meteorology of the Pacific ocean, based on observations made during six consecutive voyages to Japan, by Capt. Doane, of the steamship China. These observations tend to confirm Dr. Blake's theory that climatic extremes are owing to equatorial and polar currents of air prevailing in broad belts over contiguous parts of the earth's surface for a considerable period. The Doctor gave diagrams illustrating the peculiar curves of temperature between this city and Yokohama, according to Capt. Doane. Mr. Yale read a paper on the Indian mounds at the Potrero. Mr. Saxe, of Santa Clara, gave some information of interest concerning the subsidence of the Santa Clara Valley and the artesian wells of San José. He remarked that fish occasionally came up from the wells, and saw-dust also; neither, however, were to be supposed to originate in subterranean sources. Prof. Davidson stated that in the well of the C. P. R. R., at Oakland Point, at a depth of 206 feet the tools passed through a redwood log, seven feet in diameter, both wood and bark of which were sound. At this depth the flow of water was materially influenced by the tide in the bay; at high tide the increased pressure producing an increased flow. Mr. Hanks spoke of the interesting occurrence of Hayasine (horate of lime) in Nevada, and showed a beautiful specimen of crystals.

NATIONAL EDUCATIONAL CONVENTIONS.—The series of Educational Meetings to be held this year at Cleveland, Ohio, commences on the 15th of August. On that and the following day the National Normal School Teachers' Association meet, and

on the three following days the National Teachers' Association will be in session. Addresses and papers will be delivered and read by many prominent gentlemen. For the benefit of members, arrangements have been made with railroad companies for reduced rates of fare, and also with the hotels and omnibus companies at Cleveland. The Central Pacific Railroad will issue round trip tickets from San Francisco or other points, at certain reduced rates, to be arranged for by parties desiring the same. Teachers who attend the convention and desire to avail themselves of the above reduced rates must, before they leave home, obtain certificate that they are persons properly entitled thereto, by applying by letter or otherwise to Andrew J. Rickoff, Superintendent of Instruction, Cleveland, Ohio.

INFALLIBILITY.—On the 13th inst. the Ecumenical Council decided that the Pope was infallible by a vote of 450 for, and 83 against, the dogma. It is stated that there were 66 conditional votes; but what the condition was, is not stated.

TO SAN JOSE.—On the 18th, the Central Pacific Railroad commenced running two trains daily to San José from Oakland. Passengers leave San Francisco at 9 A. M. and 4 P. M.

CALIFORNIA BLANKETS.—A. T. Stewart, of New York, has given the Mission and Pacific Woolen Mills, of Vallejo, orders for blankets which will keep them busy the rest of the year.

M. D. LASSWELL has been awarded the \$500 premium for the best models of two wheels for the Mercantile Library lottery.

being considerably elevated above the floor. Upon this are hinged the supplemental pedals, which have light springs, to return them after being depressed. Two arms extend down from the lower sides of these pedals, and are provided with a sort of foot, which rests upon the true pedals of the piano, so that any motion given to the false pedals will be communicated to the real ones. The usefulness of the device will be appreciated by all teachers, and, indeed, the invention was prompted by long experience on the part of one who is well known to the musical public of San Francisco.

DOUBLE-ACTING OSCILLATING ENGINE.—Thomas Hill, Vallejo, Cal.—The nature of the invention is the construction of an improved horizontal, double-cylinder, oscillating engine, which is more especially applicable to double propellers, and is intended to be used upon the steam ram, for which separate patents have been issued. The engine is constructed with two short cylinders of large diameter, placed side by side and oscillating together on the same pair of trunnions. One steam chest and one valve only are employed. The induction or steam ports of each cylinder are separate, but both exhaust into the same education port. The valve is operated by a peculiar mechanism which can be arranged to cut off as desired. The cranks are so constructed that they balance, and cause no undue strain on the machinery. To understand fully the operation of this neat and ingenious device an illustration is necessary, and one will probably shortly appear in our columns.

ST. LOUIS IRON WORKS.—A company has been organized at St. Louis, with a capital of \$5,000,000, for the purpose of establishing works for the manufacture of steel rails and pig iron. The works will cost about a million of dollars, and are to be called the Aetna Rail and Iron Works.

Professional Cards.

JOHN GORMAN,
NOTARY PUBLIC.
COMMISSIONER FOR
Nevada, New York, Etc.
No. 612 MERCHANT STREET. 6v20-3m

JAMES M. TAYLOR,
Attorney and Counsellor at Law,
Court Block, 636 Clay Street
SAN FRANCISCO.

JOHN ROACH, Optician,
Has removed from 522 Montgomery street to
540 Washington street,
East of Montgomery.
Surveying Instruments made, repaired and adjusted
2v17-3m

GRAY & HAVEN,
ATTORNEYS AND COUNSELLORS AT LAW,
In Building of Pacific Insurance Co., N. E. corner Call
forms an Leidesdorf streets,
SAN FRANCISCO.
2v16

REMOVAL.

DR. BEERS, Dentist,
Has removed from Tucker's Building to
No. 109 Montgomery street, three doors
north, opposite the Occidental.
2v20-3m

Dr. J. H. PAINE, Dentist,
Wadsworth House, No. 225 Bush street,
between Cosmopolitan and Occidental
Hotels, San Francisco.

Business Cards.

A. H. JORDAN,
Architect, Designer and Draughtsman,
No. 430 Montgomery Street,
SAN FRANCISCO. 16v19-4y

Farmers and Mechanics
BANK OF SAVINGS,
No. 225 Sansome Street.
Interest paid on Deposits. Money Loaned on Real Estate.
H. DUTTON, President.
GEO. M. CONDEE, Cashier. 19v16-3m

J. HOOVER,
PUBLISHER,
And Wholesale Dealer in
Fine Chromos and Lithographs.

This Largest Assortment in Philadelphia.
WHOLESALE DEPOT:
No. 804 Market Street, Philadelphia, Penn.
6v20-6m

C. B. FETY,
SEAL ENGRAVER
AND LETTER CUTTER.

Seals, Brass Stamps, Steel Punches, etc. Orders by
express promptly attended to. No. 62 CLAY STREET,
bet. Kearny and Montgomery, San Francisco. 23v20-3m

PIERRE A. FORTIER,
Practical Optician
105% Montgomery Street, up stairs.
The only manufacturer in this United States who can
make Glasses adapted to any imperfection of sight.
Prices very moderate. 24v20-3m

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BARTLING & KIMBALL,
BOOK BINDERS,
Paper Rulers and Blank Book Manufacturers.
505 Clay street, (southwest cor. Sansons),
SAN FRANCISCO. 15v12-3m

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AND LETTER CUTTER.
Brass and Steel Stamps and Dies, 608 Sacramento street,
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Manila Ropes of all sizes. Also, Bals Ropes and Whales
Line constantly on hand. Mining Ropes of any size
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Manufacturers of Boxes,
Market Street, bet. Seale and Main.
For sale—Mahogany, Spanish Cedar, and other Woods.

J. M. STOCKMAN,
Manufacturer of
PATTERNS AND MODELS,
(Over W. T. Garratt's Brass Foundry,
S. E. Corner of Mission and Fremont sts.,
6v14th SAN FRANCISCO.

L. SCHUMANN,
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Meerscham Pipe Manufacturer,

No. 341 KEARNY STREET.
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The first and only Manufacture on the Pacific Coast.
MEERSCHAUM MOUNTED WITH SILVER. Meerscham
Pipes Boiled and Repaired. Amber Mouth-pieces Fitted.

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M. BURKE, PROPRIETOR,
Nos. 30 and 32 California Street.
Job work of all kinds in the Drug and Spice Line
promptly attended to.
SECOND DEPARTMENT.—Feed Ground, Corn Meal, Oat
Meal, Graham Flour, etc., constantly on hand. 7v20-6m

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437 BRANNAN STREET, bet. Third and Fourth.
W. WUSTHOFF, L. KRAMER, M. HARRIS, J. BURKE.
REAPER AND MOWER SECTIONS, BARS
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At a saving of 50 per cent. New Files of every description
on hand and made to order. Old Files re-cut, and war-
ranted equal to new. Orders from the country promptly
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Screen Punching of all kinds and qualities for Quartz,
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BANDMANN, NIELSEN & CO.,
General Agents,
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for Inventors.
All kinds of Dies, Stamps and Punches made. Also,
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JOSEPH MC GILL, H. CHAPMAN.
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Manufacturers of DOORS, SASHES, BLINDS AND
MOULDINGS, 217 to 225 Spear street, and 218 to 226
Stewart street, between Howard and Folsom, San Fran-
cisco. 67 Finishing Work for buildings constantly on
hand and got up to order. 20v20-3m

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MANUFACTURERS OF
Diamond-Pointed Drills
AND DRILLING MACHINERY.
For Mining, Quarrying, Shafting, Tunneling, Prospect-
ing, Draining, Grading and Submarine Blasting. Special
attention given to Deep Boring for testing the value
of Mines. Also to Boring Artesian Wells. Office, 318
CALIFORNIA STREET, San Francisco. 20v20-3m

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STARCH WORKS.
LAVERY'S SNOW-FLAKE
YEAST POWDER.
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Office, 302 California street, up stairs.
22v20-3m **W. J. LAVERY & CO.**

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Scientific Press
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OFFICE, 436 CALIFORNIA STREET.
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All Losses paid in U. S. Gold Coin.
A. G. STILES, President.
B. ROTHSCHILD, Secretary. 20v17

Metallurgy and Ores.

MINING SCHOOL.

Mosheimer's Practical Mining School
Will be reopened by the FIRST OF JUNE, and practical
instruction given in all branches of Assaying,
Crushing, Amalgamating, Concentrating, Smelting and
Refining Ores; also Erecting Furnaces and Reduction
Works of every kind. To give all miners a chance to
learn Assaying of Ores (what everyone ought to) I have
reduced my former charge for
Assaying Ores. \$ 50.00
To work Gold and Silver Ores. 100.00
Smelting and Refining, including Assaying. 150.00
Many gentlemen who have been taught in my estab-
lishment will bear testimony that in a few days they
learned more than they expected to learn in a month.
Before going into mining, every man ought to know
how to test ores, and then he will go to work with pro-
vidence and never fail to be successful. Apply to
J. MOSHEIMER,
Office, 328 Montgomery street; Works, 2,005 Powell
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COMMISSION MERCHANT,
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Agent for SAMPLING, CRUSHING, ASSAYING and
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and the entire business transacted with promptness and
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chased and shipped on Commission for Country Mer-
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Donohoe, of Donohoe, Kelly & Co.; Falkner, Bell & Co.;
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Esq. 23v20-3m

MORRIS & WHITE,
Practical Assayers and Metallurgists,
No. 30 and 36 Fremont Street,
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Ore of all kinds worked by Pan Amalgamation, Chlo-
rination, or Smelting—guaranteeing to work as close to
the Fire-assay as any persons on the Pacific Coast.
27 Gold and Silver Ores and Sulphurets bought.
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Metallurgical Works,
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On all kinds of Ores, and particular attention
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American Blacklead Crucibles,
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LESSONS IN ASSAYING,
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Pipe, to those wishing to gain a knowledge of these
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Chemical Works, 215 First street, or Box 1180, Post
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—AND—
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—VIA—
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SOURI RIVER RAILROAD.
NEW YORK. \$138 00
BOSTON. 139 25
Ticket Office, No. 208 Montgomery Street.
24v20 **SAM. A. LEWIS, Agent.**

Railroads and Steamers.

Central Pacific Railroad.

Time Schedule, July 18, 1870.

EASTWARD.		Express Train Daily.	Passenger Train excepted	Mixed.*
San Francisco	Leave	8:00 A.M.	4:10 P.M.	7:00 P.M.
Oakland	"	8:40 A.M.	4:30 P.M.	"
San Jose	"	7:45 A.M.	4:35 P.M.	"
Stockton	"	12:12 P.M.	7:33 P.M.	"
Sacramento	Arrive	1:50 P.M.	9:30 P.M.	7:40 A.M.
Sacramento	Leave	2:10 P.M.	"	9:10 A.M.
Marysville	Arrive	4:00 P.M.	"	1:15 P.M.
Chico	"	6:45 P.M.	"	2:50 P.M.
Colfax	Leave	5:00 P.M.	"	4:00 P.M.
Reno	"	1:15 A.M.	"	5:45 A.M.
Winnemucca	"	9:10 A.M.	"	7:15 P.M.
Battle Mountain	"	12:00 M.	"	3:50 A.M.
Carlin	"	3:10 P.M.	"	10:00 A.M.
Elko	"	1:30 A.M.	"	12:30 P.M.
Kelton	"	1:30 A.M.	"	1:15 A.M.
Ogden	Arrive	6:00 A.M.	"	5:00 A.M.

WESTWARD.		Express Train Daily.	Passenger Train excepted	Mixed.*
Ogden	Leave	6:00 P.M.	"	5:00 P.M.
Kelton	"	10:42 P.M.	"	1:30 A.M.
Elko	"	8:45 A.M.	"	7:15 P.M.
Carlin	"	10:15 A.M.	"	9:45 P.M.
Battle Mountain	"	1:25 P.M.	"	3:15 A.M.
Winnemucca	"	4:05 P.M.	"	9:40 A.M.
Reno	"	1:00 A.M.	"	1:00 P.M.
Colfax	"	8:45 A.M.	"	12:50 A.M.
Chico	"	6:30 A.M.	"	10:30 A.M.
Marysville	"	9:10 A.M.	"	7:30 P.M.
Sacramento	Arrive	11:25 A.M.	"	6:30 P.M.
Sacramento	Leave	11:45 A.M.	7:00 A.M.	7:30 P.M.
Stockton	"	1:40 P.M.	8:38 A.M.	"
San Jose	Arrive	5:35 P.M.	12:01 M.	"
Oakland	"	5:30 P.M.	12:10 P.M.	"
San Francisco	"	6:00 P.M.	12:40 P.M.	9:30 A.M.

"Local Trains."

From	From	From
SAN FRANCISCO.	OAKLAND.	BR. OLYM.
B 6:50 A. M.	B 5:40 A. M.	B 5:30 A. M.
D 8:00 " "	B 6:55 " "	B 6:45 " "
9:00 " "	8:00 " "	7:50 " "
D 10:00 " "	9:00 " "	"
11:00 " "	10:00 " "	9:50 " "
D 12:00 M.	11:00 " "	11:50 " "
D 2:00 P. M.	12:00 M.	"
D 3:00 " "	2:00 P. M.	2:50 P. M.
4:00 " "	3:00 " "	"
6:15 " "	4:00 " "	"
6:45 " "	6:20 " "	5:10 " "
B 11:30 " "	6:55 " "	6:45 " "
From	From	From
SAN FRANCISCO.	ALAMEDA.	WAYFARDS.
B 7:30 A. M.	B 6:55 A. M.	D 4:30 A. M.
E 9:00 " "	B 7:35 " "	B 7:00 " "
BC 9:30 " "	E 9:05 " "	B 8:30 " "
EC 11:30 " "	B 9:05 " "	B 9:00 " "
1:30 P. M.	E 11:35 " "	B 11:00 " "
4:30 " "	1:35 P. M.	"
6:00 " "	E 4:35 " "	3:55 P. M.
"	E 6:05 " "	"

B Sundays excepted. E Sundays only.
D To Oakland only. C To Alameda only.

A. N. TOWNSE, Gen'l Sup't C. P. R. R.,
T. H. GOODMAN, Gen'l Pass'g'r Agent, Sacramento.

SHORT ROUTE.



The following time will take effect
Sunday. April 24, 1870.

GOING NORTH—DAILY (SUNDAYS EXCEPTED).			
New World	Trains	Trains	Trains
Leaves	Arrive at	Arrive at	Arrive at
S. Francisco.	Calistoga.	Sacramento.	Marysville.
7:00 A. M.	11:45 A. M.	8:20 P. M.	9:30 P. M.
4:00 P. M.	7:15 P. M.	8:20 P. M.	9:30 P. M.



ON SUNDAYS.			
8:30 A. M.	12:20 P. M.	12:45 P. M.	5:00 P. M.

GOING SOUTH—DAILY (SUNDAYS EXCEPTED).			
Trains	Trains	Trains	New World
Leave	Leave	Leave	Arrives at
Ma r r ile.	Calistoga.	Sacramento.	S. Francisco
5:00 A. M.	5:45 A. M.	6:15 A. M.	10:30 A. M.
1:15 P. M.	2:15 P. M.	3:15 P. M.	7:30 P. M.

ON SUNDAYS.			
10:15 A. M.	3:00 P. M.	9:20 P. M.	6:00 P. M.

TICKETS for sale at 313 Montgomery street, or on board
steamer New World. R. S. MATTISON, Superintendent.
Leave wharf corner of First and Brannan streets punctu-
ally at 11 o'clock A. M. on the 3d and 15th of each
month (except when other date falls on Sunday, then
on Saturday preceding), for PANAMA, connecting, via
Panama Railroad, with one of the Company's spl-nid
steamers from ASPINWALL for NEW YORK.
August 3. MONTANA
Connecting with the Alaska.
All steamers touch at Acapulco; the steamer of the 2d
is expected to touch at San Jose de Guatemala; steamer
of the 18th touches at Manzanilla.
For Japan and China. Steamers leave on the
1st of every month, punctually at noon, for YOKO-
HAMA and HONGKONG, connecting at Yokohama with
the Company's Branch Line for SHANGHAI, via Higo
and Nagasaki.
August 1—GREAT REPUBLIC, Captain Deans.
Apply at the Pacific Mail Steamship Company's office
corner Sacramento and Leidesdorf streets.
13v20 **ELDRIDGE & IRWIN, Agents.**

Pacific Mail Steamship Company.—For
New York, via PANAMA. PRICES GREATLY REDUCED.
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ally at 11 o'clock A. M. on the 3d and 15th of each
month (except when other date falls on Sunday, then
on Saturday preceding), for PANAMA, connecting, via
Panama Railroad, with one of the Company's spl-nid
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the Company's Branch Line for SHANGHAI, via Higo
and Nagasaki.
August 1—GREAT REPUBLIC, Captain Deans.
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California Steam Navigation
COMPANY,
 

Steamer CAPITAL. CAPT. E. A. POOLE
CHRYSOPOLIS. CAPT. A. POSTER.
" YOSEMITE. CAPT. W. BROWNLEE.
" CORNELIA. CAPT. W. BROWNLEE.
" JULIA. CAPT. E. CONCKLIN.
Two of the above steamers leave BROADWAY WHARF
at 4 o'clock P. M. EVERY DAY (Sundays excepted), one
for Sacramento and one for Stockton, those for Sacra-
mento connecting with light-draft steamers for Marysville,
Colusa, Chico, and Bad Bluff.
Office of the Company, northeast corner of Front and
Jackson streets.
B. M. HARTSHORNE,
President. 13v12

THE large majority of United States and Foreign Patents granted to inventors on the Pacific coast during the past few years, have been obtained through the agency of DEWEY & Co., publishers of the SCIENTIFIC PRESS. Established in the year 1860, we have an extensive patent library, with full record of cases on this coast, and can give the best and most reliable advice as to the patentability of new inventions.

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HERCULES POWDER,

Which combines all the force of other strong explosives now in use, and the lifting force of the best blasting powder, thus making it vastly superior to any other compound now in use.

A circular containing a full description of this Powder can be obtained on application to our Office. 16v20-3m JOHN F. LOHSE, Secretary.

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Rare, Rich and Spicy.

Very palatable, productive of digestion and health. An ANTI-SCORBUTIC, and sure preventive

Against Diseases incident to Sea Life.

A SPLENDID APPETISER.

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IMPORTANT NOTICE.

On SATURDAY, THE SIXTH DAY OF AUGUST, we propose publishing an

IMMENSE DOUBLE-SHEET EDITION

— OF —

THE SCIENTIFIC PRESS,

Containing about sixty columns, devoted exclusively to information concerning the

Agricultural, Manufacturing and Other Resources of California,

ENTITLED,

"A GUIDE FOR EMIGRANTS TO CALIFORNIA!"



Great care and much labor has been bestowed upon the compilation, in order to supply a much-needed want—viz: reliable facts in a condensed, readable and cheap form for the use of persons abroad desirous of emigrating to CALIFORNIA.

The following will be the most prominent features embraced:

Climatic and Soil; Natural Wealth and Resources; Productions in Agriculture and Manufactures; Past, Present and Future of the State; Agricultural Districts; Public Lands; Laws Relating to Pre-emption and Homesteads; Tables of Statistics from Official Reports; Lands for Sale; Railroads; Routes of Travel; Methods and Cost of Travel; Distances; Suggestions to Immigrants, etc., etc.

Each regular subscriber to the SCIENTIFIC PRESS and those purchasing single numbers on the day of issue will be entitled to one copy free of charge. Extra numbers will be sold at 15 cents per copy, or \$10 per hundred, and will be mailed to any address on receipt of remittance by Post Office Order or otherwise.

All persons desirous of promoting the growth and development of California, and wishing to communicate facts to their Eastern or European friends, can, at a trifling cost, avail themselves of the present opportunity.

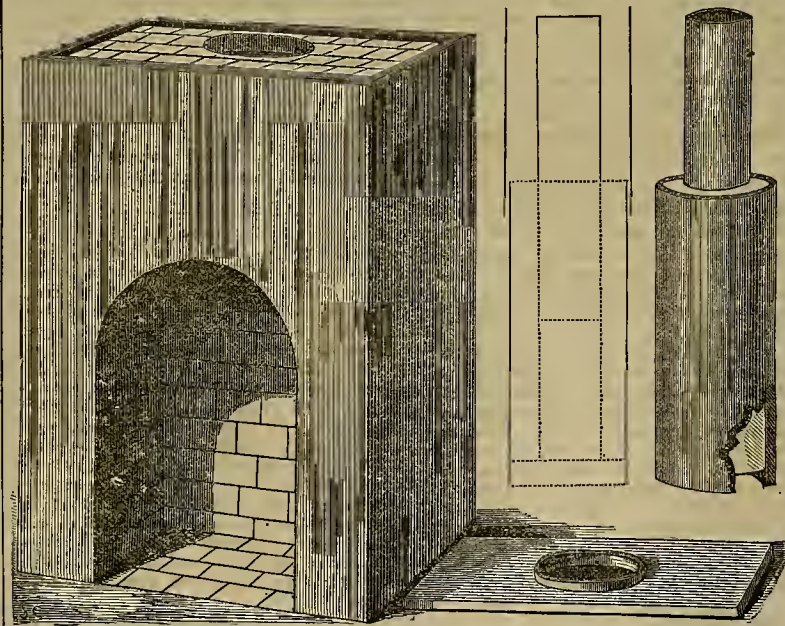
A limited number of ADVERTISEMENTS will be inserted at reasonable rates.

DEWEY & CO.,

Publishers Scientific Press, 414 Clay Street.

San Francisco, July, 1870.

Mann's Patent Earthquake (and Fire) Proof Chimney.



This invention affords a real improvement, which is much needed in this section of country, and as it is just as cheap, can be built more quickly, with less trouble and always perfect, it is very desirable and likely to supersede the old style of chimney.

The chimney is constructed entirely of metal. The lower portion, made of cast, sheet or boiler iron, with a proper opening for a fire-place (which may be built of brick), is of any suitable shape and is intended to rest upon any foundation or upon the floor, if desired, as the whole weight of the chimney will not exceed six or seven hundred pounds. The left-hand figure shows the general appearance of this lower portion. On the right is the chimney-flue, shown in section also, in the middle figure, and below this, is the cover for the lower portion.

The flue is cylindrical and consists of two pipes, one inside of the other, with the annular space between them filled with cement, plaster of paris, asbestos, or other non-conducting material. This flue is secured to the cover, which is fastened to the lower portion of the chimney by rivets or other proper means. The illustration shows the device with one fire-place and one flue. But it can easily be constructed for two fire-places, opening into adjoining rooms on opposite sides of the chimney.

The chimney may be placed directly on the floor, if necessary, and any suitable fire-proof fire-place can be constructed in the recess in the lower portion. Heating stoves may be connected with it at any point, and thus the heat is utilized for warming rooms to a very great extent. It is so light that it is quite applicable when a fire-place is needed only in the upper story or stories of a building. The exposed part of the iron can be painted so as to represent brick-work, or ornamented as desired.

Besides this possibility of a cheap and easily-constructed chimney which can be placed in any room, are to be added its fire-proof qualities. As the pipes are made breaking joints, there is no danger of fire should the chimney be racked. This is a point of no small importance.

It cannot be shaken down by an earthquake unless the house comes down with it.

It is absolutely fire-proof, as it is impossible by this construction to have such a thing as a defective flue.

It does not take up one-half the room of a common chimney.

These chimneys can be constructed of different sizes and styles and kept on hand for sale, so that they can be ordered and set up at once, greatly facilitating rapid building in the country or city.

The inventor offers part of the patent right for sale. He will contract for chimneys on liberal terms. Address the inventor and patentee,

2v21-1m

BENJAMIN F. MANN, Oakland.

DESIGNS AND PLANS

— FOR THE —

NEW CITY HALL

— OF —

SAN FRANCISCO.

Office Board of City Hall Commissioners, southeast corner of Sacramento and Montgomery streets, San Francisco, June 22, 1870.

The Board of City Hall Commissioners hereby give notice that they will be prepared to receive at their office, on or before the FIRST DAY OF NOVEMBER NEXT, designs and plans for the new City Hall of San Francisco.

The Commissioners, in order to obtain the very best design and plan, invite the fullest competition among architects, and to this end have resolved to offer the following premiums:

First—For the design and plan selected and adopted \$3,500
Second—For the second best design and plan 2,000
Third—For the third best design and plan 1,500
Fourth—For the fourth best design and plan 1,000
Fifth—For the fifth best design and plan 500

The premiums payable in City Hall warrants. As a guide to architects in the preparation of the designs and plans, the Commissioners have prepared a pamphlet containing full instructions and suggestions, as well as the terms and conditions upon which the premiums will be awarded.

Pamphlets can be had on application at the office of the Commissioners.

Any design or plan in which the requirements of the Board, as set forth in the printed instructions, have not been reasonably complied with, will be rejected from the competition.

P. H. OANAVAN, Chairman,
JOS. G. EASTLAND,
CHAS. E. McLANE,
City Hall Commissioners.

26v20-4m



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25v20-6m

ELLWANGER & BARRY,
ROCHESTER, N. Y.

Reading for the Hour.

GERMAN MILITARY DISCIPLINE.—A correspondent of the *Pall Mall Gazette* at Coblenz, writes: "A painful impression has been created here by the following incident: Three soldiers of the line were undergoing a long period of imprisonment in the fortress of Ehrenbreitstein, for desertion. They had originally deserted at Sarlois and crossed the frontier into France, but, on the persuasion of their families, had surrendered themselves to their regiment. Their term of punishment was seven years, of which only six months had expired. Finding their lives, as it is asserted, insupportable, they determined to drown themselves on the first favorable opportunity, as a preferable fate. A few days ago they were employed on the Carthause, the fine plateau which separates the Rhine from the Moselle, and it seemed a fitting moment to attempt their rash enterprise. One sentry alone was in charge of them, and he witnessed their flight. He immediately fired and brought one victim down dead, the bullet having passed through his head. With extraordinary sang froid and determination he loaded a second time, and again fired with fatal precision; the deserter fell dead, pierced through the heart. One more loading he fired at the third fugitive, and the bullet passed completely through his body, inflicting a frightful injury to his intestines. The unfortunate man was conveyed to the military lazaretto in Coblenz, where he lies in a hopeless condition. In military circles this melancholy catastrophe is regarded as a fitting retribution for a grave breach of discipline, a view of the case not altogether shared in by the civil portion of the community. One thing is certain, the needle-gun in the hands of a good marksman is a sure and terrible weapon."

RAILROADS IN COLORADO.—The Central City *Register* speaks as follows of the railroads in that Territory:

The Denver Pacific Railroad is completed. The last rail was laid, the last spike driven, the fillings made, and the finishing touches given in the presence of a large and cheerful assemblage of citizens on Friday, the 24th of June. The link which connects us with the two great oceans, and secures to the Territory a solid basis for all her projected and to be projected enterprises will, within 70 days, be further strengthened by a union with the Kansas Pacific Railway, now rushing rapidly onward from Kit Carson. Nearly 40 miles of track are in operation this side of Carson, and a large force began putting down iron on the Denver end. We are informed by the managers that if the Indians do not seriously interrupt the work of tie-cutting and transportation, they can complete their road to a junction with the D. P. before the end of August. Engineers have been over the high-grade line to Central City, taking careful observations along the entire route, and report that there is nothing in the way of building such a road to Central City on an average grade of 60 feet to the mile, and a maximum of 70. The Colorado Central Company are busy perfecting their plans, which will come to fruition to our advantage in the due course of time.

DESTRUCTION OF FORESTS.—The destruction of forests is progressing this year at a fearful rate. It is not sufficient that such inroads should be made for lumber and fuel, but fire is called into requisition, and whole acres are burned out. A short time ago there was a terrific fire in northern and central New York. Now we are getting detailed accounts of the late fire on Long Island, where an area of some 3,000 acres was burned over, and, moreover, 500 cords of cut wood were destroyed. When our forests have disappeared perhaps people will wake up to the idea of their value.

The *Mariposa Gazette* learns that a streak of lightning struck a portion of the South Dome in the Yosemite Valley, one day last week, and those who had the good fortune to see it at the moment describe the scene as terrific as well as grand. Hundreds of tons of rock were loosened, and sliding and bounding down the side, left in its track a streak of fire, smoke and dust, and the noise therefrom sounding in the canyons like the shooting of heavy artillery.

THE CRIMINAL CLASS IN PERU.—No such thing as a single pickpocket or burglar exists in Peru, the stealing all being done by large gangs of horsemen and in broad daylight, on the outskirts of the town, and in lonely and solitary grocery and produce stores, etc., in the suburbs. During the frequent revolutionary disturbances the police and watchmen, who always carry guns and not pistols, have orders to shoot down, without hesitation, any person seen alone on the housetop; and as many an offensive and thoughtless foreigner or American has been shot down and killed for simply going up on the flat roof of his house in the night time, it has so intimidated the negro or Cholo thief that they dare not be seen prowling around alone after nightfall, and if seen in company with several of their kind after dark, they know they are sure to be followed and watched by the police. So that for a city of such wealth, with so many diamonds, silver and gold, and such costly dressing by the fair sex, Lima is less infested by robbers than any city in the world, and even any city of twice the watchmen. Many families, whose silverware is not plated, and whose display would tempt a burglar in one night in New York, go to their beds at night after night without even locking their area doors or back entrances; and although the petty pilfering of household servants in small articles is almost of daily occurrence, yet such a thing as a wholesale burglary is never known here. —*Letter from Lima.*

SHAMEFUL DESTRUCTION OF TROUT.—We learn from a resident of this city who has just returned from a trip through Nevada, that the trout in Truckee river are being ruthlessly slaughtered. Some avaricious individual has constructed a dam and trap, and as at this season the fish are flocking up the streams in great numbers, their destruction is enormous. It is a matter, our informant says, to be condemned, not so much so on account of the number taken away, as because of the shoals upon shoals that are killed at the dam by falling back, unable to cross it; their remains form a heap of corruption and decaying matter, the stench of which is unbearable. Scales have been put up on the spot, and fish are being retailed in unlimited quantities for various towns along the road. The Fish Commissioners appointed by the recent Legislature were informed of the matter, and were very indignant at the fact of the proper authorities neglecting to interfere in the premises when called upon. They themselves are necessarily powerless, but they have intimated their intention of using vigorous measures to put a stop to this ruinous practice wherever they find it in vogue. —*Bulletin.*

AMERICAN VERSUS ENGLISH MANUFACTURES.—The London *Ironmonger* contains the following: "Our readers should certainly have their attention invited to the fact that we are running a great risk in England of being beaten by America in the manufacture of axes, shovels, hoes, spades, and other implements of the kind. It is asserted that the Pittsburgh steel, both cast and rolled, is fully up to the mark of the best English—in fact, to such a degree that it is not only supplanting our produce, but in every shape of tool being largely exported to the Continent. American bolts and hinges are said to excel ours, and medium American cutlery of all kinds to be cheaper and better than any manufactured, whether here or in other countries. We trust that our Sheffield house will look to their laurels, and still maintain the superiority of make and world-wide command of the trade, of which they have hitherto been so justly celebrated."

The ladies of Pittsburg are "on their muscle." On July 17th there was a sculling race, of one mile, on the Monongahela (the name brings up endearing reminiscences) river, between Miss Lottie McAllie and Miss Maggie Lew. Miss McAllie won in 18 minutes and 54 seconds; but Miss Lew says that she can't do it again. The excitement was tremendous.

Local earthquakes are getting to be the fashion. Gilroy had one all to itself a short time ago, and now Fort Tejon follows suit. We rather like this idea of breaking up an earthquake and taking it in such small doses that it does no harm.

Russia now has a very large manufactory for war material at Perm, where some immense guns are being turned out.

REPORTED APPEARANCE OF PONDS.—The *Saratogian* reports that at Wilton, N. Y., about two miles from Saratoga, water has suddenly appeared. The district is a slightly elevated table land, the soil a sandy loam. The surface is broken and undulating. It is a good farming district, the section in which the ponds have appeared being dotted with neat farm houses, and occupied by some of our most prosperous farmers. On this strip of land, covering an area of a mile broad by two miles in length, have appeared this spring ten or a dozen good sized ponds, varying in size from one acre to six or seven acres in extent, in spots that have hitherto hardly known a puddle, and in some instances in the fields where the farmer has been wont to reap his richest harvests. They mostly came in April, and only within a short time have they begun to subside. In some places they have passed the highway, and the grounds still bear the marks of the water. In addition to the appearance of these ponds, the wells and cellars of the residents all through this particular section have been, and are at present, flooded from one to three feet deep. The wells have from five to seven feet of water in them more than was ever known before. There has been much wondering over this singular phenomenon in Wilton, but nobody has found a satisfactory solution of the mystery. It is a curious fact, however, and may be in some way connected with the phenomenon that a couple of miles east of this section, but on lower ground, the water is considerably lower than it has been known for years, and on the opposite side of the Adirondacks Ridge, in Corinth, the water is full two feet lower than it was one year ago. But why water should thus suddenly appear in this strange way, on this sandy table land, is thus far unexplained, and must be left for the savans to philosophize upon.

The copper mines of Lake Superior region are ceasing operations. The production of copper, it is reported, was overstimulated by the demand during the war, and the result has been the accumulation of a large amount of stock. The product of the Lake Superior mines in 1869, was 23,493,079 pounds of ingot copper, and notwithstanding a reduction of 2,771,000 pounds by the closing of the principal mines, the yield for 1870, it is estimated, will amount to 23,000,000 pounds. This circumstance is accounted for by the fact that other copper mines have increased the production to the extent of 2,000,000 pounds. It is calculated that 2,500,000 pounds remain on hand from last year's operation, and that the Vermont, Tennessee and Baltimore smelt works will produce 6,000,000 pounds, and that adding the above figures to the yield of the Lake Superior region, will be 31,500,000 pounds of American copper in the market this year. —*Iron Age.*

RESULTS OF SARGENT'S BILL.—The Nevada *Gazette* says that there is now a rush for claims for auriferous deposits which are too poor to pay for working in the small claims allowed by the customs of the miners. The Grass Valley *Union* says: "Since the passage of the bill the work of locating mining claims in the northern part of this county is going on with great activity. It is probable that the old river channels known to exist on 'the ridge,' will soon be on the heads of bona fide owners. When it is considered that before a title to any of these claims can be had from Government, \$1,000 worth of work must be done upon each claim, or set of claims, the mere act of preparing to get good titles will revive industry and create taxable property. We think the new law starts out well."

One of the biggest reptile stories yet is that of an alligator near Midway, S. C., which a planter has used in harness to do his plowing. The animal weighs 350 pounds, and is said to be perfectly docile and thoroughly "broken in" to his work.

The *Alta* says that four of the seven sugar pines in the Yosemite valley have been cut down by the sub-guardian. It looks as if the sub-guardian might need a severe cutting down.

AN AMERICAN abroad says that Prof. Huxley is the only man he met in London who ever heard of the Yosemite valley.

Mexico is again rejoicing in wonderful piratical efforts of some of its most distinguished citizens.

THE ELECTROTYPERS' MANUAL.—William Stuart Spiers, of Buffalo, N. Y., has issued a pamphlet of 34 pages, under the above title, which should be read with profit to all engaged in the art of electrotyping, and also by printers, who will be much benefited by better understanding the terms and methods employed by those who do their electrotyping. We notice that among the comparatively few inventions patented in this branch of industry, several are accredited to Mr. Wm. Filmer, of Faulkaer & Sons' type foundry, in this city, who is one of the pioneers in practical electrotyping in the United States. Copies of this pamphlet can be had for 50 cents, addressed as above.

A STRIKE is reported in the Confidence gold mine, near La Paz, paying \$1,000 per ton. —*Exchange.*

Mining is the only business in which a strike pays,—proving the superiority of mining.

MARAVILLA COCOA. For Breakfast.—The *Globe* says: "Various importers and manufacturers have attempted to attain a reputation for their prepared Cocoas, but we doubt whether any thorough success has been achieved until Messrs. Taylor Brothers discovered the extraordinary qualities of 'Maravilla' Cocoa. Adapting their perfect system of preparation to this finest of all species of the Theobroma they have produced an article which supersedes every other Cocoa in the market. Entire solubility, a delicate aroma, and a rare concentration of the purest elements of nutrition, distinguish the Maravilla Cocoa above all others. For homeopaths and invalids we could not recommend a more agreeable or valuable beverage." Sold in packets only by all Grocers, of whom also may be had Taylor Brothers Original Homeopathic Cocoa and Soluble Chocolate. Steam Mills—Brick Lane, London. 5v20-1y

A VALUABLE BOOK FOR INVENTORS AND ARTIZANS.—Dewey & Co., publishers of the *SCIENTIFIC PRESS* and Patent Agents, have just issued a neat little volume of over five hundred well executed cuts of the principal mechanical movements known. These useful representations of the various appliances of power are printed side by side with explanatory notes, which makes the subject clear to every reader. Such a book should be in the hands of every mechanic, and form part of every public school library. It is a handy book, and cheap enough for every farm, shop and factory. Sent to any address from the *SCIENTIFIC PRESS* office, postpaid, for \$1.—*New Age.*

TO MINERS, MILLMEN AND METALLURGISTS. Kustel's new work on the Concentration of all kinds of Ores, and the Chlorination Process, for Gold-bearing Sulphurets, Arseniurets, and Gold and Silver Ores generally, is the best and most complete work issued. It contains 120 diagrams, illustrating machinery, etc., which alone are of the greatest value. Price, \$7.50, postage paid. Published by Dewey & Co., publishers of the *Scientific Press*, San Francisco.

LAYBRES' ELEMENTS OF COMPOSITION.—This is a valuable book of 166 pages, containing plain and simple instructions in the art of composition. It should be read by all intelligent persons who desire to write or speak English correctly or eloquently. Printed and sold by Dewey & Co., *Scientific Press* Office.

MULLER'S Brazilian Spectacles are just the thing for people fond of reading whose eyesight is beginning to fail. His great skill as an optician enables him to suit all conditions of sight. It is Muller who supplies the city with opera glasses. *

DR. HARMANN, Physician, Oculist and Medical Electrician, cures all diseases of the eye, such as Granulated Eye Lids, Inflammation of the Eye, Opacities of the cornea cured permanently. Also, Paralysis, Rheumatism and all Nervous and Chronic Diseases, and all Female Complaints. 314 Bush street. 25-520.

IMPORTANT TO PATENTEES.—The undersigned desires the General Agency for New England States and Massachusetts for saleable patent articles, through agents and retail dealers. Address HOSMER & Co., Old State House, Boston, Mass. 4v21-2v

VAST QUANTITIES OF IVORY DESTROYED.—Thousands of teeth that might last a lifetime are lost every year, simply because the parties concerned either forget or do not appreciate the fact that SODONOT, duly applied, renders the dental substance proof against decay.

ACCIDENTS WILL OCCUR EVEN IN THE BEST REGULATED families, and "SEALDING'S GLUE" should be kept on hand *

JAS. A. SULLIVAN, of Calaveras county, is requested to call at this office, or address us, on business. *

HAVING had numerous applications to purchase the right to manufacture CHAMPAGNE MEAD (the great temperance drink), we will state that we are now prepared to sell State and County Rights on reasonable terms.

KENYON, GASS & Co. 2v21-3m

San Francisco, July 10, 1870.

TO FARMERS.—Stevens & Bro's Egg Boxes, holding 30 dozen, supplied free of charge, by the Dry Goods Co. No. 219 Clay street, San Francisco, to all customers. The eggs are kept cool and free from moisture and mould, are in no danger of being broken, and require no re-counting. 2v20-3m

PHOTOGRAPHY.—FOR CABINET PHOTOGRAPHS, or Enamelled Cards, of the very best quality, you must go to the NEW YORK GALLERY, Nos. 25 and 27 Third street, San Francisco. Every picture warranted to give satisfaction. 1v15-6m B. F. HOWLAND.

THOMAS O'NEIL Ornamental Glass Cutter, No. 10 Stevenson street, up stairs. Stained, Ground and Ornamental Cut Glass to order on reasonable terms. 14v20

BOILER FELTSING BRAYS twenty-five per cent. of fuel. BERRY & PLACE'S MACHINERY DEPOT, No. 114 California street. 1v21-3m

CONTINENTAL Life Insurance Co., 302 Mon gomery street, corner of Pine.

BLOCK TIN AND SOLDER WIRE, broom wire, piano covering wire, etc., manufactured by Joshua Gray, 437 Brannan street. 24v19-3m

New Mining Notices.

Kincaid Flat Mining Company, Tuolumne County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the twentieth day of July, 1870, an assessment of two dollars and a half (\$2.50) per share was levied upon the capital stock of said Company, payable immediately in United States gold and silver coin, to the Secretary, 220 Clay street, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on the twenty-fourth day of August, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the fourth day of September, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

D. H. CROWE, Secretary.
Office, 220 Clay street, San Francisco. jy23

Mountain City Mining Company.—Location of Works: Cope District, Elko County, State of Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the fourteenth day of July, 1870, an assessment of twenty-five cents per share was levied upon the capital stock of said Company, payable immediately in United States gold coin, to the Secretary, at the office of the Company, No. 408 California street, San Francisco, Cal.

Any stock upon which said assessment shall remain unpaid on the twenty-ninth day of August, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the twenty-sixth day of September, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

T. B. WINGARD, Secretary.
Office, 408 California street, San Francisco. jy23

North America Consolidated Mining Company.—Location of Works: White Pine County, State of Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the sixteenth day of June, 1870, an assessment of five (5) cents per share was levied upon the capital stock of said Company, payable immediately in United States gold coin, to the Secretary, at the office of the Company, Room 5, No. 302 Montgomery street, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on the seventeenth day of August, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Wednesday, the seventh day of September, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

WM. H. WATSON, Secretary.
Office, Room 5 No. 302 Montgomery street, San Francisco, Cal. jy23

Noonday Silver Mining Company.—Location of Works: White Pine Mining District, White Pine County, Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the twentieth day of July, 1870, an assessment of twenty (20) cents per share was levied upon the capital stock of said Company, payable immediately in United States gold coin, to the Secretary, at the office of the Company, Room 21, Hayward's Building, 419 California street, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on the twenty-fourth day of August, 1870, will be advertised on that day as delinquent, and unless payment shall be made before, will be sold on Tuesday, the thirteenth day of September, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

CHAS. E. ELLIOT, Secretary.
Office, Room 21, Hayward's Building, 419 California street, San Francisco, California. jy23

Pogonip Flat Silver Mining Company.—Location of Works: White Pine, Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the fifteenth day of June, 1870, an assessment of three (3) cents per share was levied upon the capital stock of said Company, payable immediately in United States gold and silver coin, to the Secretary, No. 1 Express Building, northeast corner Montgomery and California streets, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on the twenty-third day of July, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the eighth day of August, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

T. J. OWENS, Secretary.
Office, No. 1 Express Building, northeast corner Montgomery and California streets, San Francisco. jy23

POSTPONEMENT.—The day for advertising delinquent list of the above Company is hereby postponed to the second day of August, 1870, and the day of sale to the eighteenth day of August, 1870. By order of the Board of Trustees.

T. J. OWENS, Secretary. jy23

Mining Notices—Continued.

Cordillera Gold and Silver Mining Company, Chihuahua, Mexico.

Notice.—There are delinquent upon the following described stock, on account of assessment levied on the eighth day of June, 1870, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
John L. Tomb...	150	17	\$8 00
W. R. Cooper...	50	52	26 00
S. T. Welch...	275	10	5 00
S. T. Welch...	277	10	5 00
D. W. Hildreth...	133	33	16 50
J. Welch...	100	13	6 50
H. W. Blackman...	252	21	10 50
Henry Blackman...	254	26	13 00
Henry Blackman...	278	24	12 00
Henry Blackman...	283	20	10 00
William N. Wade...	222	50	25 00
William N. Wade...	233	100	50 00
C. W. McLaughlin...	280	225	140 50
P. M. Kelley...	190	3	1 50
P. M. Kelley...	226	2	1 50
O. A. Hall...	251	32	16 00
C. A. Hall...	230	10	5 00

And in accordance with law and an order of the Board of Directors, made on the eighth day of June, 1870, so many shares of each parcel of said stock as may be necessary will be sold at public auction at the salesroom of Maurice Dore & Co., No. 327 Montgomery street, San Francisco, on Monday, the first day of August, 1870, at twelve o'clock M. of said day, with costs of advertising and expenses of sale.

HENRY R. REED, Secretary.

Office, 321 Washington street, San Francisco. jy16

Evening Star No. 1 Silver Mining Company.—Location of Works: White Pine County, State of Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the first day of June, 1870, an assessment of five (5) cents per share was levied upon the capital stock of said Company, payable immediately in United States gold coin, to the Secretary, at the office of the Company, Room 5, No. 302 Montgomery street, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on Saturday, the second day of July, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the twenty-fifth day of July, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

WM. H. WATSON, Secretary.
Office, Room 5, No. 302 Montgomery street, San Francisco, California. jy16

POSTPONEMENT.—The day for delinquent stock delinquent on the above assessment is hereby postponed until the first day of August, 1870, and the sale thereof until Wednesday, the twenty-fourth day of August, 1870. By order of the Board of Trustees.

W. H. WATSON, Secretary. jy16

Globe Gold and Silver Mining Company.

NOTICE OF ANNUAL MEETING.—Location of Mine and Works: Monitor District, Alpine County, California.

Notice is hereby given, according to law, that the Annual Meeting of the Stockholders of the Globe Gold and Silver Mining Company will be held on Tuesday, the 2d day of August, 1870, at 4 o'clock, P. M., of that day, at the office of the Company, No. 461 Bryant street; the object of the meeting being to elect Trustees for the ensuing year, to serve till their successors shall be duly elected and qualified; also, to act on a proposition to remove the office of the Company to Monitor; and for the transaction of such other business as may come before it. By order of

J. WINCHESTER, President.
B. SHAFER, Secretary pro tem.
Dated San Francisco, June 30, 1870. 1m

Jennie A. Consolidated Mining Company, White Pine District, Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the twentieth day of June, 1870, an assessment of ten (10) cents per share was levied upon the capital stock of said Company, payable immediately in United States gold and silver coin, to the Secretary, Room 37 New Merchants' Exchange, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on the twenty-fifth day of July, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the fifteenth day of August, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

J. M. BUFFINGTON, Secretary.
Office, Room 37 New Merchants' Exchange, California street, San Francisco. jy25

Latawana Mining Company—Near Hamilton City, White Pine, State of Nevada.

Notice.—There are delinquent upon the following described stock, on account of assessment levied on the second day of June, 1870, the several amounts set opposite the names of the respective shareholders, as follows:

Stockholders.	No. of Certif.	Shares.	On Acct.	Ass't Due
D. M. Hosmer.....	5	20		\$3 00
D. M. Hosmer.....	7	20		3 00
D. M. Hosmer.....	9	20		3 00
D. M. Hosmer.....	10	20		3 00
D. M. Hosmer.....	12	10		1 50
D. M. Hosmer, Trustee.....	150	1000		150 00
D. M. Hosmer, Trustee.....	151	10		1 50
D. M. Hosmer, Trustee.....	152	10		1 50
D. M. Hosmer, Trustee.....	153	104		15 60
R. Savage.....	164	300	2 50	45 00
R. Savage.....	169	100		15 00
S. A. Post.....	35	10		1 50
P. Conklin.....	104	400		60 00
S. E. Holcombe.....	127	10		1 50
M. M. Baldwin.....	114	10	50	1 00
M. M. Baldwin.....	115	490	24 50	49 00
Richard H. Snuggs.....	110	40		1 50
R. Walker.....	128	40		6 00
D. Calkins, M. D.....	129	20		3 00
A. P. Everett.....	134	100		15 00
A. P. Everett.....	155	50		7 50
William Krug.....	137	50		7 50
William Krug, Trustee.....	138	50		7 50
William Krug, Trustee.....	167	100		15 00
William Krug, Trustee.....	197	227		34 05
William Krug, Trustee.....	198	400		60 00
John Clement.....	141	90		13 50
A. Martinon, Trustee.....	188	4248		537 20
Chas. C. Bowman.....	155	500		75 00
L. D. Simpson.....	157	95		14 25
E. B. Wilder.....	151	1000		150 00
R. Cobb.....	179	100		15 00
C. H. Burton.....	180	328		49 20
Botts & Wise.....	175	800		120 00
C. F. McDermott.....	175	100		15 00
S. Heydenfeldt.....	181	300	15 00	30 00
C. Wellington, Trustee.....	182	672		100 80
C. Wellington, Trustee.....	184	100		15 00
C. Wellington, Trustee.....	189	100		15 00
C. Wellington, Trustee.....	191	100		15 00
John G. Ayres.....	193	200		30 00
T. A. Round Chardard.....	195	100		15 00
R. E. Doran.....	200	200		30 00
G. W. F. Ryth, Trustee.....	203	600		90 00

And in accordance with law and an order of the Board of Trustees, made on the second day of June, 1870, so many shares of each parcel of said stock as may be necessary, will be sold at the office of the Company, 614 Merchant street, Room 26, San Francisco, Cal., on Saturday, the sixth day of August, 1870, at the hour of one o'clock P. M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

A. MARTINON, Secretary.
Office, 614 Merchant street, Room 26, San Francisco, California. jy16

Office of the Placer Gold Mining and Canal Company.—Location of Works: Township No. Six (5), County of Placer, State of California.

Notice is hereby given, that at a meeting of the Trustees of said Company, held on the eleventh day of June, 1870, an assessment (No. 2) of two dollars (\$2) per share was levied upon the capital stock of said Company, payable immediately in United States gold coin, to the Secretary, at the office of the Company, No. 204 Montgomery street, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on Tuesday, the twenty-sixth day of July, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Tuesday, the sixteenth day of August, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

O. S. HALEY, Secretary.
Office of Company, No. 204 Montgomery street, San Francisco, California. jy16

Nevada Land and Mining Company.—Location of Works: Steptoe, Johnson & Latham, Antelope and Clifton Districts, Elko County, State of Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the twelfth day of July, 1870, an assessment of one (1) cent per share was levied upon the capital stock of said Company, payable immediately in United States gold coin, to the Secretary, at his office, Room 5, No. 302 Montgomery street, San Francisco, California.

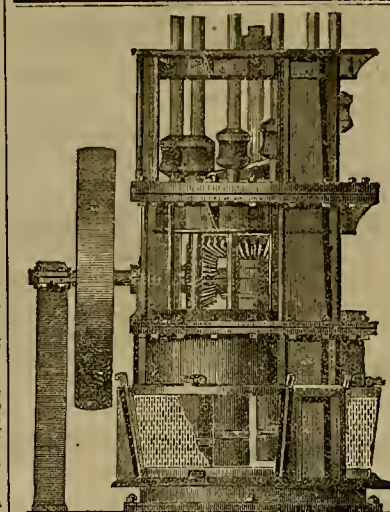
Any stock upon which said assessment shall remain unpaid on Thursday, the eleventh day of August, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the twenty-ninth day of August, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

WM. H. WATSON, Secretary.
Office, Room 5, No. 302 Montgomery street, San Francisco, California. jy16

Office of Eclipse Consolidated Mining Company, 210 Battery street, San Francisco, June 20th.

The Annual Meeting of the stockholders of this Company will be held on Saturday, July 23d, 1870, at twelve o'clock, M., for the election of Trustees for the ensuing year and the transaction of any other business that may be presented.

SOLON PATTEE, Secretary. jy25-4w



HOWLAND PATENT ROTARY BATTERY

of 12 stamps. It requires no frame to put it up. Guaranteed to crush 1 1/2 to 3 tons per day to the stamp. The best battery ever used for amalgamating gold, or crushing silver ores, dry or wet. Can be put up on a mine in running order for one-half the price of the straight battery, and in three days after its arrival at the mine. 12-stamp battery, 20,000 pounds, with frame complete, price \$3,000. 6-stamp battery, 8,000 pounds, price \$1,000. All prices named to be paid in currency. Every mill run at shop before shipping.

California Stamp Mills.

All the various styles of Pans, Amalgamators, Separators, Settlers, Concentrators, Dry or Wet, for working Gold, Silver or Copper Ores, the same as built in California and at lower prices. SHOES AND DIES made of the best white iron. Send sizes and we will make patterns and forward Shoes and Dies at low prices. Engines, Boilers and fixtures, and other Machinery made to order. Also, Howland's Patent Rotary Valve Double or Single Engraving.

Address: 95 Liberty street, New York.
N. B.—Mr. W. H. HOWLAND, formerly of the Millers' Foundry, is now in San Francisco for a short time, and will receive orders for mining and other Machinery of Eastern manufacture at the lowest rates and most favorable terms. Orders may be left at S. W. HOWLAND & CO'S, 413 and 415 Mission street, between First and Fremont, San Francisco. 4v21-3m

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New Advertisements.

Thursday Evening.

Owing to the time necessary to mail the present large edition of the SCIENTIFIC PRESS, we are obliged to go to press on Thursday evening—which is the very latest hour we can receive advertisements.

Savings and Loan Society, 619 Clay Street.

At a meeting of the Board of Trustees, held Friday, July 8th, a Dividend of eleven per cent, per annum was declared for the term ending June 30th, payable immediately.

CYRUS W. CARMAN, Cashier.

Scientific Press Agency in New York

H. D. DUMONT'S
ADVERTISING AGENCY,
OFFICE OF KINO, NEWLAND & PROUPITT,
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Seven 10-foot by 54-inch Steam Rollers;
One 25-horse-power Steam Engine;
One Force Pump and one Air Pump;
One 3-foot Run of Stone, with Husk Frame, Gearing and Pulleys Complete;
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RAZORS AND SCISSORS GROUND AND SET, and all kinds of Jobbing done in the best manner. Orders from the country promptly attended to.

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Coaches will leave HAMILTON daily at 12 o'clock M., running through SILVERADO, EUREKA, MINERAL HILL and RAILROAD DISTRICT.

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Shortest and Pleasantest Route.

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Of Yale College, New Haven, Conn.

This department of Yale College, instituted in 1849, and endowed with the National Land Grant in 1866, furnishes advanced instruction in the various branches of Mathematical, Physical, and Natural Science.

The School is under the direction of the President of the College, a Board of thirteen Professors in different specialties, and six assistant instructors.

Regular courses of study, leading to the degree of Bachelor of Philosophy, conferred by Yale College, are arranged as follows: 1—CHEMISTRY AND MINERALOGY. 2—CIVIL ENGINEERING. 3—MECHANICAL ENGINEERING. 4—MINING ENGINEERING AND METALLURGY. 5—AGRICULTURE. 6—NATURAL HISTORY AND GEOLOGY, and 7—SERIES COURSE.

Advanced students are also admitted to optional courses, and if already College graduates, are received as candidates for the degree of Doctor of Philosophy.

Tuition, \$125 per year of forty weeks.

The Libraries, Museums, Laboratories and Apparatus accessible to students, are varied and extensive.

For copies of the Annual Circular and Report, letters may be addressed to the "Secretary of the Sheffield Scientific School," New Haven, Conn. jy16-jy16p

THE SCIENTIFIC PRESS.—Mr. W. H. Murray, special traveling agent for the Scientific Press, is a very sensible and pleasant gentleman. He speaks in high terms of the mineral resources of Owyhee, and predicts for our camp a bright future. After examining the mineral and agricultural resources of Idaho, he will proceed overland to Montana and Colorado. He has secured quite a large list of subscribers for the Scientific Press, which is devoted to mining, farming and the mechanical arts, and is inferior to no publication of the kind in the United States.—Advertiser, June 18th.

San Francisco Metal Market.

PRISES FOR INVOICES.

Jobbing prices rule from ten to fifteen per cent. higher than the following quotations.

THURSDAY, July 22, 1870.

IRON.—Duty: Pig, \$9 per ton; Railroad, 60c per 100 lbs.; Bar, 1 1/4c per lb.; Sheet, polished, 3c per lb.; common, 1 1/2c per lb.; Plate, 1 1/2c per lb.; Pipe, 1 1/2c per lb.; Galvanized, 2 1/2c per lb.	
Scotch and Eng. Pig Iron, per ton...	\$31 00 @ \$32 00
White Pig, per ton...	28 00 @ 30 00
Refined Bar, had assortment, per lb.	— 03 @ —
Refined Bar, good assortment, per lb.	— 04 @ —
Boller, No. 1 to 4...	— 04 1/2 @ —
Plate, No. 5 to 8...	— 04 1/2 @ —
Sheet, No. 10 to 13...	— 04 1/2 @ —
Sheet, No. 14 to 20...	— 05 @ —
Sheet, No. 24 to 27...	— 05 @ —
COPPER.—Duty: Sheathing, 3 1/2c per lb.; Pig and Bar, 2 1/2c per lb.	
Sheathing, per lb.	— 26 @ —
Sheathing, Yellow...	— 20 @ —
Sheathing, Old Yellow...	— 10 @ —
Composition Nails...	— 21 @ —
Composition Bolts...	— 21 @ —
TR. PLATES.—Duty: 25 per cent. ad valorem.	
Plates, Charcoal, 1X, per box...	12 00 @ —
Plates, 1 O Charcoal...	10 00 @ 10 50
Roofing Plates...	10 00 @ 10 50
Plates, Tin, Slabs, per lb.	— 42 @ —
STEEL.—English Cast Steel, per lb.	— 15 @ —
QUICKSILVER, per lb.	— 65 @ —
LEAD.—Pig, per lb.	— 7 1/2 @ 8
Sheet...	— 10 @ —
Pipe...	— 11 @ —
Bar...	— 9 @ —
ZINC.—Sheets, per lb.	10 1/2 @ 11
BORAX...	— 35 @ — 38

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John N. Risdon, John N. Risdon.JOHN N. RISDON.....President.
JOSEPH MOORE.....Vice President and Superintendent.
LEWIS R. MEAD.....Secretary.
2417-47

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And all kinds of Mining Machinery.

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Flue or Tubular Boilers, with plain circular or spiral courses. Upright Flue or Tubular Boilers, Locomotive and Marine Boilers, and Wrought Iron Tanks of every description.

Hydraulic Pipe supplied at reasonable rates. In ordering, give the quantity of water to be supplied, height of the fall, and total length of pipe, so as to enable the firm to determine the diameter of the pipe and thickness of iron to be used.

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To Boiler-Makers and Machinists in the Interior.—The firm is prepared to furnish estimates of Boilers, supply new Heads, drilled and punched, and attend to the selection and forwarding of iron for Boilers, Pipes and other purposes.

Plans, Drawings and Specifications.—The firm is prepared to make out Plans and Specifications, receive estimates, and superintend the Erection of any Machinery that may be entrusted to their care.

To Inventors.—The firm is prepared to assist in developing the plans of those who have the ideas, but not the practical experience necessary to put the same in form, by making drawings of their inventions, giving them the benefit of their practical knowledge in the construction of Machinery, and attending to the manufacture and introduction of their inventions. 17x16f

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MACHINERY, CASTINGS & BOILERS

AT EASTERN PRICES.

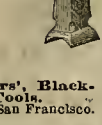
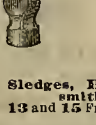
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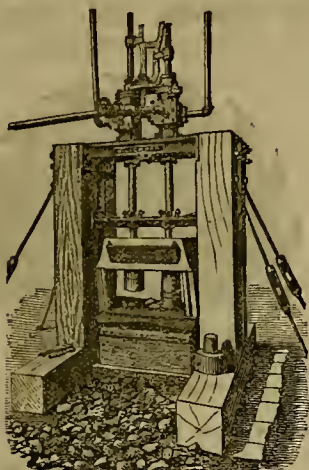
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Pig, Scotch, No 1 (cash), per ton.....	\$37 50	@ \$42 00
Pig, American, No. 1 (cash).....	42 00	@ —
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Rods.....	100 00	@ 135 00
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Hoop.....	125 00	@ 180 00
Scroll.....	110 00	@ 145 00
Nail-rod, per lb.....	—	8 1/4 @ 9 1/4
Spring.....	—	9 1/4 @ —
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Sheet, best cast.....	—	23 @ —
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Double-shear, warranted.....	—	23 @ —
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Montague & Co. (cast bars).....	—	18 @ —
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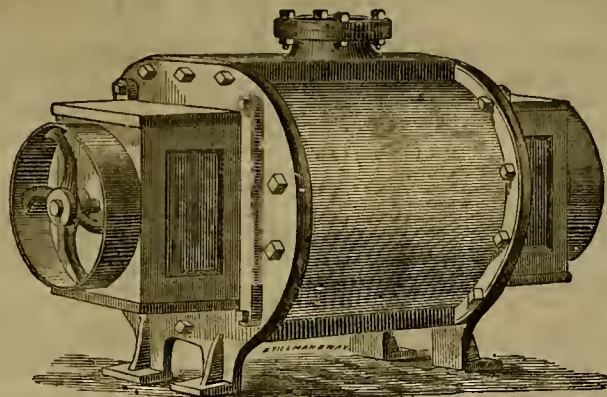
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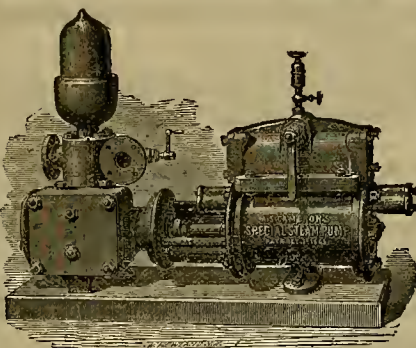
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1v1

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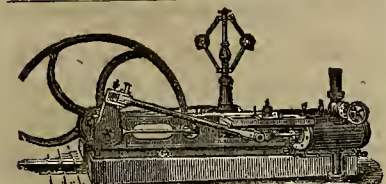
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Melter and Refiner, U. S. Branch Mint, Eagle Brass Foundry, 206 Fremont street, San Francisco. 12th March, 1869.—Messrs. A. S. Hallidie & Co., 519 Front street—Gentlemen.—We have used and tested the Morgan Patent Plumbago Crucible, for which you are agents, and pronounce them superior to and cheaper than any Crucible used by us heretofore.

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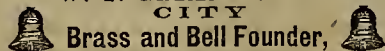
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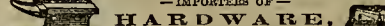
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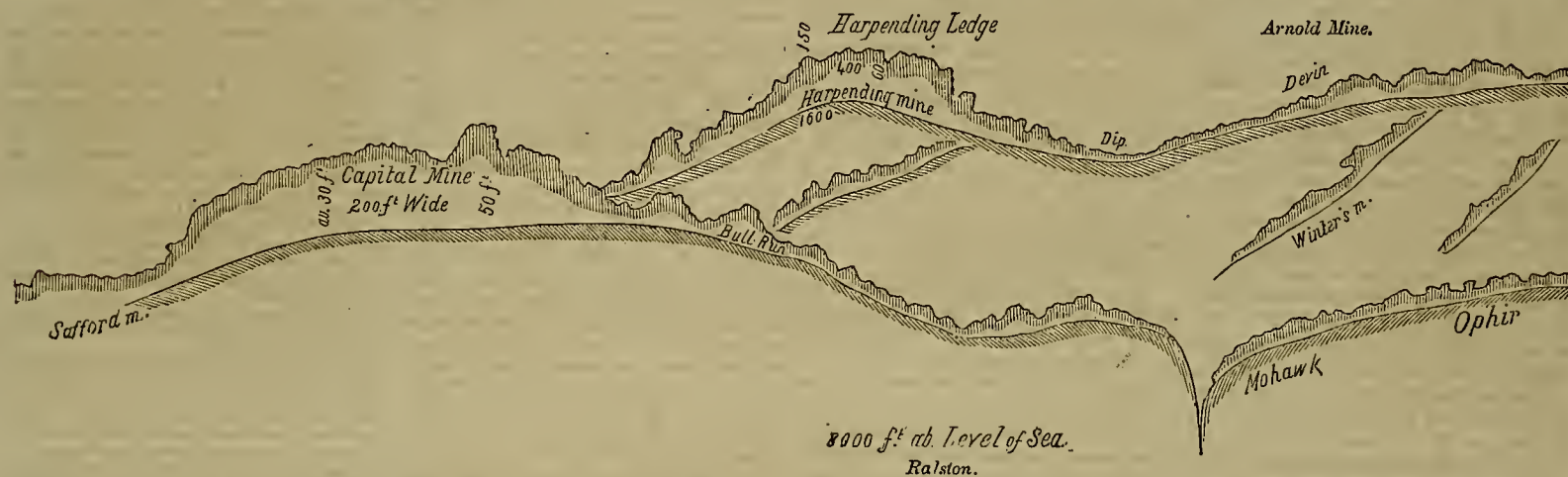
The Burro Mountain Mines.

We are enabled this week to present our readers with a sketch of these now famous mines. On account of the length of the ledges, the sketch is made in two parts, the lower being a continuation of the upper. The cuts give a birds-eye view of the place, abowing how the different ledges run in various directions, and bow they crop out holdly from the surface. The engraving is from a drawing made on the spot and furnished us by the locators.

Roberts, and made certain statements regarding croppings or float rock seen by him, three or four years previously, in the vicinity of Leidersdorff's Wells, on the old Butterfield and Texas road. These statements led to Mr. Brown's being connected with Mr. Arnold's party, which left here in January for the place indicated by Mr. Brown. At Fort Bowie a military escort was procured. Proceeding to Leidersdorff's Wells, supposed to be in Grant county, New Mexico, they found the float rock described by Mr. Brown but no leads

citement was caused, and the people of Tucson, and of the settlements on the Rio Grande flocked to the place. The town of Ralston was founded in the vicinity of the most promising mines, and contains at present a population of two or three hundred persons. The altitude of the place is probably eight or nine thousand feet. The climate is represented as healthy, the temperature ranging between 60° and 85° during the year. Having two rainy seasons, one beginning in July and ending in August, the other commencing in Decem-

vicinity; the growth is small and consists of nut pine, cedar and several varieties of hnsb-wood. Large timber, however, similar to that on the Sierra Nevada, can be obtained on the higher ranges of the Burro Mountains, 20 to 30 miles distant, or anywhere in the neighborhood of the Rio Grande, 50 to 60 miles distant. Two sawmills are now in operation in the Mexican settlements within 60 miles, and good lumber can be obtained under contract for less than \$100 per thousand. Beef, flour, poultry and vegetables can be



SKETCH OF THE LEDGES AND LOCATIONS AT THE BURRO MINES, GRANT COUNTY, NEW MEXICO.

The history of the discovery of these mines has been published in several papers, but not exactly as it actually happened. We have obtained therefore the following facts from headquarters. It seems that last July Messrs. A. Harpending and G. D. Roberts, of this city, sent out a party under Mr. Philip Arnold, an old California miner, to explore Southern Arizona. After a pretty thorough examination of the country around Tucson, Mr. Arnold returned in December, without having made any very satisfactory discovery. As, however, he was favorably impressed with the country, it was decided to send him again to make a more extended exploration. In the meantime, Mr. W. D. Brown called on Messrs. Harpending &

in that immediate vicinity. Far up on the crest of the mountains, however, they could see long high walls running in an easterly and westerly direction. Following the rich float rock, it led them about three miles up a gentle declivity to these walls, which proved to be the sides of monster ledges, the sources of the prodigal display of float rock which was scattered over an area of several miles below.

A district was at once organized, the "Virginia District," a recorder elected and claims located. After two or three days, the signs of Indians induced them to return to Fort Bowie, forty miles distant. Messrs. Brown & Arnold returned to San Francisco with samples of the ore and reported concerning the mines. A great ex-

ber and lasting five or six weeks, the amount of moisture is said to be amply sufficient to make it an excellent pastoral country. The valleys are rich and extensive enough to support a largo population; pure water can be had almost anywhere by sinking wells, the water frequently coming to the surface. The nearest stream is the San Simon, fifteen miles off, which contains excellent water, and enough of it for any city. The Rio Grande is fifty miles distant, a gently declining plain intervening. As the survey for the Thirty-Second Parallel Railroad passes through the town of Ralston, and to the Rio Grande, at no distant day these two points will be advantageously connected.

Wood is not abundant in the immediate

furnished from the Mesilla Valley and other Mexican settlements, and from the American settlements on the Rio Grande, on equally favorable terms as in the interior of the State of Nevada. Freight is ten to twelve cents per pound (in greenbacks) from Chicago or St. Louis via Sheridan; but machinery which is free of duty, can be taken at a less rate via Guaymas, which is the nearest seaport, (with good roads), 350 miles distant. The road via Tucson and Fort Yuma to San Diego, is 700 miles long, and to Los Angeles it is about 750 miles. The nearest telegraph station is Santa Fé, which is probably not over 300 miles off. Tucson for the present and for some time to come will be the distributing point for the mines. There will

be a strong competition for the trade from the East, as this place grows up, and if it were not for the large interests in the mines represented in this city, the bulk of this trade and billion might seek an Eastern market.

There is an old Mexican legend that in this locality, over a hundred years ago, mines were located by some Jesuit Missionaries from Durango, who, however, were finally all destroyed by the treacherous Apaches. This story receives considerable credit from the fact that there are evident marks here of work performed many years since. In the Harpsding mine a cut extends several hundred feet parallel with, and near the centre of, the lead, whence all the ore up to the surface has been removed,—indicating a rich strike. Near the Roberts mine was found a small stone house with solid walls of masonry. Also in clearing out a spring near by, a few feet below the surface, stone and mortar walls were discovered.

Within a hundred miles, in a southerly direction, are the celebrated Corralitos mines, which have been successfully worked for over a century. The Burro mines are in many respects of the same character as, and in the range of, the famous mines of Mexico which have produced so lavishly.

The country rock around appears to be principally slates. Sun, rain and time have been wearing away this softer rock and leaving exposed the hard quartz, until the miner has but to select the most desirable locality for his blast and then quarry out the rock, without timber or windlass, in the broad light of day. Taking into consideration the cheap Mexican labor, the mild climate and the fertile valleys near by, these mines are certainly more favorably situated than would at first appear, judging from their isolation.

The ore we have had no opportunity to examine carefully, but expect to receive a set of specimens in a few days. It contains, we believe, silver in one or more combinations, with more or less pyrites, galena, etc., the respective amounts varying considerably in different parts of the ledges. As to the amount of silver, we have been furnished with the certificates of all the assays which have been made here. They are from Riehn, Henne & Co., the California Assay Office, Leopold Kuh and the San Francisco Assaying and Refining Works, and number thirty-two in all. The lowest shows \$3.01; the highest, \$4,861.09. They run as follows: \$3.01; \$10.37; \$14.14; \$18.84; \$28.25; \$28.35; \$30.17; \$43.96; \$46.10; \$50.23; \$53.38; \$55.97; \$66.76; \$113.13; \$118.26; \$130.81; \$147.21; \$158.03; \$172.80; \$224.37; \$287.21; \$471.24; \$528.78; \$561.88; \$742.24; \$751.87; \$831.80; \$1,342.50; \$1,442.43; \$3,038.62; \$3,838.46; \$4,861.09. A little gold, from a trace up to \$25.22, was found in six samples.

The following is a list of the locations made by the prospectors and the sizes of the croppings. Some of the figures in the last column are very large. The parties all agree, however, that if anything, the figures are too small rather than too large:

Claims.	Length.	Croppings.
Arnold.....	1,400 ft..100 ft. wide,	20 ft. high.
Brown.....	1,400 ft..100 "	20 "
Harpsding.....	1,600 ft..150 "	60 "
Stonewall Jackson.....	1,400 ft..80 "	30 "
Opbir.....	1,200 ft..60 "	15 "
Roberts.....	1,200 ft..700 "	1,000 "
Potter.....	1,200 ft..700 "	1,000 "
R. E. Lee.....	1,200 ft..100 "	50 "
Jefferson.....	1,200 ft..00 "	20 "
Washington.....	1,000 ft..200 "	40 "
Red Cloud.....	1,600 ft..100 "	60 "
Yokohama.....	1,200 ft..20 "	4 "
Tycoon.....	1,000 ft..30 "	10 "

The above-mentioned claims were subsequently incorporated in the New Mexico mining company with a capital of thirty million dollars, divided into shares of one hundred dollars each. The trustees are G. D. Roberts, S. Heydenfeldt, J. D. Fry, Alpheus Bull and G. W. Beaver.

The above facts we present to our read-

ers as authoritatively given by those who have been to the mines, and whose reports certainly agree with one another. According to these there seems to be a good prospect of having a flourishing camp built up rapidly at this place. With the immense bodies of ore lying above the surface, and demanding, for the present at least, no expensive machinery,—almost none at all, in fact,—with a country around whence supplies can be drawn at no very exorbitant prices; with ore that runs very fair on the average, and very high at times, according to a large number of assays that have been made; with the prospects of having a continental railroad running directly through the town; with all these and other considerations in view, and without underrating the disadvantages of the location, we may be justified in expecting some big results from this new locality.

Orange and Nut Culture on a Large Scale.

A company of Chicago capitalists have associated themselves together with the view of entering upon the cultivation of oranges and nuts, in this State, upon a large scale. A gentleman arrived in this city two or three weeks since, to select a proper location and make the necessary purchase of land, etc., for the enterprise.

He is now on a trip to the southern part of the State for that purpose. It is the intention of the company to purchase several thousand acres of land, which will be put in condition, and covered with trees as rapidly as practicable. Oranges and English walnuts will form the chief articles of product, although other fruits, grapes, etc., will be cultivated to some extent. It is the intention of the company to utilize the land for wheat and other crops, until the trees come into bearing, so as to require the full power of the soil.

The company will depend chiefly on the East for a market for their oranges and nuts; as they expect by the time their plantation comes into anything like full bearing, the competition between rival overland railroads will so reduce freights as to enable this State to ship those products across the continent at rates which will allow of their general introduction into all the States upon, and to the west of the Mississippi river, and perhaps to markets still further East. We look upon this as the forerunner of many such enterprises, which will ere long be set on foot here by Eastern capitalists. There are but few who have any just conception of the importance which fruit growing on this coast will attain by the close of the next decade. California will ere long become not only the granary, but the garden of the great central portion of the American continent.

IMPROVED POTTERY WARE.—Mr. Daniel Brannan, of the San Antonio Pioneer Pottery, at Brooklyn, has lately received a machine invented by Merrill & McMillen, of Ohio, the first one ever on this coast for pressing and turning all sorts of pottery ware. He is now making a lot of milk pans and cream and butter pots of handsome pattern and superior strength and lightness. The machine is of very simple construction, and is run by steam power. It will turn out 1,200 pots per day with one man's labor. The outside mould of the machine is stationary, but the inside plunger revolves rapidly as it presses the clay into shape, producing ware of great tenacity. Mr. Brannan has been in the pottery business, where he now is, for 15 years. He does a good business in his line, and with his improved machinery, will no doubt be fully able to supply this market with the very best class of ware. He is now finishing up a set of pattern diss for flower pots, of convenient shape and elegant design. His worthy enterprise deserves success.

Communications.

IN THIS DEPARTMENT we invite the FREE DISCUSSION of all proper subjects—correspondents alone being responsible for the ideas they advance.

Notes from Idaho Territory.

[Concluded from last week.]

Quartz Mines on Grimes Creek.

Twelve miles east from Centerville, on Grimes creek, is the lode of the Mammoth G. M. Co., located in 1863. The average width of the lode is about two feet. The vein matter contains free gold and sulphurets and the ore generally averages \$50 per ton; I find that last summer there were 200 tons crushed which yielded \$90 to the ton. There is a shaft sunk 160 feet on the ledge, and a tunnel some 300 feet long which strikes the vein at a distance of 150 feet. The company has an 8-stamp mill, run by water-power, built in 1865, which cost some \$8,000. The mine has paid all expenses. The owners are Clarkson & Brown, old pioneers of this district.

Four miles further up the creek is the King company's ledge. This vein is small but very rich and with well-defined walls. There is an 8-stamp steam mill here, but I understand that not much work is being done at present. Want of time prevented my visiting this place.

Quartz on Granite Creek.

When in this section I had the pleasure of being introduced to Mr. Thomas Mootrey, Jr., an "old forty-niner" of San Francisco, a pioneer of this camp, and one of the most kind and hospitable as well as enterprising of men. Through his kindness I was able to visit the Gold Hill mine and mill, situated on Granite creek, about three miles from Placerville. The ledge runs northeast and southwest, has an easterly dip and crops out boldly for over half a mile. The average width is three feet. The company has been vigorously at work for years and has one 80-foot, one 120-foot and one 100-foot shaft, and three very large tunnels, all on the ledge. We entered first the lower level or tunnel, passing along 450 feet to where the ledge was tapped. We then went in the left drift on the lode, a distance of 80 feet, and here found the ledge about three feet wide and heavily charged with sulphurets and free gold. Returning to the tunnel we find another drift, some eighty feet long, on the ledge. At the entrance of the tunnel is the mill, which is therefore very conveniently situated with regard to the mine. When winter sets in the company will drive a shaft up to the second level and eventually bring all the ore out through the lower tunnel. At present the ore is lowered down an incline from the second tunnel. This incline is some 400 feet long and is 350 feet further up the creek. On it a 1-inch wire rope (manufactured by your well-known firm of Hallidie & Co.) is used, and the loaded car going down hauls up the empty car. At this mine are employed some 30 miners who are paid \$75 (currency) and found.

On both sides of the creek we find a granite formation, in which are the veins of quartz holding gold with silver and sulphurets; the gold predominating. The ore resembles somewhat that of Grass Valley. There were no sulphurets on top, those being first reached at a depth of 60 to 75 feet. The Superintendent of the mine is Mr. David Coughanour, a very clever and enterprising gentleman. The mine has paid expenses of all kinds.

The mill was erected by the Chickahominy company at an early day, at a cost of \$75,000; but the present company bought it at a low price not long ago. It has 25 stamps of 850 pounds each. To each four stamps there is a Hangerford concentrator, which does very well, I am informed, and gives satisfaction. A Hendy concentrator, also, four large Wheeler pans and two large settlers are used. The engine is of 75-horsepower, with cylinder 36x14 inches, and was built by the Miners' Foundry of San Francisco; the two large boilers were made by the Coffee & Risdon works. Three and a half cords of wood, costing \$4 per cord, are burnt daily. Twenty stamps were in operation at the time of my visit, but the other five were soon to be set at work. Some 35 tons are now put through in 24 hours. A clean-up, while I was there, of 9½ days run, gave 55 pounds of amalgam which yielded \$6,000. On account of the sulphurets only about one-half of the gold is extracted from the ore. The company has now on hand some 300 tons of sulphurets, and they are taking steps with regard to introducing Kustel's process for working these.

The mill is owned by Thomas Mootrey, Jr., Wm. Lynch, David Coughanour, Wm. Maloney and Avery Johnson. At their last annual meeting Wm. Lynch was elected President; William A. Coughanour, Secretary and Treasurer; and Thomas Mootrey, Jr., J. D. Coughanour and Wm. Lynch, Trustees.

The western extension of the Gold Hill mine is owned by Chandler & Co., who have a tunnel in some 40 feet on the ledge. The vein is from one to three feet wide and contains good ore, giving upwards of \$30 per ton in the mill.

The Eastern Extension, popularly called the

Growl and Go ledge, is owned by M. and J. Eisler. The shaft is down about 35 feet, being all the way in decomposed matter, the sulphurets not being yet reached. The company talk of erecting a 10-stamp mill near that of the Gold Hill.

The Yellow Jacket mine, located half a mile up the creek, is owned by C. P. Emery, G. White, J. Dixon and others. The lode runs northeast and southwest, and averages two feet in width. The tunnel is in 170 feet. The rock contains principally free gold, but they expect to find sulphurets as they go deeper. The 10-stamp mill is now being built and will be running in a few weeks.

The May Flower mine is a fine looking location owned by Turner & Young. The vein runs northeast and southwest and averages three feet in width. There is a tunnel 250 feet long; also, a shaft 90 feet deep. The boys have been working three years and doing well and it would pay to have a mill here, if the owners of the mine were able to build it. They have been working their ore successfully for three years with an arrastra. The apparatus for revolving the stones is quite unique, being a horizontal hardy-gurdy wheel, 24 feet in diameter.

Besides these mines there are several others, as the Gray Eagle, Columbia, Wob-Foot, Lnwyer, Pioneer, Golden Gate, etc., which I was unable to visit. One fact particularly struck me here, and that was the abundance of timber close to the mines.

Loon Creek Mines.

I met a gentleman, from the new mines discovered last year, who informs me that, at the Loon creek mines, situated about 125 miles northeast of Idaho City, there are some 200 men at work. Pay has been found for about four miles up and down the creek, which is a tributary of the Middle Salmon river. At present the miners are "going it slow," waiting for the water to lower, for the creek has had three distinct rises, each sufficient to stop operations. The gold obtained is of fine quality and worth upwards of \$17 to the ounce. I have seen several pack-trains going over to these mines.

Stage Lines—Remarks.

The stage line to take, in visiting this region, is that of the Pinkham Brothers, which runs from Boise City to all parts of the Basin, carrying the mail and Wells, Fargo & Co's express. I met the proprietors who are well-known as energetic business men and most hospitable acquaintances. After traveling by their line I am prepared to recommend it, as it was recommended to me by most of the boys. There is another line just started by Greathouse & Brothers. [We understand that the latter firm has since bought out the Pinkham Brothers.—Eds.]

I see that in the creeks here there is any amount of tailings, and I believe that a well managed company could make a big thing out of it, if they worked these, as they must contain a large amount of precious metal.

St. Louis seems to be hiding for the business of this section, and St. Louis advertisements are to be found in the hotels.

The use of gold dust in the Basin, as a medium of exchange, strikes the visitor as very queer, and strongly reminds one of the "old days." Dust and greenbacks are used, but no coin. Every saloon and store-keeper has his scales in which to weigh out his receipts. I don't like this plan; I'm not sufficiently accustomed to it, and although fairly generous, don't like to make gratuitous gold deposits every time I buy an article, as is unavoidable. Most of the dust is rated at \$16 per ounce. In Placerville and Granite creek it varies from \$16 to \$18, and in Idaho from \$14 to \$16.

W. H. M.

Boise City, June 30, 1870.

DISCOVERY OF ANCIENT MINES IN ENGLAND.—Near the town of Brandon, in the valley of the Ouse, is a large number of pits, commonly known as "Grimes Graves," which have been lately shown to be shafts of extensive underground flint mines, according to the *Colliery Guardian*. These are upwards of 200 in number and are about 25 feet apart. The shafts having settled and filled up, presented the appearance of bowl-shaped depressions, which had been variously regarded as graves, villages, etc. Below them was a stratum of pure flint, to obtain which, galleries were run in all directions. Picks were used, made of the antlers of red deer, of a larger species than are now existing in Scotland. The bunn ends of the horns were used also for hammers. One only stone hammer, of basalt, was found. No pottery was discovered. Nearly all the mining implements were made from the shed horns of the red-deer, and, with one exception, from the harr end. The people who fabricated this flint implements seemed to have lived on the spot. The Rev. Canon Greenwell, of Durham, is the investigator and discoverer of these interesting mines.

EXCURSION PARTY.—Last week Profs. Jos. Le Conte and F. Soule, with a number of students of the University of California, started on an excursion for the Yosemite.

*Mechanical Progress.***Sir Wm. Thompson's Syphon Recorder.**

This is equally delicate with the inventor's mirror galvanometer, while it is not, like that, subject to any error in reading. It was exhibited for the first time in England at an entertainment recently given in London by the Chairman of the British India Submarine Telegraph Co. The London Times says of it: "This remarkable instrument writes down in ordinary ink every fluctuation of the electric current received at the end of a submarine cable, and is likely to displace everywhere the mirror galvanometer. The older instrument shows every change by the waving backward and forward on a little spot of light, leaving no trace of its motions. It is almost incredible that men should acquire the skill required to disentangle at the moment the complex motions of this little spot, distinguishing the effects of earth currents, old signals, induction, and what not from the true signal; even with the greatest skill many repetitions are required, and uncertainty often hangs on the interpretation of a word. The new instrument indicates everything without any sacrifice in sensitiveness. A very fine class syphon waves to and fro over a running strip of paper without touching it, and from this syphon, ink is spurted on to the paper in a fine continuous line. The syphon follows faithfully the rise and fall of the received current, and these alternations are arranged so as to form an alphabet."

HEATING STONE-WARE VESSELS.—For many operations it is necessary to heat vessels of stone-ware to a high temperature. A naked fire will cause breakage, and an interposed sand-bath is more or less objectionable. A new method of applying heat, by which a temperature up to 700° Fah. can be obtained, is described by the *Chemical News*: Heavy paraffine oil is caused to circulate through a coil of pipes in a furnace, and then into an air-tight tank, from which it passes, through pipes, to the jackets of the stone-ware pans, returning, after it has done its work, to the lowest part of the furnace coil. A continuous circulation is thus kept up. After leaving the tank, the oil passes through a pyrometer, by which its temperature is indicated, and, by means of dampers, this can be regulated to any required point. The heating medium is turned on or off the jackets by taps, in the same manner as steam. In the model, fitted up to illustrate the method, the pyrometer indicates from 600° to 700° Fah., while a saturated solution of chloride of calcium is maintained at the boiling point in a shallow stone-ware pan. No smell of oil is perceptible in the room; and it is stated that the same oil may be used for years. As contrasted with steam-heat, the inventor claims a saving of 30 per cent. in fuel. The stone-ware used is manufactured expressly to insure its being impervious to the oil.

THOMSON'S ROAD STEAMER.—We find the following among the Glasgow notes, in *Engineering*, of July 1st: "During last week experiments were continued for several days with a view of testing the capabilities of Thomson's traction engine along one of the four-furrow ploughs made by Gray, of Uddingstone. The plough is to be used along with one of these traction engines in ploughing re-claimed land in California. The engine is one of eight horse-power, made by Tennant & Co., and cost £650. Ease and regularity were noticeable in the working of the engine. The facility with which it was turned—the wheels leaving scarcely a mark upon the ground—was sufficient to show that it might be available for cultivating any land that could be worked by horses. In the opinion of practical farmers present the work was well done. The plough worked at about double the usual rate of horses ploughing."

RUBBER SPRINGS FOR LOCKS.—The Birmingham correspondent of the *Engineer* says that a Mr. Wilson has taken out a patent for a lock in which he "proposes to substitute a strong ring of vulcanized India rubber as a spring, in place of the usual steel coil, or double feather spring. He thinks such a spring will insure greater uniformity of pressure upon the slides, besides being more durable than the metal spring."

CIRCULATOR ATTACHMENT FOR BOILERS.

A new apparatus, the object of which is to protect the boiler proper against intense heat, and present to the direct action of the fire a thin layer of water in continuous circulation, is described. It is a semi-cylindrical as long as the boiler, and placed under it, with its convex surface upwards. It consists of two sheets of metal kept apart by longitudinal bars alternately short at the ends, which guide the current of water in its zig zag circulation. The water is conducted by two large tubes, one on each side of the boiler, from its lowest point to the lowest point of the circulator. Being there exposed to the heat, it finds its way to the top, and through a tube into the boiler again near the water line. The steam ascends, and the water descends again through the two large tubes aforesaid, to repeat its revolution.

CARR'S DISINTEGRATOR.—A model of this machine was exhibited at the late meeting of the Institution of Civil Engineers in London. The *Engineer* says: "It consists of four cylindrical iron cages, formed of bars with open spaces between them, arranged concentrically, and rotated with extreme rapidity, in contrary directions to one another, by means of an open and a crossed strap. The first and third cages rotate to the right, the second and fourth to the left. The material is thrown in at the central orifice, and after the lumps are broken by a stationary knife, thrown out by centrifugal force from the first cage at a tangent, and at a speed of from 50 to 80 feet per second. Meeting the beaters of the next cage, a fresh impulse is given in an opposite direction, to meet the beaters of the third cage traveling the reverse way, and so on in like manner with the fourth. If the material is of a friable nature, it is shattered by these successive blows into fine powder, and delivered in a radiating shower from every portion of the periphery, and then arrested by the external casing."

ENAMELING IRON.—A recent English improvement is given in the *Iron Age*: Upon the surface of the plate of the metal to be enameled is laid a uniform ground, of any color required to produce the intended design, as, for instance, a name-plate, or tablet, with the ground white and the inscription blue. The white ground having been fused on in the melting furnace and allowed to cool, there is then applied with a brush evenly over the whole surface a coating of blue enamel, the materials of which are finely levigated and mixed with gum-arabic and water, or other mucilage. When dry, a stencil of the inscription is laid on, and the enamel paste is removed from the parts which are unprotected by the stencil, by the application of a stiff brush leaving the ground clean, except the letters. The plate is then again subjected to heat, whereby the paste, which is fusible at a lower temperature than the ground previously laid, becomes permanently fixed upon it.

IRON WORKS AT ST. LOUIS.—The *Republican* describes the Vulcan Works now building. We quote: "There are to be fifty-four furnaces—heating and puddling—three large engines with fly-wheels weighing 90,000 pounds each, beside six other engines of different sizes, to suit the work to be performed by each. The rolls are to be twenty-two feet in diameter, which will enable the company to make steel rails when it is deemed advisable. The whole is to have a capacity for turning out one hundred tons of new rails per day, on what is termed a single turn, or about one hundred and seventy-five tons on a double turn (night and day). We expect to see the mill in operation by 1st of next January, and giving employment to fully 300 persons."

COST OF GAS AND COAL PER HORSE-POWER.—In an article upon this point with reference to Mr. Goddard's paper recently read before the British Association of Gas Managers, the *Scientific American* says: "We have but to take the statements of Mr. Goddard to verify our opinions as to the cost of the application. He gives as the average consumption of gas per horse-power per hour, in the boiler described, 100 cubic feet. This in New York would cost for one horse-power per day of ten hours exactly \$3.50. Allowing ten pounds per horse-power per hour of coal, with coal at eight dollars per ton, the same power would cost, if coal were used to produce it, only forty cents."

Scientific Progress.

THE GREAT BASIN.—"At the close of the Cretaceous period," writes Prof. Hayden, "the ocean which had rolled uninterruptedly across the area now occupied by the Rocky Mountains began to grow shallow, until at last a long barrier of land gradually rose above the waves, and separated the Atlantic from the Pacific. This elevatory movement culminated in the Rocky Mountains range in the United States, and probably has been going on from the Cretaceous period down to the present day. In the early Tertiary epoch enormous lakes occupied the basin of the Mississippi. The 'great lignite basin,' for instance, extends far southward, possibly even to California, westward far over the mountains to Utah, and possibly to the Pacific, and northward probably to the Arctic sea, interrupted here and there by the upheaval of mountain ranges. The strata which testify to the former existence of this great lake, consist of layers of clay and sand, and numerous beds of lignite, varying in thickness from a few inches to twelve or fifteen feet. In its lower portion an oyster is the characteristic fossil, which by its stunted growth implies a change from salt to brackish water, while in the rest of the formation there are freshwater shells of the genera *Melania* and *Corbicula*. The occurrence of immense fan palms, and many other plants now growing only in tropical climates, points directly to the conclusion that along the shores of this great lake there grew most luxuriant forests, equalled only by those now existing in Central America or Brazil." The date of this lignite formation is possibly Eocene, and certainly pre-Miocene. Some of these lakes continued to exist as late as the Pliocene epoch."

PHOTOGRAPHED NERVE-SECTIONS.—*Nature* says that Dr. Duchenne, of Boulogne, has presented to the French Academy of Medicine an album containing copies of photographs of the appearances presented by sections of the great sympathetic nerve, the spinal ganglia, the spinal cord, and the medulla oblongata greatly magnified. He fixed the photographs on stone by a process he terms photo-autography, the details of which, however, he does not communicate. It is satisfactory to find him stating that the results confirm the substantial accuracy of the beautiful drawings made by Dr. Lockhart Clarke on the central parts of the nervous system, and especially upon the medulla oblongata. In his later experiments Dr. Duchenne has adopted Dr. Clarke's method of preparation with chromic acid and carmine. He states that certain micrographic details come out with wonderful clearness in the photographs, and that by this means some important additions may be made to our knowledge. He has ascertained that in the white substance of the medulla oblongata there are nerve tubules from thirty-three ten-thousandths of a millimetre to three-hundredths of a millimetre in diameter.

MORPHOTROPISM.—In a memoir communicated to the Prussian Academy by Dr. Groth, on the relation between crystalline form and chemical condition, the author remarked upon the failure hitherto experienced in all attempts to apply the theory of isomorphism to organic compounds, and stated that he adopted a new method of investigation, which consists in ascertaining the nature of the change produced in a given crystalline form by the access of a definite atom or atomic group replacing hydrogen. He describes a long series of experiments, which lead him to conclude that there are atoms and atomic groups, which, by substitution, alter the crystalline form of a body only in a certain direction. This change he proposes to call "morphotropism," and he indicates the different modes in which the "morphotropic forces" may be modified in action.

ASTRONOMICAL OBSERVATORY.—A new observatory has been established by the Government of the Argentine Republic in South America, to be erected at Cordova, about the middle of the continent, on the margin of the Pampas, in lat. 31½° S. Dr. B. A. Gould has been invited to organize it, and is going out for the special purpose of extending through the Southern Hemisphere the system of zones, which Bessel and Argelander have already carried from the north pole as far as 30° S. He hopes also to obtain some photometric determinations of the principal southern stars.

STRAW-WAX.—We find the following in *Chemical Excerpta* by Prof. Wurtz: "This was obtained by the investigator, B. Badziszewski, from a straw-paper factory. It is solid; white; greasy to the touch; soluble in caustic alkalis, even boiling; soluble in alcohol, especially when hot; soluble in ether and bisulphide of carbon. It crystallizes from alcohol, in nearly brilliant scales, which are greasy; melts at 108° F. to a colorless oil, which on cooling becomes hard and brittle. Boils without decomposition at 572° F., leaving but little residue. Has a strong odor of rotten straw, due probably to impurity. Bromine attacks it, but hot concentrated nitric acid with difficulty. Concentrated warm sulphuric acid dissolves it, from which solution water precipitates it apparently unaltered. It has some analogy with the sugar-cane-wax, which fuses, however, only at 180° F."

Prof. Wurtz adds: "This onerous class of waxes should receive much further examination. The indifference to alkalis might make this one very valuable. If of value, it should be readily, cheaply, and abundantly obtainable from straw by means of bisulphide of carbon. It does not appear that the author has given any analytical results."

ARGUMENT AGAINST DARWINISM.—In his annual address as President of the Canadian Institute, the Rev. William Hincks makes use of the following argument in opposition to the Darwinian theory of Natural Selection: "Nothing is to me more evident than that both seemingly permanent specific and higher differences, and varieties which have no pretensions to permanence, depend on the comparative development of different elements of a common plan; from which it seems to follow both that the non-existence from the commencement of living nature, of all the distinct plans of structure, is in the highest degree improbable, and that the tendency of development, sometimes in one direction, sometimes in another, among the same primitive elements, must produce a harmonious system; whilst the preservation of the forms best adapted to a situation amongst a great number of variations arising without order must produce a confused mass of objects having no regular relations and incapable of being reduced to a common system. Which of these prevails in nature I cannot for a moment hesitate in deciding, and consequently I must maintain that, if there is variation it must be within definite limits, and according to a fixed plan, so as to maintain a uniform order and harmony in the whole system."

MAGNUS ON HEAT RADIATION.—We take the following paragraph from the biographical sketch of Prof. Magnus by A. Oppenheim, in *Nature* for June 23d: "During the last years of his life the radiation of heat formed the chief object of his researches. A paper on the polarization of the dark rays of heat, the discovery of the diathermanous nature of native chloride of potassium, and lastly a full research on the emission, absorption, and reflection of heat radiated at low temperatures, were the results of this protracted and fertile investigation. He showed that heat from different sources is refracted under different angles, and absorbed in different proportions by the chlorides of sodium and of potassium, by fluor-spar and other substances. He thus proved, that, if our eyes were able to distinguish different rays of heat, we should see the different substances glowing in the most varied colors at ordinary temperatures, just as we see them emit different rays of light when exposed to heat and observed with the spectroscope."

THALLIUM.—At a meeting in Berlin of the Royal Prussian Academy of Sciences Prof. Rammelsberg read a paper on the position of thallium in the series of elementary bodies. He describes several salts of thallium, such as the iodates and periodates, the chlorides, bromides and iodides of thallium and their double salts, and referred to the isomorphism of the salts of thallium with those of potassium (rubidium and ammonium) as shown especially by the researches of Des Cloiseaux. He stated that although both physically and chemically thallium is a metal, it presents a combination of characters in its compounds which renders its precise location difficult.

The telegraphic extensions from India to China, Java and Australia, are being rapidly pushed forward by the English. This year, cables will be laid from Madras to Singapore, thence to Hongkong and Shanghai, and to Java and Australia.

Mining Summary.

The following information is gleaned mostly from journals published in the interior, in close proximity to the mines mentioned.

California.

ALPINE COUNTY.

GLOBE—NEW STRIKE.—*Miner*, July 16th: Last night's shift, in the east drift, struck through a clay casing into the well-defined lode, which is pronounced identical with the Hercules in the M. C. M. Co's shaft. This lode is 630 feet from the mouth of the tunnel.

Monitor No. 3 will probably spend work for a few days until air pipe can be put in. The gas in the tunnel is like that in the Schenectady just before the rich strike three years ago.

GOOD AVERAGE.—From the lot of rock sent by Mr. Hartshorn from the ridge between Alpine and Mono, Mr. Lewis has made four assays, and the average value is \$30.21 per ton.

AMADOR COUNTY.

CONY MINE.—*Ledger*, 22d: The task of erecting a blower is completed, and it has been found to operate to a charm. The work of sinking will be pushed vigorously from this time.

BUTTE COUNTY.

TAYLORVILLE.—*Cor. of Oroville Record*, July 23d: Most of the quartz mills in this vicinity are running and paying well, especially the Crescent and Indian Valley mill. I understand the owners of the latter expect to erect a new mill during the Fall.

CALAVERAS COUNTY.

UNION SHAFT.—*Chronicle*, July 23d: We learn that Peters, Champion & Co. have struck it. They have discovered a large amount of gravel that will pay from four to five dollars per day to the hand.

LOWER RICH GULCH.—The Palomo mill is running day and night, 36 stamps crushing the rock as fast as it can be taken out. There is no diminution in the richness of the quartz or signs of failure on the part of the lode. Alexander & Co. are getting along finely. Their new shaft is sunk 200 feet. Several levels are being run and the rock averages well. Their 10-stamp battery has not stopped during the past two years except for repairs.

RAILROAD FLAT.—The Burr mill is constantly in operation crushing custom rock. The last worked was from the Poe mine, at Independence, which averaged \$18 per ton. The Lewis Bros. shaft has reached the depth of 160 feet. Lefoy & Co. renew operations Monday. A shaft 150 feet has been sunk, disclosing a lead three feet in width. The rock, so far, has paid handsomely. The Chapman mine is not worked. The volume of water cannot be overcome with the machinery. Capital is needed. The Cudell mine is also idle. It is understood that negotiations for its sale to Mr. Thoss, of West Point, are pending. There are rumors that the Petticoat mine is about to be sold for a large sum. Snoddermeyer & Co., of Independence, are taking out good rock and plenty of it. They have a lead three feet in width that will average \$25 per ton. A number of gravel claims are being worked with favorable results.

The Railroad Flat correspondent of same says: Mining prospects were never brighter. The custom mill of Mr. Burr is not only filled with rock, but tons upon tons outside await turn to be crushed. The rock from the Bald Eagle turned out well. The mill at present is upon a lot of a hundred and twenty tons of first quality rock, from the mine of Frank Barney, at Mosquito Gulch. The Mary Ann, a new discovery, by C. A. Cornell, shows a fine body of ore. It is rumored that W. V. Clark contemplates putting the Smart mill in repair, and starting it. We have abundance of ore to keep more stamps employed.

INYO COUNTY.

KEARSAROE MINE.—The Inyo *Independent* of July 16th, gives the history of this mine from the discovery in 1864. It has been since then at different times under the charge of six different managers. Since March last, W. M. Leet has been Superintendent, and considerable bullion has been shipped. There is now on dump 80 tons ore, worth \$100 per ton. Thirty men are employed in mine and mill. The ore now coming out is from the lower tunnel 300 feet from the surface, and averages \$60 per ton.

The *Independent* says the furnaces at Cerro Gordo and Swansea on Owens' Lake, ship over 200 tons bullion monthly, on the average. There are nine quartz mills and four furnaces in the county, besides about 20 arrastras. Most of the mills are idle. They were erected before the ores were understood. The Eclipse mine, 12 miles from

Independence, in the Inyo mountains, is being worked by an English company, which is now putting up expensive machinery.

CERRO GORDO.—*Cor. of same*: The works of Belshaw & Elder consist of two reverberatory slagging furnaces, two blast furnaces, crusher, an improved Root blower, and a 6-horse engine and boiler. C. F. Hahn, while making a cut to the series of ledges discovered by him in 1869, discovered another which he named the Wittekind. It is now considered one of the best in camp. The Cumberland is still richer, though smaller. Work progresses upon both, and they grow richer as they descend.

KERN COUNTY.

HAVILAH.—*Cor. of Visalia Delta*, July 20th: The Big Blue lode is being worked 100 feet in width, and although the ore is of rather low grade, by the aid of heavy machinery can be made to pay. Other ledges belonging to the same Co. are small, but of higher grade. One has been kept going, and another will be started in a week or ten days. At Sageland, Bridger & Co. have made a successful run, and are now re-opening the mine. The gold is there, as has already been proved. The Esmeralda mill is standing idle for want of water. The Joe Walker mill, which has been standing still for more than a year, is expected to start up next week. They have not yet reached the lower level with the new shaft, but have gone sufficiently low to drain the next lowest. The new pump does the work with perfect ease. The Marsh & Kennedy mill is hammering out the gold for all who produce the ore. The mill has not been kept running more than one half the time, for want of rock, and yet there are a great number of mines unworked, which are known to be good. In the Washington district a party of practical miners are taking out excellent ore.

LOS ANGELES COUNTY.

BULLION.—We were yesterday shown 183 ounces of gold bullion, the product of the Eureka mine, Soledad district.

MARIPOSA COUNTY.

RICH STRIKE.—*Gazette*, 22d: Carr & Wark struck an exceedingly rich pocket in their quartz mine near Hornitos, week before last, from which they took in four days 122 ounces of gold. They have been working this vein about eight months, and this is the first return they have received.

It is reported at Hornitos that Robinson & Co., of San Francisco, will soon resume operations in the Oaks & Reese mine, Hunter's valley.

NEVADA COUNTY.

MEADOW LAKE.—*Transcript*, 21st: We learn that there is considerable activity in that locality. Old residents, who left discouraged three or four years ago, are returning. Price & Co. are running their mill regularly, crushing rock from various ledges, and the prospect is fair for the development of a number of good mines.

WATER.—*Same of 23d*: The supply of water in the ditches of the South Yuba Co. has fallen off rapidly. In some claims they have suspended piping, and others will close in a day or two. The water in the lakes is nearly exhausted, and after this week only 500 inches will be run to this section, which will merely afford sufficient for cleaning up.

O'CONNOR MINE.—*Grass Valley Union*, 21st: The Grass Valley Consolidated mine, better known as the O'Connor, is yielding splendid rock. We were shown, by Dan Collins, yesterday, a beautiful specimen containing leaf gold all through it. It was taken out 80 feet below the surface, in the shaft.

EUREKA.—While the mine was making regular runs of \$2,000 per day, we did not care to notice the fact. Since our report a month ago, the yield has not fallen under those figures. On Tuesday last the semi-monthly melting occurred. Eleven days' run of the mill gives \$30,000, not including sulphurets.

GRANITEVILLE.—*Cor. of Gazette*, 20th: The Star mill commenced crushing on the 14th. Robinson and Pendleton, the contractors, have 300 tons of rock at the mill. I think it will pay \$15 per ton. The Mountain Queen ledge is four feet thick at the bottom of the shaft, which is 30 feet deep. The Dower & Cady Co. erected a six-stamp water mill on their claim last winter. After crushing 50 tons, their water gave out. The Jim mine is worked constantly with twenty men. The rock looks well 300 feet from the surface. The Bruchville Co. are erecting hoisting works and will be ready to commence operations in three weeks. They work 12 men. The Banbury ledge, Black & Irwin, is four feet wide. They are taking out fine looking rock 300 feet from the surface. Their 10-

stamp mill is running day and night.

PENNSYLVANIA MINE.—*Transcript*, 26th: The mine has been pumped out and cleared, and Helm commenced yesterday to take out rock. The incline and tunnels were found in first-rate order.

STAR MINE.—We were shown a letter yesterday from Pendleton, in which he states that the mill is running night and day. At present they are crushing rock from the Orleans. The vein in the Star ledge is two and a half feet in width, the rock being mostly decomposed.

BANNER.—Mr. Tisdale, Supt., has shown us a six-ounce gold bar from one ton banner ore by chlorination. The same by mill process yielded \$20 per ton.

PLACER COUNTY.

MORE WATER.—*Herald*, 21st: G. W. Reemer, owner of the Auburn and Bear River Ditch, has purchased the old North Fork Ditch, which has been lying idle since the dam was swept away by the flood of 1862. Mr. R. commenced the construction of a new dam this week at old Tamaroo Bar, and expects to have the water in the ditch before the rainy season sets in.

COLFAX.—*Cor. of same*: The Rising Sun still works her usual quota of men, and keeps pounding away. The Montana contracted for machinery last week to pump, hoist, and run ten stamps, together with all necessary apparatus for a first-class quartz mill. They commence operations next week.

GOLD RUN.—*Stars and Stripes*, 21st: At the old Indian Hill claims on Canon creek, seventy-five inches of water acting on a little hurdy-gurdy wheel, furnishes the power for a mill; which crushes thirty-five tons of cement every twenty-four hours. The tunnel is in over one hundred feet and the company have breasted three hundred feet from the end of the tunnel with satisfactory results.

THE MALLET MINE.—The shaft is 125 feet deep through milling rock of high grade. The ledge has been stripped 230 feet. Free gold is visible almost everywhere. Wm. Green, now owner and manager, is about putting up a mill.

RATLESNAKE.—*Cor. of same*: Martin & Co., at Pilot Hill, struck some rich rock a while ago, above the old Boulder claim. They took five hundred dollars from one pocket.

SAN BERNARDINO COUNTY.

THE GREEN LEAD.—*Guardian*, 16th: Geo. Moore, owner, returned a few days ago from the mine, bringing large chunks of amalgam, the result of four tons of rock. The ore produced \$56 per ton. He is running two arrastras, but intends to erect a large water wheel for milling his rock by machinery.

MORE DISCOVERIES.—We were shown specimens of rich silver ore from a lead just discovered, 30 miles from San Bernardino, this side of Holcomb Valley.

SIERRA COUNTY.

IOWA CO.—*Messenger*, 23d: This company, near Mt. Pleasant Ranch, have sunk their shaft to the bedrock, and will commence a tunnel.

CLEANED UP.—Wilbourn & Co. have suspended operations near Gold Lake, and cleaned up, as water has failed. Prospects for next season are good. They had just reached pay. One specimen worth over \$40 was found. The claims in that section have paid well this season.

ENGINE.—The Nevada Co. at Whisky. have put a steam engine in their claims to pump and hoist. The machinery is 1,200 feet under the mountain, a shaft having been raised for the smoke stack.

Arizona.

THE PROSPECTS.—*Prescott Miner*, July 9th: Mining industry was never more prosperous; the mills now running are paying well; many new and rich mines have been found.

ANOTHER DISCOVERY.—McCrackin, Fine, Taylor and Hogle arrived in Prescott yesterday, from the Bradshaw District, 30 miles south, with a lot of the richest gold-bearing quartz we have ever seen, from a ledge recently discovered on the summit of the Bradshaw. The ore is decomposed, and yields about \$1 to the pound. The ledge is a "blind" one, and the pay streak from thirty inches to three feet in width. The country is well watered, timbered, grassed, and filled with game.

CAMP DATE CREEK.—The ore now being taken out of the recently discovered mines in Martinez District, is surpassingly rich; new veins are being discovered, and people are arriving from every direction. Gen. Cogswell, Col. O'Beirne, Lieut. Chuley, U. S. A., Gov. Safford, and Mr. Wasson, correspondent of the *San Francisco Bulletin*, have visited them. We have Mayflower

ore, which will go \$2,000 to the ton. There is plenty of wood and water, and machinery will soon be erected.

WICKENBURG.—*Cor. of same*: The Vulture mine is looking better than for two years. There is four years ore in sight. The vein matter at the bottom of the main shaft, is 7½ feet wide with 4 feet of concentrated pay ore on the eastern side. They are to sink another hundred feet in the main shaft. This, with the levels that will be run, will make the Vulture the best of the great mines. The mill is running steadily. Last week they took out two of the old mortars and replaced them with new ones, and now the whole 40 stamps are producing as fine results at as any time during the past two years. The ore from the White Picocho resembles that from the Burro mines. A piece of ore weighing six ounces, from a late discovery three miles east of the Vulture mill, gave \$1.70 in gold.

Colorado.

ITEMS.—*Central City Register*, July 20th: The Consolidated Gregory mine, nearly drowned out, is nevertheless paying more than at any time. During May, the net earnings were \$1,200, and in June \$2,200. July will equal June.... W. B. Rockwell showed a bar of gold from the Chlorination Works. It weighs 85 ounces, and would coin \$20 per ounce. This is the last of a half dozen of the same size, within six weeks.... Discovery shaft in the Cariboo mine, Grand Island district, is 75 feet deep, and shows three feet of ore carrying \$210 ounces of silver per ton. Twenty tons have been sold to Prof. Hill for \$3,000. It was of high and low grade.

LAKE COUNTY.—*Cor. of same*: The gulches are all running abundant water. Lost claims are paying well. At Cache creek, the Gaff Co. are doing well, also Snyder & Co. At Granite, the Yankee Blade mill is running steadily. At California Gulch, the Printer Boy, owned by J. Marshall Paul is paying well. Three men puddling this soft material, have been taking out fifty to a hundred ounces of gold per week. The Five-Twenty, and the Pilot, are yielding excellent returns. Two companies are working the Lincoln lode.

ITEMS.—*Herald*, 20th: In the Wamach and Seaton mine a large body of fine ore has been found. The ore vein in the Brown mine, Clear creek, shows the largest body of rich silver ore to be found in the Territory.

SNAKE RIVER (COLORADO).—John Lynch, at Montezuma, started up his new works on Monday on ore from the Shenango tunnel. The pay ore is four feet wide, and assays 150 ounces per ton. James Gallery, in the Simmons, has two feet of \$190 ore. The St. Lawrence Co's works will not start before September 1st: The Boston Co's smelting works, above Montezuma, started up on Monday.

GEORGETOWN.—*Miner*, July 14th: Good mineral has been struck in the Cliff, Democrat mountain.... The bar miners, below Idaho, are sluicing out large quantities of gold dust.... The German Reduction Works send out a brick this week weighing 979.60 ounces, coin value, \$1,186.76.

Forty miners are at work on the Seaton, Idaho district. This mine is turning out large quantities of rich ore.... The Baker Co. shipped this week two bricks, one weighing 790 ounces, coin value, \$794.64, and another weighing 845 ounces, coin value, \$769.12.... The first shipment of Terrible ore, ten tons, to Swansea, England, yielded, by assay, 537 ounces in silver per ton.... Connection between the Marshall tunnel and the Equator drift was consummated to-day, making an underground opening of 1,200 feet. The shaft in the William Ferry is down 50 feet. Twenty-five pounds of the ore yielded at the rate of \$503 per ton.... The pay vein in the James Guthrie is three feet thick.... The Wyoming Co. are driving a tunnel to cut the Ni-Wot lode. The tunnel is six feet wide, by six and a half high, and will be 155 feet in length. Fifty-five feet have been driven. Thirty feet from the entrance the Lebanon lode was cut, disclosing a two and a half foot crevice, with three inches of pay.

Idaho.

FLINT DISTRICT.—*Boise City News*, July 20th: Messrs. King, Hood & Pritchard, worked 15 tons of ore from the Pioneer lode, which produced 3,407 ounces of silver bullion, assaying \$3,433.09. The company has leased Black's mill and intend running the ore through it as fast as it can be taken out.

ALTURAS COUNTY.—Hon. S. B. Dilley, thinks quartz interests are looking up. It is understood that parties who went east, have disposed of several of the largest mines to heavy capitalists.

ITEMS.—*Avalanche*, 16th: Golden Chariot is said to be yielding better than

ever...The McMahon Bros. have commenced work in the Red Mountain mine. Work is progressing rapidly on the Peck & Porter shaft. Only fifteen feet is required to make the connection with the Mahogany...The Empire drift is in between 40 or 50 feet north from the bottom of the shaft, which is 80 feet deep...The Ida Elmore continues to furnish ore enough to keep the mill in constant operation...The proprietors of the Amador mine, Long Gulch, are ground-eluting off the surface...A drift is being run south from the bottom of the shaft of the Morning Star extension. The ledge is 20 inches in width, and yields fine looking ore...Hay & Co., on the Skookum, will work the ore in their new arastra, when completed...Jule thinks he will soon have enough rich ore out of the Chipmunk for a home stake...The Poorman yields 100 tons of ore per week.

IREMS.—Same of 23d: The Cosmos mill has started up on Empire ore...Fred. Warnke and Jimmy Brown brought over 2,000 ounces of bullion from Flint this week...Splendid looking ore continue to be taken from the South Extension of the Morning Star...Twenty tons of Skookum ore at Trask's arastra, yielded well...The Red Mountain shows a ledge ten inches in width...Jones & McMahon are taking good looking ore from the old etopes of the Silver Cord...The Chipmunk shaft is down 25 feet. It is rich in gold and shows more oilver.

LOON CREEK.—Oro Grando Cor. of same: Work is now going on up and down the creek for five or six miles, and considerable money taken out. One day last week in sinking the hole to set a pump in Forrester's ground, they panned out over \$500—\$42.75 in one pan. All the men are being employed that can possibly be crowded into the claims. There are more men in camp than can get employment.

The *World's* correspondent, 21st, says: The upper flume company commenced operations Thursday. They, Gaunt, Lundy & Co. have in 300 feet of flume; Forrester & Co. have about the same next below. They yesterday got \$40 in one pan of dirt from the bedrock. The lower flume is 1,025 feet in length, and was laid in one by three distinct companies, Adams & Kinley, 400 feet; Mayfield & Co., 200 feet; Challis, Murray & Co., 425 feet. The water was turned into the flume yesterday.

Nevada.

COPE DISTRICT.

IREMS.—Elko *Chronicle*, July 24th: The Argenta Co. have 200 tons ore on dump; are working eighteen men, and will commence milling again in a few days...Excellior has a few men at work; body of quartz in one place five feet wide...Crescent shaft is down 218 feet, on an angle of 40 degrees; they have had 234 tons of rock milled with satisfactory results. The average width of the ledge is three and one-half feet.

Kneisley & Co have struck a galena ledge at Bull Run that assays \$155 in silver.

ESMERALDA.

AURORA.—Cor. *Inyo Independent*, July 16th: Aurora is not dead yet. The Wide West mill will be started up in a week or ten days. The old Esmeralda and Antelope claims are being reopened, and miners are getting out ore. It is thought that these two mines, with the small force at work, will keep ten stamps running. Other mines are being opened.

HUMBOLDT.

ARIZONA LEDGE.—*Silver State*, July 22d: The Silver Co. have made another rich strike, and have put on an extra force. Fall & Temple's mine is looking brighter than ever. Both are rushing ore down to their mills at the rate of fifty to sixty tons per day.

RELIEF DISTRICT.—The Central Pacific mine, Miller & Co., bids fair to become one of the finest. The ledge is enormous, and they are getting a large quantity of pay ore. Another lot of selected ore will be shipped to the Auburn Mills, Reno, in a few days.

REESE RIVER.

The *Reveille*, of July 23d, says: The Manhattan mill has made a good start and is doing capital work. The value of the ore around Austin now waiting reduction is estimated at \$400,000.

BELMONT.—Cor. of same: Never has the prospect been so bright. The El Dorado mine is taking out ore from a level 240 feet deep, which will yield \$200 per ton. They yesterday, with one blast, took out a thousand pounds which, in my judgment, will go \$4,000 per ton.

The Canfield mine are being worked with thirty-five men, and through the entire extent, from thirty to eighty feet deep,

the ledges is from two to four feet thick. The ore pays from \$100 to \$200 per ton. Mr. Canfield has been running the old Buel 10-stamp mill for a month and a half, and has shipped over \$25,000 worth of bullion.

The Arizona incline is down eighty feet on a ledge of three feet, paying from \$200 to \$500 per ton. They have much ore sacked for mill.

The Combination mine and mill are standing idle. The reason is best known to the Company.

TELEGRAM.—Austin, July 26th: The Manhattan Co., have shipped, in the last four days, to New York, seventeen bars of bullion, valued at \$25,526.

WASHOE.

YELLOW JACKET.—*Gold Hill News*, July 23d: Daily yield 350 tons; 200 low grade ore from the upper level, and the balance high from the rich section between the 800 and 900-foot levels. Superintendent's annual report shows product of mine to be \$1,779,227.

OCCIDENTAL.—The old mine is yielding steadily, with more ore in eight than ever before. The lower tunnel is being thoroughly repaired.

SAVAGE.—Annual report shows product of mine to be about \$300,000.

HOPE.—Daily yield 40 tons, keeping both mills running. The ore averages \$25 per ton.

KENTUCK.—The yield has been slightly augmented by the development of a small streak of good ore four feet wide at the 80-foot level.

SACRAMENTO & MEREDITH.—The new mill is running at its full capacity on ore from the extensive ledge in the upper workings. **GOULD & CURRY.**—Daily yield 40 tons, assays averaging \$32. A new station is opened between the sixth and seventh.

OPHIR.—Drift No. 2 is pushed ahead with excellent promise. The mine is closed against outsiders.

HALE & NORCROSS.—Daily yield 240 tons, principally from the lowest level. The ore breasts look as well as ever.

CHOLLAR.—Daily yield 300 tons; average assays, \$62. The Belvidere section yields more abundantly, but the quality is not so good.

VIRGINIA CONSOLIDATED.—The drift at the 500-foot level of the new shaft is in 472 feet. Rock works favorably, and water less troublesome.

CROWN POINT.—Daily yield 50 tons, low-grade ore from the upper levels. The incline from the 1,000-foot level is down over 150 feet.

WHITE PINE.

REVIEW.—*News*, 24th: The transfer of leading properties, and resumption of operations thereon, has had the effect to re-establish confidence in the ultimate prosperity of the district. The initiatory steps for the re-establishment of refining and separating works, here and at Eureka, for the treatment of base bullion, contribute largely to the prospects of improved times.

BULLION.—Our exports of fine bullion during the week aggregate \$34,053.87, of which \$18,920.31 went West, and \$15,133.56 East.

ITEMS.—The forces on the Aurora Consolidated end Eberhardt, under the new management, are shortly to be increased. We learn that the erection of a 40-stamp mill, at Eberhardt City, has been decided upon...The Aurora South continues to maintain its reputation, and the shipments of treasure from the Stanford mill aggregate \$16,000 per week...The Silver Wave is yielding an abundance of high-grade ore. The Perkins shaft is down 53 feet—24 of which is in ore and vein matter. A fine body of ore struck in the Wheeler shaft, at a depth of 40 feet...Increasing activity about the Wabash and Hemlock.

...Captain Rogers is prosecuting work on the Noonday...Base metal mines are more sought after than any other. The Jennie A. Consolidated, Flannagan, Maggie Consolidated, and others are daily improving...Some high-grade ore was struck on Thursday in the Chempion mine, Pinto. It is the richest yet in that section. ...Piermont ore worked \$182 per ton without assorting...Some rich ore came in yesterday from a new district east of White Pine...Governor Matteson's furnace machinery has arrived at Elko, and may be expected here next week...But three furnaces are in operation—Rathburn's, Weiland's, and Walsh's. The White Pine will shortly fire up; the creditors having been settled with at 50 cents on the dollar. The Aleop is still waiting for returns from the bullion forwarded to Newark...Pritchard & Co. shipped 40 tons of coarse bullion for the week, and have 26,700 pounds from Wieland's furnaces to forward to-day.

A NEW PAPER.—We are glad to see that the second number of the *Inyo Independent*, lately started at Independence, Inyo County, fully sustains this favorable impression created by its first issue. We find such articles as that on Inyo County most interesting and instructive, and we rejoice that a good paper has been started in that section of the State.

WILLAMETTE UNIVERSITY.—The annual election on the 21st inst. resulted as follows: President, T. M. Gatch; Professor of Mathematics, L. J. Powell; and Rev. C. C. Stratton, Professor of Natural Sciences. The institution has an average attendance of over two hundred.

OCEAN RACE.—In the race across the ocean, the English yacht *Cambria* led the American *Danforth* one hour.

New Incorporations.

The following have filed certificates with the County Clerk, San Francisco:

BUCKEYE M. Co.—Ophir District, Placer Co., July 18. Capital stock, \$100,000, divided into 2,000 shares. Trustees: C. W. Kellogg, J. D. Fry, F. Jones, J. W. Gashwiler, Mark L. McDonald, J. T. Greenman, and G. D. Roberts.

OMIONAL AMADOR M. Co.—Amador County, July 18. Capital stock, \$1,200,000, divided into 12,000 shares. Trustees: Thomas Bell, Geo. Hearst, Charles Bonner, John H. Paull, and J. W. Gashwiler.

ANTI-COOLIE LAUNDRY ASSOCIATION.—Capital stock, \$50,000, divided into 10,000 shares. Trustees: J. M. DePass, M. V. Casey, John Whalen, T. Devine, and J. W. Erells.

EUREKA REDUCTION AND MINING WORKS.—Lander Co., Nevada. Capital stock, \$100,000, 1,000 shares of \$100 per share.

The following have been recorded in the Secretary of State's office, Sacramento:

COLE SPRING GRAVEL M. Co.—Nevada county, July 14. Capital stock, \$40,000, in 400 shares. Trustees: A. Isard, Ed. Muller, J. B. E. Cavallier, E. Derbec, I. J. Rolfe.

Meetings, Elections, Etc.

MOUNTAIN CITY M. Co.—Cope District, July 13. Trustees: Nathaniel Page, William H. Sharp, Stephen Otis, Isaac B. Davis and B. Frank Page.

WASHINGTON M. Co.—Mariposa Co., July 13. Trustees: Nathaniel Page, J. P. Dyer, J. B. Haggin, Thomas Bell and B. F. Tuttle.

OVERMAN M. Co.—July 14. Trustees: M. J. McDonald, A. Hemme, O. H. Bogart, L. Vesaria and George W. Cope.

MARKET STREET RAILWAY Co.—July 14. Directors: Charles Mayne, Peter Donahue, H. M. Newhall, Henry Barroilhet and James O'Neill.

YELLOW JACKET MINING Co.—July 18. Trustees: J. B. Winters, (President and Superintendent), William Shanon, F. G. Taylor, N. H. A. Ball and T. D. Storer. F. Foskison, Secretary; Bank of California, Treasurer.

PACIFIC POWDER MILL Co.—July 19.—Trustees: A. Hayward, A. N. Coleman and Nelson H. Olds.

TECUMSEH G. S. M. Co.—July 21. Trustees: J. Greif, H. Suhling, J. Hahn, G. Koppitz and L. Hazelquist.

SAVAGE M. Co.—July 21. Trustees: M. Morgenthau, I. Steinhart, Wm. H. Sharp, E. J. Baldwin and A. Goldsmith.

CALIFORNIA SALT MANUFACTURING Co.—July 21. Trustees: M. G. Kennedy, (President), James Del Johnson, (Secretary), P. H. Burnett, (Treasurer), Henry F. Williams, M. Fennel, J. C. Pillsbury and Thos. H. Purves, (Managing Director).

Mining Shareholders' Directory—Meetings, Assessments and Dividends.

(Compiled weekly from advertisements in the SCIENTIFIC PRESS and other San Francisco journals.)

NAME, LOCATION, AMOUNT AND DATE OF ASSESSMENT	DAY	DAY
	DELINQUENT.	OF SALE.
American, G. H., June 13, \$3.....	July 18—Aug. 5	
Aurora Cons., W. P., July 7, \$5.....	Aug. 10—Sept. 1	
Alpha Cons., G. H., July 13, \$1.....	Aug. 22—Sept. 20	
Belcher, G. H., June 8, \$4.....	July 11—July 30	
Cordillera, Mexico, June 8, 50c.....	July 9—Aug. 1*	
Cherokee Flat, B. G., June 17, \$5.....	July 19—Aug. 9	
Cons. Virginia, Story, July 6, \$1.....	Aug. 10—Sept. 1	
Daney, Lyon Co., July 6, \$1.50.....	Aug. 11—Aug. 30	
Excelsior, Argentina, June 22, 50c.....	July 30—Aug. 20	
Evening Star, No. 1, W. P., June 4, 5c; Aug. 4, 25c.....	Aug. 25—Sept. 15	
Featherstone, W. P., June 14, 20c.....	July 20—Aug. 11	
Gould & Curry, July 14, \$12.50.....	Aug. 18—Sept. 8	
Hall & Van Dyke Cons., June 7, 50c.....	July 23—Aug. 20	
Julia, July 22, 75c.....	Aug. 25—Sept. 12	
Jennie A. Cons., W. P., June 20, 10c.....	July 25—Aug. 15*	
Lafayette, W. P., June 2, 15c.....	July 14—Aug. 6*	
Mountain City, Elko Co., July 14, 25c.....	Aug. 29—Sept. 26*	
Mineral City,	May 24—July 28	
Noonday, W. P., July 20, 20c.....	Aug. 24—Sept. 30*	
Nevada L. & M., W. P., July 12, 10c.....	Aug. 11—Aug. 29*	
N. Bloomfield Gravel, June 20, 5c.....	July 23—Aug. 9	
N. American Cons., June 16, 50c.....	Aug. 17—Sept. 7*	
Orient, Sierra Co., July 7, 25c.....	Aug. 30—Aug. 20	
Pinto, W. P., July 22, 10c.....	Aug. 25—Sept. 15	
Pogonip Flat, W. P., June 15, 3c.....	Aug. 2—Aug. 18*	
Placer G. & C., Placer Co., June 11, \$2. July 28—Aug. 15*		
Silver Vault T. & M., W. P., July 20, 5c.....	Aug. 26—Sept. 15	
Sophia Cons. 50c.....	July 27—Aug. 16	
Wheeler, Pine Grove, June 28, 50c.....	July 30—Aug. 20	
MEETINGS TO BE HELD		
Columbus.....	Annual Meeting Aug. 1	
Globe.....	Annual Meeting Aug. 2*	
Ida Elmore.....	Annual Meeting Aug. 1	
Maxwell.....	Annual Meeting Aug. 1	
Sierra Buttes.....	Annual Meeting Aug. 1*	
Union.....	Annual Meeting Aug. 8	
White Pine Mining.....	Special Meeting July 28	
West Point.....	Annual Meeting July 28	
LATEST DIVIDENDS—(Within Three Months)		
Amador, div. \$10 per share.....	Payable April 7, 1870	
Eureka, div. \$7.50.....	Payable July 7, 1870	
Golden Rule, div. 50c.....	Payable March 25, 1870	
Hale & Norcross, div. \$5.....	Payable July 9, 1870	
Kentuck, div. \$5.....	Payable Feb. 10, 1870	
North Star, div.	Payable May 0	
San Marcial, div. 50c.....	Payable June 10, 1870	
Union, div. \$1.....	Payable July 7, 1870	
*Advertised in this journal		

San Francisco Mining Stock Market.

MISCELLANEOUS STOCKS.

During the past week we note sales in the Board of a considerable amount of Legal Tenders, 60 shares Spring Valley Water at \$68 25@69 50 h 30, and 10 shares California Trust Co. stock at \$125 per share. The Savings and Loan Society (Clay street) announce a dividend of 11 per cent. per annum out of their earnings for the first six months of the current year, and the Hibernia 10 per cent. for the same period.

The following quotations have been carefully revised by F. H. Woods, Broker:

Name.	Bid.	Asked.
U. S. Bonds, 5-20—1863, '67, '68.....	91	93
U. S. Bonds, 5-20—1864.....	91	91
U. S. Bonds, 5-20—1862.....	91½	91½
Legal Tender Notes.....	84	85
California State Bonds, 7½, 1867.....	98	—
San Francisco Bonds, 10c, 1868.....	par & int't.	—
San Francisco City Bonds, 6½, 1868.....	86	—
San Francisco School Bonds, 10c, 1869.....	100	—
San Francisco School Bonds, 10c, 1870.....	par & int't.	—
San Francisco City and County Bonds, 6½, 1868.....	83	85
Sacramento City Bonds.....	33	35
Sacramento County Bonds, 6½.....	71	80
Central Railroad Co., 10c.....	75	75
Stockton City Bonds.....	85	90
Yuba County Bonds, 8½.....	85	—
Santa Clara County Bonds, 7½.....	80	80
Butte County Bonds, 10c, 1869.....	80	85
San Mateo County Bonds, 7½.....	80	—

San Francisco and Miscellaneous Stocks.

Name.	Bid.	Asked.
California Steam Navigation Co.....	46	48
San Francisco Gas Co.....	88	89
Sacramento Gas Co.....	68	68½
Spring Valley Water Co.....	—	84
Gumby Railroad Co.....	—	84
Central Railroad Co., 10c.....	75	75
North Beach and Mission Railroad Co.....	70	75
Front Street, Mission and Ocean Railroad.....	14	17
Do do preferred.....	—	17
Fremont's Fund Insurance Co.....	105	108
Pacific Insurance Co.....	105	108
Mechanics' Mutual Marine Insurance Co.....	560	560
San Francisco Insurance Co.....	105	108
Union Insurance Co.....	94	96
Occidental Insurance Co.....	94	96
People's Insurance Co.....	86	88
The Bank of California.....	127	130
Pacific Bank.....	97½	100

MINING SHARE MARKET.

Mining Share Market.

We have to report a tolerably active condition of the mining stock market for the past week, resulting in an increased volume of transactions, and at well maintained prices, Savage, Yellow Jacket and Original Hidden Treasure having been the most prominent.

From the report of the White Pine News, for the week ending July 23d, we extract the following opening remarks:

Matters in the mining world have materially improved for the past week. In White Pine, especially, better feeling obtains than for many months past. The transfer of leading properties, and resumption of operations thereon, has had the good effect to re-establish confidence among all classes in the wealth and ultimate prosperity of the District. The initiatory steps for the establishment of refining and separating works, both here and at Eureka, for the successful treatment of base bullion, has also contributed largely to the prospects of improved times in all branches of business. Upon the whole, it would nearly seem certain that the local monetary pressure, which has so long clouded and thwarted all legitimate enterprise, about being relieved, and that Eastern Nevada, and White Pine in particular, is just entering upon an era of unparalleled prosperity. It is true, that the beneficial results to come from the important improvements now in course of construction, are as yet scarcely noticeable; still, people generally are more hopeful of the future than at any time in the history of the District.

CHOLLAR-POZOS.—has been less active than during the previous week, at slightly reduced figures. For the week ending July 23d, 1186 tons of ore were extracted, showing an average assay value of \$61 87 per ton. We learn of nothing of importance with reference to further developments in the old working localities, and the drifts from the New Shaft do not give any better encouragement than previously reported. On the 26th inst., \$32,884 in bullion was sent forward to the office in this city.

HALE & NORCROSS.—has improved since our previous reference. For the week ending July 23d, 2,024½ tons of ore were taken from the mine, against 1,638½ tons the previous week. The winze is said to be upwards of 68 feet below the seventh station level, and as yet exhibits no change in the quality of ore they are passing through, the assays averaging from \$40 to \$55 per ton.

IMPERIAL.—was in the market to a larger extent than usual at well maintained rates. On the 25th inst., the west cross-cut had attained a distance of 27 feet, the face showing only barren quartz. The sinking of the shaft continues very favorable. At the old works they are getting along very well with retimbering, and think they will be able to start up by the first of August.

GOULD & CURRY.—sold quite freely at improved and fluctuating prices. During the week closing July 25th they extracted 201½ tons of ore, showing an average assay of \$31 17 per ton. The seam of ore in the south-east drift, about which the Superintendent telegraphed has as yet developed nothing of value.

KENTUCK.—sold at somewhat better rates. For the week ending July 23d, 186½ tons of ore were extracted, yielding, by assay valuation, \$2,830 97, equal to \$15 22 per ton. Otherwise nothing encouraging has transpired.

...Crown Point met with more than usual inquiry. During the week ending July 23d, 362½ tons of ore were taken from the mine, assaying \$4,034, or \$11 13 per ton. The incline is now down 154 feet, and the work in it is progressing very satisfactorily.

BELCHER.—is not much inquired for. A letter of the 21st inst., states that in the east drift, near the southern line, on the 730 level, they found several quartz seams running parallel with the drift, containing pay ore. The ore seam on the 152 level is somewhat narrower than heretofore, but the car samples give an assay value of over \$30. The 262 level is producing about nine tons of ore per day, assaying \$28 to the ton.—JULIA loved an assessment of 75 cents per share on the 22d inst.

NOONDAY (W. P.) levied an assessment of 20 cents per share on the 20th inst.—Commercial Herald.

SAN DIEGO.—The removal of the county officers from Old to New San Diego, does not seem to be so easy a matter after all. A lawsuit is threatened.

Farming and Gardening.

COMMUNICATIONS for this department are solicited from all parts of the Pacific States and Territories.

Drilling Wheat.

We last week showed that however well land may be plowed, and however carefully this seed may be sown and covered, broadcast, it will be deposited at uneven depths and grow irregularly. The only way to secure the uniformity of growth, so desirable in wheat and other cereals, is by drill sowing. The advantage of this mode of putting in wheat may be summarized up as follows:

The seed is covered deeper; it is covered more regularly; less seed is required; it permits the destruction of weeds by mechanical means; there is a circulation of air through the growing grain, and it generally stands better in harvest time.

The practice of drilling in wheat is almost universal in England, and is fast coming into general practice in the Atlantic and Mississippi States. The department of agriculture has collated much information upon the two practices of broadcast sowing and drilling, and gives a decided preference to the latter.

The chief advantage desirable from drill-sowing is the regular deposition of the seed, at whatever depth may be chosen, which depth may be easily regulated according to the nature of the soil, climate, or whatever other local contingencies may exist.



FIG. 1.

Fig. 1 represents the seeds deposited by a drill. The figure being a cross section of the ground, it will be observed that the seeds are placed in rows at regular distances apart, and at a uniform depth. A good drilling machine, well handled on properly prepared ground, will always ensure the uniformity here represented. The manner of growth from such uniform



FIG. 2.

sowing is faithfully shown in Fig. 2, where the plants are seen to be all of the same height and strength, a circumstance which may reasonably be expected to result in the production of a uniform quality of grain. The saving of seed is also a very considerable item in economy of drill-sowing. This saving will range from 20 to 30 per cent or more.

The great evil of broadcast sowing, especially where thick sowing is practiced, is the crowding of the plants together into a space where neither sufficiency of air, or ground for the spreading of the roots can be obtained. The consequence is that, as soon as the plants have arrived at a period of growth at which their wants become most necessitous, a struggle for existence commenced between them, which terminates either in the killing off, or so retarding the growth of the weaker, that only imperfect grains are produced, which, if not taken away from the more perfect ones by the separator, brings down the average of the whole product to their own depreciated standard, and thus greatly reduces the value of the crops.

Another important advantage derivable from drill-sowing is the fact that, where the soil is much given to weeds, an opportunity is presented to destroy the same in the early stage of their growth, so as to give the wheat an opportunity to get such a start as to overshadow and kill out the

second or third crop of weeds. Such cultivation, and the free admission of air between the rows, down even to the roots of the plants, where its presence, in motion, is very necessary, secures a healthy growth and is serviceable, to a great extent, in preserving the grain from rust and other similar diseases, nearly all of which are more or less due to feeble growth and poor circulation.

We may here remark that the practice of thin sowing, and thorough cultivation, and dressing the soil, is making considerable, but by no means so much progress as it should do, at the East. It is, however, well understood and quite universally practiced in England. Thick sowing should not be practiced on rich or well-dressed soil; because it produces a dense mass of vegetation, which obstructs the passage of light and air to the roots, and prevents the "tillering" which is so natural to the cultivated cereals. "So eager are plants for light," says Mr. Mechi, the distinguished English farmer, "that, when deprived of it horizontally, they rush up vertically, become weak-legged, and tumble down prematurely. The robust, wide-spreading wheat plant, with its broad flag and bold, full ear, is crowded and cramped into a thin, weak stem, with puny ear, and few and small kernels. The stem, when it issues from the ground, is soft and spongy, instead of hard and glossy. This desire of plants for light is apparent under many circumstances." Raising wheat in drills furnishes the light and air so much needed.

In running a cultivator between rows of wheat, care must of course be taken that the ground is not stirred after the lateral or "crown" roots have been sent out in any great numbers in search of food, as the destruction or multiplication of these can scarcely be compensated by the removal of weeds.

As we have already said, the impression is fast gaining ground that drill-sowing is much superior to broadcast in agricultural practice; in fact, nothing is better established than this, and we have yet to learn of the first instance where its actual trial has failed of superior results. Reports at the Department of Agriculture, in Washington, from almost every section of the country, have shown, within the last two years, that in many instances, at least, there has been a gain in favor of drilling of 20 to 25 per cent. over broadcast sowing.

Drills, and cultivators suitable for use in connection therewith have been greatly multiplied and improved of late years, and are now constructed not only to sow wheat, oats, rye, etc., in any given quantity, but also to sow the same with grass seed and fertilizers.

ASHES FOR GRASS.—Mr. Reade, Superintendent of the Reade paper mill, in Connecticut, recently stated in the American Farmers' Club that he had cut from four to five tons of clover on two acres of land, which had been generously treated to a dressing of ashes (from fifty to seventy-five bushels to the acre) for two years, and that on other portions of the same field that had been manured exactly the same, without the ashes, the crop was not a ton. The ashes were a mixture of chestnut and oak. The land was sandy, and not very rich. Clay soils are but little benefited by ashes; but for sandy land good, hard wood ashes are almost invaluable.

TO GET RID OF STUMPS.—There are two very effective ways of disposing of stumps—not quite so effectual as the puller, but very handy when a puller cannot be readily obtained: Bore a number of holes and fill them again and again with sulphuric acid. This eats away the wood and hastens decay. Another is to fill the hole with petroleum or kerosene till the wood is pretty well soaked, and then the stump will burn off even with the ground.

Small-Fruit Cultivation—Hints.

BLACKBERRIES.—Those who raise blackberries must have noticed that some are sweeter than others; and not unfrequently those that lack in sweetness are good looking and plump. Again, some berries have a slightly bitter or insipid taste—this proper flavor is lacking. Now there must be a reason for these differences. Examine your vines. You will perhaps find a limb partly broken off, with berries upon it; taste them and they are bitter—insipid. The cause is the lack of vigor in the shoot upon which they have grown. Its mutilated state has prevented the proper amount of sap from finding its way to the fruit. If you will reflect a moment this hint will be sufficient. All your vines which bear imperfect fruit are lacking in healthy vigor. If the branches are not mutilated there is something the matter at the root. If the ground is packed, loosen it a little with a dibble or some instrument that will not cut off the roots, and manure it thoroughly, and you will be amply repaid for your trouble in the improvement of the next crop. Barren yard manure is good; decayed leaves or chip dirt are better.

Pruning is also very important with both the blackberry and raspberry. This should be done with care and judgment. The life of the shoots of these bushes ends with their second season. Last year's wood produces this year's fruit, and then dies; after which it should be carefully cut away—not broken or pulled.

Summer pruning is a good practice—the tops of the longest this-year shoots and their laterals are cut off—one-quarter to one-third of the length being removed. This should be done immediately after the fruit has been gathered—better than late in the fall. Such pruning greatly improves the fruit that will be produced on branches so treated the next season. Four or five canes to a stool is enough, and they should be kept tied to a stout stake. Set out in rows five to six feet apart, and place the hills four feet from each other.

The blackberry in two or three years forms a complete network of long, fleshy roots, which will throw up numerous canes unless measures are taken to destroy the young shoots. These shoots should be kept down with much care, or you cannot have vigorous plants and good fruit. The roots can be kept within any desired bounds by surrounding them with 12 or 14-inch boards, placed edgewise in the ground, so that the top edge is just even with the surface.

RASPBERRIES will grow well on almost any soil that will produce good corn, if the ground is kept loose and well cultivated. They do not require a wet or even moist soil. Raspberries will yield plentifully, even in a dry season, on soil where you may have to dig from 25 to 40 feet for water, provided the ground is kept well cultivated up to the time of ripening the fruit, and the fruit is cultivated in an open manner; while without frequently stirring the soil the crop will fail on ground where water may be reached in ten feet, especially if the plants are crowded together so as to prevent a proper access of the sun to the roots. Open cultivation, heavy mulching immediately around the bush, and a frequent stirring of the soil, will do wonders with the raspberry.

GOOSEBERRIES should be well cultivated, and the branches so thinned out as to admit the sun freely to the roots. It is also an advantage to keep the ground well mulched. Decayed leaves or fine chip dirt make the best mulching material. Gooseberries may be packed for the market in crates or boxes; but care should be taken that they are not placed in too large packages, else they may "beat."

The **WHORTLEBERRY** is a much-neglected fruit, though without reason; for it is much liked, and makes a most excellent

pie. It is rarely found in our gardens or small-fruit patches, though there is no difficulty in its cultivation, wherever a proper soil can be obtained for its growth. The whortleberry likes a moist, spongy soil, not over rich. This blueberry is especially dependent upon moisture. These berries are very rare on this coast, although there are locations where they might be cultivated to advantage. They have the important advantages over most other small fruits—of excellent keeping qualities. The Whortleberry is capable of much improvement by cultivation. With care it may be grown much larger and more juicy than when it is confined to its wild or natural state.

The Yosemite Black-Cap Raspberry.

As there has been much enquiry as to the merits of this fruit, and I have promised several parties that I would examine and report upon it, I have visited the grounds of Mr. T. S. Fitch, in Alameda, and am prepared to express an opinion. He has about a half acre of vines, three years old. They are very strong and vigorous growers; the color of the bark is a purplish brown, spotted with green. The foliage is abundant and resembles the blackberry. The whole plant, even to the spines of the leaves, is savagely armed with thorns. It fruits sparingly and the berry is scattering. They are flatter in shape and quite as large as the common cultivated sorts. It lacks the rich and sprightly flavor of the wild raspberry of the East; but has a singular, though not unpleasant taste. When fully ripe, it is soft and quite black, yielding a beautiful crimson juice when crushed. Mr. F. prefers it as a table fruit, with sugar and cream, to any other.

While I might advise amateurs to try a few plants as a curiosity, I must nevertheless pronounce it a failure, and worthless for field culture. Even if it did produce well, which it does not, the fruit is too soft to bear handling for market. Several parties have been to considerable expense in propagating this variety, with the intention of profiting by its introduction; but it is now admitted to be a failure.

S. H. HERRING.

CEDAR ASHES.—A gentleman living in Pine Valley, near Palisades, on the Central Pacific Railroad, recently reported to our correspondent, "W. H. M.," that he had placed a lot of cedar ashes and decomposed chips of the same wood (such as grows in that region) upon a garden patch, and that the dressing thus employed had destroyed all vegetation upon the same. The ashes certainly could not have worked the destruction of his vegetables. No soft wood ashes are of much value as a manure; but they do not possess any property which would be injurious to the soil. Chips or sawdust, from the tannic and other acids which they contain, might have so "sonred" the soil as to have rendered the same unfit for most vegetable growths. A free use of lime would neutralize such acid and restore the soil to its former condition; while the subsequent gradual decay of the chips and sawdust might therefore act as a slow, but very effectual fertilizer.

GROUND CHEAT FOR BEE FOOD.—Mr. R. R. Hudson, of Culpepper county, Pa., writing to the *Bee Journal*, says: Last spring I had about two bags of cheat to grind; and before I had ground the half of it my bees came to the meal chest in large numbers, and commenced packing it on their legs. I then ground some nice rye, and placed it in a box side by side with the cheat. The result was the bees would not touch the rye, but worked vigorously on the cheat. I then took a box of each, and placed them near the hives, with the same result.

NORWAY OATS.—The Nevada *Transcript* says that Mr. Rodden has some six acres of Norway oats growing near Bear river, which bids fair to yield enormously. Some of the stocks are six feet three inches high! This item is especially suggestive of the importance of our mountain lands for agricultural purposes.

The Santa Cruz Farmers' Club.

The principal business before the club at their meeting on the 16th inst. was, to the reading and consideration of the report of the Committee on Taxation, appointed at the previous meeting. The report was fully endorsed by a vote of the club, and, on motion of the Secretary, Mr. J. W. Morgan, it was voted to furnish a copy for publication in the local papers, and also to the State Board of Equalization, asking their advice in the matter. A copy of the report was also forwarded to this office, for publication in the SCIENTIFIC PRESS.

After disposing of this report, the subject of "Breeding and Managing Stock" was discussed at considerable length, and finally laid over for further consideration at the next meeting, which will be held on the first Saturday in August.

As this report of the committee on the taxation of lands in Santa Cruz county covers a cause of complaint which appears to be quite general throughout the farming counties of the State, we give it entire, as a matter of general interest. It is to be hoped that the State Board of Equalization, to whom it has been now referred, will give this whole matter of the asserted unequal taxation of our farming lands that attention which the importance of the subject demands. We shall watch with interest for the action of that body thereon.

Report on the Taxation of Farming Lands in Santa Cruz County.

Your committee appointed to collate some authentic and reliable facts relating to the inequality of assessments in Santa Cruz county, beg leave to report that they have carefully examined the assessment roll for 1869 and '70, and cite the following cases to show how unequally the burden of taxation is borne by our people:

Davis & Cowell own, in the immediate vicinity of Santa Cruz, 5,124 acres of land, a portion of which is valuable for agricultural purposes; but especially so, because of the rich and extensive beds of lime rock upon it; while the balance of this land, situated on the San Lorenzo river, is covered with some of the finest timber in the county; and yet this land is assessed at only on an average of \$4.31 per acre.

Mr. Rufner has a farm of 143 acres on the coast road, assessed at \$12 per acre; while H. P. Rice's $3\frac{1}{2}$ acres adjoining is assessed at \$120 per acre.

County Assessor Taylor owns 10 acres of land in this neighborhood, assessed at \$30 per acre, and Wm. H. Mason's 6 acres across the road, and of no more value, is assessed at \$80 per acre.

The farm of Supervisor Anthony, of 88 acres, valuable for town lots, is assessed at about \$30 per acre; while several of his neighbors who own each a few acres are assessed at prices ranging from \$75 to \$100 per acre.

In Soquel, the home farm of John Dauenbiss, consisting of 300 acres, is assessed at \$15 per acre; while Dr. Robertson's $9\frac{1}{2}$ acres adjoining are valued at \$46 per acre.

Mr. Averone has 55 acres of land where he lives in Soquel, assessed at \$32 per acre; and F. A. Hihn owns better land by the side of it assessed at \$10.34 per acre.

The farm of Augustus Noble, of 116 acres—some bottom land—is assessed at \$9.60 per acre; but Patrick Cassidy's $8\frac{1}{2}$ acres, same quality of land, adjoining, is assessed at \$37 per acre.

F. A. Hihn's land—5,070 acres—in the Soquel Augmentation, valuable for its fine timber, as well as for grazing and vineyard purposes, is assessed at less than 82 cents per acre. The very valuable farm of 115 acres of bottom land, worth \$75 per acre, of Supervisor Dean, was assessed at \$9.50 per acre, but reduced by the Board to \$3.50 per acre.

The cases above cited are only a few of those which might be taken from the last assessment roll to prove the inequality and unfairness of assessments in this county. Your committee does not say that the Assessor and Board of Equalization are acting in collusion with certain large land owners to save them from the payment of their just share of taxation; but we do say that this kind of assessment and equalization compels the small farmer and poor man to pay the rich man's taxes. We think the Board of Equalization is greatly at fault. The few acres of the small farmer and poor man are raised, unless the Assessor has already valued his land at two or three times that of the rich man's, and this

is often done without his receiving the legal notice to which he is entitled. But this Board seems to lack the moral courage to raise up to a fair valuation the land of the rich man, whose broad acres embrace the richest and finest lands in the county. No uniform rule seems to govern the action of these men in this matter of equalization. The mortgages of some men in 1869 were cut down, while others had to pay taxes on their securities to the extent of their full cash value. These mortgages, all recorded in the Book of Mortgages, lay before them, and they should have served all alike.

The Board, however, is very kind to its own members. The farm of Supervisor Dean, assessed at less than one sixth its value, was reduced \$700; the farm of Supervisor Anthony, assessed at less than one-third its value, was cut down \$800, and even the County Assessor was kindly remembered, and \$160 was taken off the assessment of his own property.

Respectfully submitted.

D. C. FEELY,
Chairman Committee.

What I Know of Farming—No. 28.

Grain-Growing—East and West.

I disclaim all pretensions to ability to teach Western farmers how to grow Indian corn abundantly and profitably, while I cheerfully admit that they have taught me somewhat thoroughly worth knowing. In my boyhood, I boed corn diligently for weeks at a time, drawing the earth from between the rows up about the stalks to a depth of three or four inches, thus forming hills which the West has since taught me to be of no use, but rather a detriment, embarrassing the efforts of the growing, hungry plants to throw out their roots extensively in every direction, and subjecting them to needless injury from drouth. I am thoroughly convinced that corn, properly planted, will, like wheat and all other grains, root itself just deep enough in the ground, and that to keep down all weeds and leave the surface of the corn-field open, mellow, and perfectly flat, is the best as well as the cheapest way to cultivate corn. And I do not believe that so much human food, with so little labor, is produced elsewhere on earth as in the spacious fields of wheat and corn in our grand Mississippi valley.

And yet I have seen in that valley many ample stretches covered with corn, whereof the tillage seemed susceptible of improvement. Riding between these great corn fields in October, after everything standing thereon had been killed by frost, it seemed to my observation that, while the corn crop was fair, the weed crop was far more luxuriant; so that if everything had been cut clean from the ground, and the corn and the weeds placed in opposite scales, the latter would have weighed down the former. I cannot doubt that the cultivation, or lack of cultivation, which produces or permits such results, is not merely slovenly but unthrifty.

Grain-Growing in the West.

The West is for the present, as for a generation she has been, the granary of the East. In my judgement, she will not long be content to remain so. Fifty years ago, the Genesee valley supplied most of the wheat and flour imported into New England; ten years later, Northern Ohio was our principal resource; ten years later still, Michigan, Indiana, Northern Illinois and Eastern Wisconsin, had been added to our grain-growing territory. Another decade, and our flour manufacturers had crossed the Mississippi, laying Iowa and Minnesota under liberal contributions, while Western New York had ceased to grow even her own breadstuffs, and Ohio to produce one bushel more than she needed for home consumption. Can we doubt that this steady recession of our Egypt, our Hungary, is destined to continue. Twenty-three years ago, when I first rode out from the then, rising village of Chicago to see the Illinois prairies, nearly every wagon I met was loaded with wheat, going into Chicago, to be sold for about 50 cents per bushel, and the proceeds loaded back in the form of lumber, groceries, and almost everything else, grain excepted, needed by the pioneers, then dotting, thinly and irregularly, that whole region with their cabins. Now, I presume the district I then traversed, produces hardly more grain than it consumes; taking Illinois altogether, I doubt that she will grow her own breadstuffs after 1880; not that she will be unable to produce a large surplus, but that her farmers will have decided that they can use their lands otherwise to greater advantage. Iowa and Minnesota will continue to export grain for perhaps twenty years

longer; but even the time will come for saying, "New York and New England (not to speak of Old England) are too far away to furnish profitable markets for such bulky products; the cost of transportation absorbs the largest part of the cargo. We must export instead wool, meat, lard, butter, cheese, hops, and various manufactures, whereof the freight will range from two up to not more than twenty-five per cent. of the value." They will thus save their soil from the tremendous exaction made by taking grain crop after grain crop persistently, which long ago exhausted most of New England and Eastern New York of wheat-forming material, and has since wrought the same deplorable result in our rich Genesee valley, while Eastern Pennsylvania, though settled nearly two centuries ago, having pursued a more rational and provident system of husbandry, grows excellent wheat crops to this day.

Grain-Growing in the East.

I insist that the States this side of the Delaware, though they will draw much grain from the Canadas after the political changes that cannot be far distant, will be compelled to grow a very considerable share of their own breadstuffs; that the West will cease to supply them unless at prices that they will deem exorbitant; and that grain-growing eastward of a line drawn from Baltimore due north to the Lakees will have to be very considerably extended. Let us see then, whether this might not be done with profit even now, and whether the East is not unwise in having so generally abandoned grain-growing.

I leave out of the account most of New England as well as of Eastern New York, and the more rugged portions of New Jersey and Pennsylvania, where the rocky, hilly, swampy face of the country seems to forbid any but that patchy cultivation, wherein machinery and mechanical power can scarcely be made available, and which seem, therefore, permanently fated to persevere in a system of agriculture and horticulture not essentially unlike that they now exhibit. In the valleys of the Penobscot, the Kennebec, the Hudson and of our smaller rivers, there are considerable tracts absolutely free from these natural impediments, whereon a larger and more efficient husbandry is perfectly practicable even now; but these intervals are generally the property of many owners; are cut up by roads and fences; and are held at high prices; so that I will simply pass them by, and take for illustration the "Pine Barrens" of Southern New Jersey, merely observing that what I say of them is equally applicable, with slight modifications, to large portions of Long Island, Delaware, Maryland, Virginia, and the Carolinas.

The "Pine Barrens" of New Jersey

are a marine deposit of several hundred feet in depth, mainly sand, with which more or less clay is generally intermingled, while there are here and even broader stretches of this material nearly or quite pure; the clay is sometimes underlying the sand at a depth of 10 to 30 or 40 inches. Vast deposits of muck or leaf mold, often of many acres in extent and from two to twenty feet in depth, are very common; so that hardly any portion of the dry or sandy land is two miles distant from one or more of them, while some is usually much nearer; and half the entire region is underlaid by at least one stratum of the famous marl (formed of the decomposed bones of gigantic marine monsters long ago extinct) which has already played so important and beneficent a part in the renovation and fertilization of large districts in Monmouth, Burlington, Salem, and other counties.

How to Farm in New Jersey.

Let us suppose now that a farmer of ample means and generous capacity should purchase four hundred acres of these barrens with intent to produce therefrom, not sweet potatoes, melons, and the "truck" to which Southern Jersey is so largely devoted, but substantial grain and meat; and let us see whether the enterprise would probably pay.

Let us not stint the outlay, but presuming the tract to be eligibly located on a railroad not too distant from some good market, estimate as follows:

Purchase-money of 400 acres at \$25 per acre	\$10,000
Clearing, grubbing, fencing and breaking up ditto at \$20 per acre, over and above the proceeds of the wood	8,000
One thousand bushels of best marl per acre, at 6 cents per bushel delivered	24,000
One hundred loads of swamp muck, per acre, at 50 cents per load	20,000
Fifty bushels (unshelled) of oyster-shell lime (to compost with the muck), per acre, at 25 cents per bushel, delivered	5,000
One hundred tons of bone flour at \$50 per ton	5,000
[Net cost, \$180 per acre.] Total	\$72,000

I believe that this tract, divided by light fences into four fields of 100 acres each, and seeded in rotation to corn, wheat, clover and other grasses, would produce fully 60 bushels of corn and 30 of wheat per acre, with not less than three tons of good hay, and that, by cutting, steaming, and feeding the stalks and straw on the place, not pasturing, but keeping up the stock, and feeding them, as indicated in a former chapter of these essays, and selling their product in the form of milk, butter, cheese and meat, a greater profit would be realized than could be from a like investment in Iowa or Kansas. The soil is warm, readily frees itself, or is freed from surplus water; is not addicted to weeds; may be plowed at least 200 days in a year; may be sowed or planted in the Spring, when Minnesota is yet solidly frozen; while the crop, early matured, is on hand to take advantage of any sudden advance in the European or our own seaboard markets. Labor, also, is cheaper and more readily procured in the neighborhood of this great focus of immigration than is or can be in the West; and our capable farmers may take their pick of the workers thronging hither from Europe, at the moment of their landing on our shore. Of course, the owner of such an estate as I have roughly outlined, would be likely to keep a part of his purchase in timber, improving the quality thereof by cutting out the less desirable trees, trimming up the rest, and planting new ones among them; and he would be almost certain to devote some part of his farm annually to the growth of roots, vegetables and fruits. But I have aimed to show only that he would grow grain here at a profit, and I think I have succeeded. His 60 bushels of corn (shelled) per acre could be sold at his crib, one year with another, for 60 silver dollars; and he need seldom wait a month after husking it for customers who would gladly take his grain and pay the money for it. This would be just about double what the Iowa or Missouri farmer can expect to average for his corn. The abundant fodder would also be worth in New Jersey at least double its value in Iowa; and I judge that the farmer able to buy, prepare, fertilize, and cultivate 1,200 acres of the Jersey "barrens," could make more than thrice the profit to be realized by the owner of four hundred acres. He would plow and seed, as well as thrash, shell, cut stalks and straw, and prepare the food of his animals wholly by steam power, and would soon learn to cultivate a square mile at no greater expense than is now involved in the as perfect tillage of 200 acres.

This essay is not intended to prove that grain is not or may not be profitably cultivated at the West, nor that it is unadvisable for Eastern farmers to migrate thither in order so to cultivate it. What I maintain is, that wheat, Indian corn, and nearly all our great food staples, may also be profitably produced on the seaboard, and that thousands of square miles now nearly or quite unproductive may be wisely and profitably devoted to such production.—
Horace Greeley.

WHEAT ON SHERMAN ISLAND.—The *Alta* gives the following experience in raising wheat on the newly cleared porous soil of Sherman Island: "A field of one hundred acres of wheat on Sherman Island seemed to have reached its full growth in the middle of May. The stalks, though less than a foot and a half high, began to turn dry and bead out, and as they were sparse the prospect for the crop was not promising. The owner of the farm, Mr. Seaver, as an experiment, let in the water from the Sacramento river at every high tide in the day-time for a week. The stalks turned green at once, stood out, threw up a multitude of new shoots, grew up three feet high, formed heavy heads, and will, it is estimated, yield forty bushels of grain to the acre. Next year Mr. Seaver will irrigate his wheat in the latter part of April, without waiting for it to show by drying up that it needs water."

TO KEEP INSECTS AWAY.—The best way to guard against the ravages of insects, whether upon trees or grain, is to feed the land well and cultivate it carefully, so as to insure a healthy, vigorous growth. Fat cattle are seldom lazy.

Good Hay, cut and cured in the proper time, and well, is worth much more in market and to feed than its opposite. Good farmers know the time when they should cut their grasses, and it should not be delayed.

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Saturday Morning, July 30, 1870.

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IMPORTANT.—The Mechanics' Institute intends holding a Horticultural, Agricultural and Pomological Exhibition in the Pavilion, commencing August 29th, and lasting five days. The representatives of twenty-four agricultural and horticultural journals are on the way to our State, and it is desirable that the exhibition be made worthy of California. The exhibition will include fruits, wines, flowers, ferns, shrubs, trees, grains, vegetables and kindred articles. Cash premiums will be awarded to the amount of five thousand dollars. Our farmers, gardeners and others are requested to act quickly in the matter, as the time for preparation is short. May the request meet with a prompt and generous response. Any desired information can be obtained by applying to the Librarian 27 Post street, or by letter to H. C. Kibbe, Corresponding Secretary Mechanics' Institute, San Francisco.

THE MISSION WOOLEN MILLS.—The project of building the large woolen mills on the flats, near the mouth of Islais creek, has been abandoned for the present, and the Old Mission mill at the corner of Folsom and Sixteenth streets, has been again started up. The knitting machinery of the Pacific mills has also been removed to the Mission mill. The stringency of the money market and the uncertainty of labor at the present time, has rendered such a course imperative for the time being. The foundations of the new mill have been completed, and though further work upon the same has been suspended for a time, the project of building a mammoth mill at that locality has been in no wise abandoned.

LIVERPOOL METAL MARKET.—Lewis & Son's Report for July. The copper market was decidedly more lively with a considerable advance. Copper ore quoted at \$3.35 to \$3.40 per unit. The stocks at Liverpool and Swansea are estimated as equal to 16,628 tons fine. Other quotations are,—quicksilver, \$39.25 per bottle; antimony regulus, \$375 to \$380 per ton; tin, \$620 to \$665; manganese without alteration, \$20 for 75 per cent.

It is reported that Omaha will put up reduction works on a mammoth scale. G. T. will supply the wind.

California Agricultural Notes.

THE HARVEST.—However poorly the harvest may be turning out in some of the lower counties of the State, the central and more northern portions are returning a full average yield.

In the extreme northern counties agriculture is attracting more and more attention with each passing year, and farmers in that region are stocking their farms more thoroughly with improved tools and machinery, such as machine rakes, mowers, threshes, etc. More attention is also being paid to the selection of seeds. The crops in the extreme north, which it was feared at one time were severely injured by the frost, never presented a more promising appearance than at the present time; the harvest is already well in progress. The farmers in Scott Valley, and in some of the northern valleys, who cut their wheat for hay, are now regretting the act.

HIGH LANDS BETTER IN DROUTH.—The *Calaveras Chronicle* says: "for some cause drouth does not appear to affect cereals sown on lands above a certain altitude; but, on the contrary, dry seasons are invariably productive of large yields of grain. When it is considered that the soil is loose and gravelly, not adapted to holding moisture, a person would naturally suppose that the opposite would be the case. We can account for the circumstance only upon the hypothesis that the clay sub-soil, generally found at the depth of two or three feet, prevents the escape of moisture until sufficient time has elapsed for the grain to ripen." The *Chronicle* is undoubtedly correct in its surmises, and the fact affords another evidence of the value of the too much neglected foot-hills for agricultural purposes.

NUTS.—The *Stars and Stripes* says that in the gardens of John White, in Auburn may be seen a number of young hickories, a foot or two in height and growing finely, the first success in hickory culture in California of which we have heard. W. M. Crutcher has chesnuts, both Italian and Japanese, that have made splendid growth and are doing finely. Almond trees, yielding 100 pounds per annum, within few years after planting or grafting, are not uncommon in this vicinity.

NEW WHEAT is arriving at all the interior shipping points in large quantities, and generally of a superior quality. Upwards of 600 tons are stored in one ware room in Colusa, where, on the 18th, buyers were offering \$1.57, without finding any disposition to sell. The wheat crops of Butte county will largely exceed that of last year. Much difficulty is found in getting the fields cut in proper time, as the grain matures rapidly and demands the scythe all at once.

GOOD WORK.—Last week, says the *Marysville Appeal*, Mr. Jacob Myers, of Grand Island, with one of Pitt's improved steam threshers, threshed during his first six days threshing from stacks, 12,200 bushels of grain, being an average of 2,033 1/4 bushels a day. Barley was threshed the first day, and wheat the remaining five days.

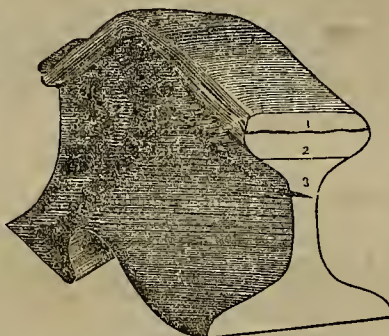
NEW FLOURING MILL.—N. R. Seely, from Iowa, is erecting a new flour mill on Putah creek, about 15 miles from Vacaville. Only two runs of stone will be fitted for the present. Increased facilities will be added should sufficient inducement offer to warrant the investment. The location is in the midst of a large grain-producing district.

THE DROUGHT.—The *Stockton Independent* says: "It has been clearly demonstrated by this summer's experience, that a careful and thorough cultivation of the soil is the only way to secure a crop, and that the old way of plowing and sowing must be abandoned." * * The only true successful farmers we have in San Joaquin county are those who have not farmed over 320 acres of land."

Beazell's Flux for Iron and Steel.

We find in the columns of the *Scientific Journal* a long article on a new discovery made by Gen. Jno. W. Beazell of Philadelphia. This appears to be a flux (it is called sometimes a "flux" and sometimes a "process") which has the properties, as is claimed, of firmly welding iron and steel so that the weld is as strong as, or stronger than, the parts; of preventing the destruction of all grades and qualities of steel by burning; and of restoring the

FIG. 1.

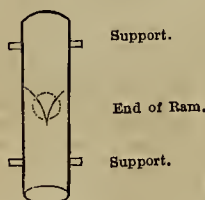


1. Line of Fracture in Steel. 2. Weld—Intact. 3. Fracture in Iron.

burnt metal; of turning old scraps of Bessemer steel into good solid rails, directly from the rolls; of producing iron of an excellent grade from red and cold short ores; of welding copper into all forms, etc.

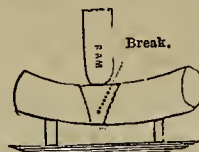
When we see great claims made for some patent process, our first impulse is to doubt, especially when, as in this case, we are not given to understand exactly what the thing is. But here we have a scientific paper speaking very favorably of it, and producing a number of certificates which are most positive in its favor. We reproduce a couple of illustrations showing the effect of the flux. Fig. 1 represents

FIG. 2.



the appearance of an iron rail, which was steel-capped by the process, then reversed and placed under a five-ton steam hammer, with a capacity of a blow of 100 tons. The blow fractured the steel and the iron, but left the weld intact. Figs. 2 and 3 are descriptive of an experiment made at the shops of the Pennsylvania Railroad Co. A Vicker's steel axle was cut in two, in the manner shown in Fig. 2, and welded solid at one heat. "A pressure, in a hydraulic press, of 120 tons right across the weld (Fig. 2) was unable to break it; but at a reverse pressure (Fig. 3) of 115 tons the

FIG. 3.



axle was broken. The weld was as sound and the metal as good as the other portions of the axle." Similar certificates follow which are similarly favorable.

Companies have been formed for the purchase of the patent right, and we shall undoubtedly hear more from the process. A chemical analysis will of course readily show of what the flux is composed, and we expect soon a fuller explanation of its qualities and action. If its claims are just, it is certainly a most important discovery.

MR. J. J. Mayfield, of Sutter county has a colt only four months and sixteen days old, which weighs 500 pounds.

Treatment of Ores.

Küstel's new book on the treatment of gold and silver ores without quicksilver, has just been published by Dewey & Co. It is neat in appearance, handsomely printed by Spaulding & Barst in the *Scientific Press* office, liberally illustrated and crammed full of facts. It gives short and concise descriptions of the various processes and apparatus employed in this country and in Europe, and explains the why and wherefore. Every miner and every millman will find much in it which will show him how to avoid many difficulties, and how to make many improvements, and throughout the book passages are continually occurring which will meet each one's individual troubles to a very considerable extent.

The book does not pretend to be entirely original, but is largely a condensation and simplification of much that has already been published, either in German or English. But in it, in the various descriptions and explanations, hints and remarks are being continually made which give it a peculiar value for the coast, and that which is new is founded on a good theoretical knowledge, and proved by a large practical experience with our various ores. It is divided into four parts; I, The Introduction, treating briefly of ores, and of Desulphurization, Reduction and Chlorination in general; II, Roasting of Ores, entering into a detailed description of the various furnaces and processes, and giving explanations of the latter; III, Extraction of Silver by Lixivation, showing how this is done, and when it is advisable, especial reference being also had to amalgamation; and IV, Extraction of Gold by Chlorination.

The price of the book has been fixed at two and a half dollars, a sum which is much too large to be thrown away on much of the stuff which appears in the shape of books, but which is certainly none too high for the present volume. Can we recommend it to our readers? We certainly can. Although of comparatively small size, a duodecimo of 142 pages, it contains a very large amount of information, all the more valuable for being well condensed and digested.

Well Trained Alcohol.

It would seem that a new process, on totally new principles, for the manufacture of heat-sugar, has been discovered in Germany (or in San Francisco). A rather startling description of the supposed process was given in the *Alta* a couple of weeks ago. For instance, it would appear that alcohol is made to take the place of water in dissolving sugar, "the salts, the albumen, and all other impurities remain in the pulp, the alcohol taking up merely pure sugar, and leaving none behind, etc., etc. Hitherto alcohol has been popularly supposed to be a very poor solvent for sugar. Will the *Alta* please explain how it is licked into the proper shape for this process?

At Edinburgh, Thomson's road steamer has been employed for handling heavy guns of position. By means of one of these, according to the *Scotsman*, two guns of 50 cwt. were moved at the rate of six miles an hour, and wheeled while moving at that speed in a space eight yards in breadth. It is said that a number of the steamers are being made for the English and Indian governments, and it is thought that they will in the future be extensively used for this purpose.

TEA PLANTS IN AUBURN.—The *Auburn Stars and Stripes* says that several Japanese tea plants are growing and flourishing finely in the garden of Moses Andrews, at Prospect Hill. The plants were presented to Mr. A. by Mr. Schnell, of the El Dorado tea colony.

BOOKS RECEIVED.—We have received, just before going to press, several books which will be noticed hereafter.

A Full List of Patents Issued to Pacific Coast Inventors.

[FROM OFFICIAL REPORTS TO DEWEY & CO., U. S. AND FOREIGN PATENT AGENTS, AND PUBLISHERS OF THE SCIENTIFIC PRESS.]

FOR THE WEEK ENDING JULY 19TH.

WASHING MACHINE.—Benj. Hockabout, Antioch, Cal.

PIPE-COUPLING.—Richard Hoskin, Dutch Flat, Cal.

ALARM TICKET-NIPPERS FOR COUPON TICKETS.—Isaac Hyde, Oakland, Cal.

CONCRETE PAVEMENT.—Robert Skinner and Robert Bonnet, San Francisco, Cal.

CABLE-STOPPER.—James Stitt, San Francisco, Cal.

CONDIMENT OR RELISH.—William Francis Swasey, San Francisco, Cal.

DEVICE FOR CURLING HAIR.—S. Lee Tibbala, Dutch Flat, Cal.

CENTRIFUGAL SUGAR-DRAINING AND MOLDING-MACHINE.—Patrick Tully, San Francisco, Cal.

GANG-PLOW.—Elisha W. Walton, San Leandro, Cal.

WEED CUTTER.—Elisha W. Walton, San Leandro, Cal.

OSCILLATING ENOINE.—Issued July 12th. Thos. Hill, Vallejo, Cal.

NOTE.—Copies of U. S. and Foreign Patents furnished by Dewey & Co., in the shortest time possible (by telegraph or otherwise), at the lowest rates. All patent business for Pacific coast inventors transacted with greater security and in much less time than by any other agency.

Notices of Recent Patents.

Among the patents recently obtained through Dewey & Co's Scientific Press American and Foreign Patent Agency, the following are worthy of mention:

PIPE-COUPLING.—R. Hoskin, Dutch Flat, Cal. As an invention which may be of very considerable value in hydraulic mining, besides in its other applications, this invention deserves some considerable notice. It is an improved movable joint for connecting the sections of pipes and tubing, and is a modification of the form known as the ball-and-socket joint. The following will give a general idea of the device: A cup-shaped socket is formed, which has at the smaller end a flange, which is to be connected with one section of the pipe or tube in any suitable manner. The other pipe-section has at its corresponding end a flange standing at right angles to, and fitting against, the curved sides of the cup-socket. A strip of leather or other flexible material is prepared and placed with its inside rim against the underside of the last flange (where it is properly fastened,) and its projecting part is then turned over so as to form an apron or packing-rim by fitting closely against the walls of the socket, when there is a pressure of water in the pipe, and thus preventing any escape at the moving joint. The end of the section being thus prepared, it is inserted into the socket and confined therein by two small wheels or friction rollers, with convex sides and properly adjusted, so that the section can be freely moved in the socket and handled with ease.

WASHING MACHINE.—B. Hockabout, Antioch, Cal. Any device which will render easier the labor at the washing tub is a benefit both to the male and female sex, and to the bachelor as well as the benedict. As one of those who indulge in the luxury of a "biled rag," we are glad to see inventions made in this line. The one in question consists of a number of corrugated roller rubbers, which are suspended at the extremities of springs secured around the rims of two wheels. The articles to be washed are placed on a concave washboard which is also suspended on suitable springs; these allowing the board to yield under pressure. The wheels being revolved by proper mechanism, the rubbers are rolled over the clothes on the washboard. There are suitable arrangements for having hot water, etc.

CONDIMENT OR RELISH.—W. F. Swasey, S. F. This palatable article has already become familiar to many of our readers under the name of "California Bonzest." It is compounded of substances not at all injurious to the health, and hence can be safely recommended to those who like it, and those who do not know whether they like it or not, can be safely advised to try it. It may be added that, according to appearances, most of those who have tried it, do like it.

The Howland Rotary Quartz Mill.

We have on a previous occasion illustrated this mill, as it was some time ago. Since that time, however, Mr. Howland has been busily occupied at the East making additions and improvements, and we now give an illustration of his mill in its best shape. Concerning its various parts and its capabilities, we find the following in the *New York Eng. and Min. Journal*: This mill has been running for the last nine years with good success in California and Nevada, and has from time to time been improved to keep up with the wants of the

tween, thus avoiding the loosening of nuts and bolts and the granulating and weakening effects produced by the jar.

The weight of stamps is from five to six hundred pounds. The shoes and dies are made of the best white iron. The stamps revolve while being raised by the cam, consequently there is but a small amount of friction, and as they continue to revolve until they strike the die, both the shoes and dies are kept square on the face, doing more and better work than the straight mill. The stamps, dropping one after the other, force the pulp or rock around the mill, distributing it so that each stamp has

tions, while the old mill had columns; the gear is taken from the top and put nearer the base, giving less vibration; it is made much heavier; the guide-boxes for stems are of oak; the wood packing between the sections to take off the jar; besides, many other little annoyances are obviated to which other mills are subjected. These, mill-men know, are of great importance in keeping a mill running, as there is no pay coming while a mill is under repair, and the continuous stopping and starting is very detrimental to milling.

These mills are no longer an experiment; they have been proved by use for the last seven years in Australia with perfect success. They are manufactured at Sydney, by Messrs. Smith & Russell, who give them the credit of being the best stamp mill built.

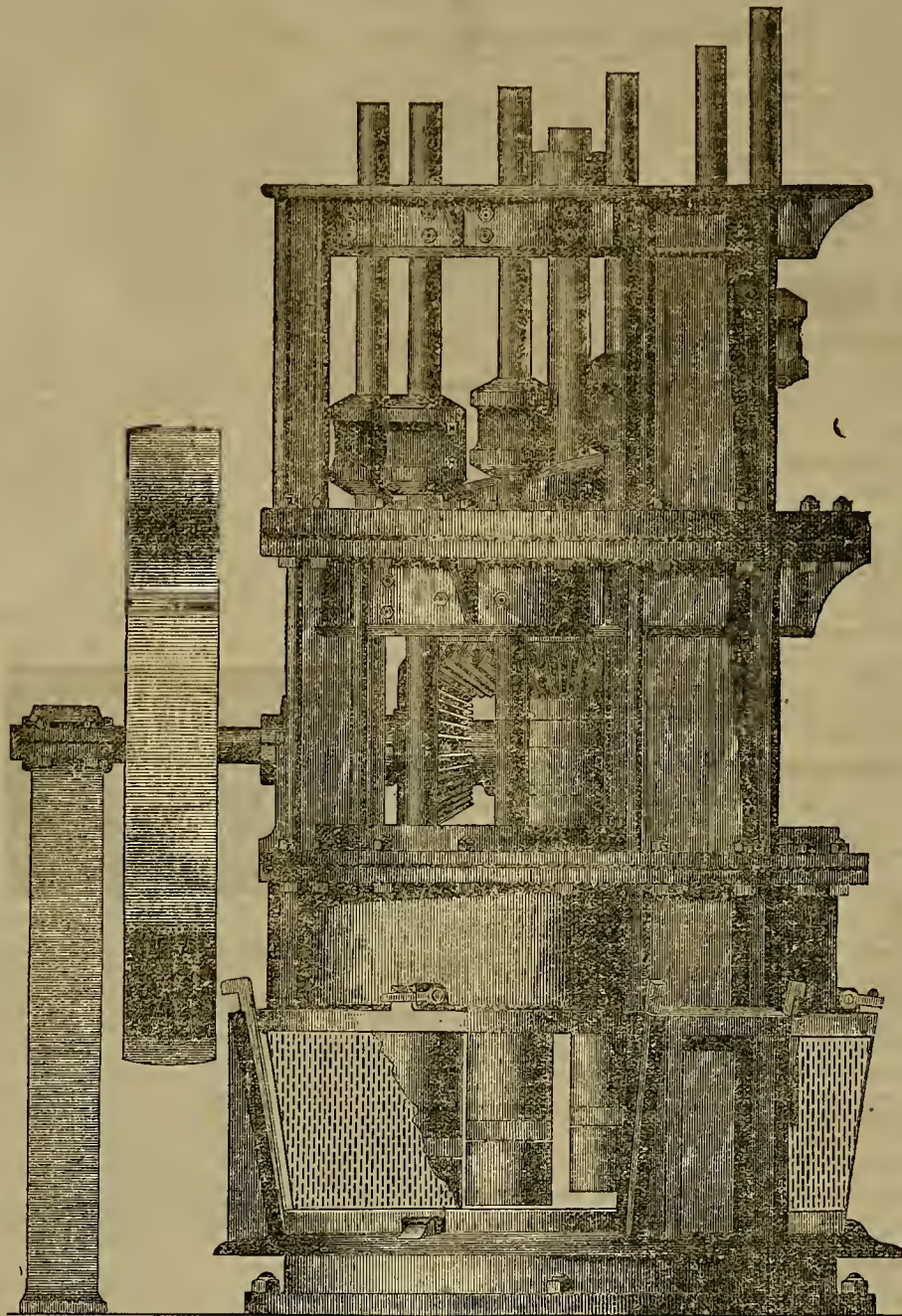
Mr. Howland has returned from the East, and is now stopping in this city for a short time, and advertises in our columns to receive orders for machinery on favorable terms. His friends and those desiring to transact business will find them by calling on Messrs. S. W. Howland & Co., 413 and 415 Mission street, S. F., to the care of which firm any letters may be addressed.

AGENTS IN THE FIELD. L. P. McCarty a well-known traveler on this coast, commences a trip next week as agent and correspondent of the Press. He will visit the mining counties north of and along the C. P. R. R. Mr. L. Miner is now in Nevada and will eventually visit Montana and Colorado. Mr. W. H. Murray will attend to our affairs in Utah, and probably extend his tour to the Western and Eastern States. Mr. A. Freedman is now in Contra Costa County, on his way to San Joaquin and Mariposa counties. Our agricultural correspondent, Mr. S. H. Herring, is paying a second visit this season to our friends in Alameda and adjoining counties.

GLASS TUBE CUTTER.—A little instrument for this purpose, recently designed by Ducomet, of

Paris, consists of a rod covered with cotton and bearing at one end a diamond set at right angles to its axis. A guard held by a clampscrew, gauges the desired length of the piece to be cut off. The rod is introduced into the glass tube up to the guard, and the mark made by simply turning it round. The division is then effected by bending the tube, by holding it above a candle flame.

RICH IRON ORE.—Considerable excitement is reported as occasioned in Tazewell and Fulton counties, Illinois, by the discovery of bog ore containing 95 per cent. of iron. We should ourselves be considerably excited if we found this percentage of metal in any ore. We give notice that we are about to discover some ore holding 12½ per cent.



HOWLAND'S PATENT ROTARY PULVERIZER AND AMALGAMATING QUARTZ MILL.

mining interest. It is now for the first time offered to the public on the Atlantic coast, as one of the best, cheapest, and most effectual pulverizers and amalgamating machines ever gotten up. It costs nearly one-half less when put up ready to run than the straight mill. It can be put up at the mine ready to run in three days; and, with good ore, will pay for itself while a straight mill is being erected. It is built in the most substantial manner and of the best material. Each mill is put running at the shop, so as to avoid all annoyance of bad fitting or lack of parts. These mills are cast in sections, so as to be easily transported. If the mine does not pay, the mill can be taken down and removed without damage. The wearing parts are so arranged that they can be duplicated at any time. Each section is faced off, and three-eighths of an inch of wood put be-

an equal amount of rock. The speed of these mills is from one hundred to one hundred and ten drops per minute. It has more screen surface than the ordinary mill, and is better protected, the rock being fed in at the hub or centre. It does not come in contact with the screens until it is partially crushed. It has been demonstrated that a light stamp and a short, quick drop does the best work, and when amalgamating in the mortar mixes the pulp and quicksilver thoroughly together, giving the quicksilver no chance to lie still until it is amalgamated with the metals, when it drops at the bottom of the screen, and is safe.

For these reasons, this mill is a much better amalgamator than the old style of mill. It is also adapted to dry crushing as well as wet. Some of the improvements made in this mill are, that it is cast in sec-

Professional Cards.

JOHN GORMAN,
NOTARY PUBLIC.

COMMISSIONER FOR
Nevada, New York, Etc.
No. 612 MERCHANT STREET. 5v20-3m

JAMES M. TAYLOR,
Attorney and Counsellor at Law,
Court Block, 636 Clay Street
SAN FRANCISCO.

JOHN ROACH, Optician,
Has removed from 522 Montgomery street to
540 Washington street,
East of Montgomery.
Surveying Instruments made, repaired and adjusted
2v17-3m

GILES H. GRAY. **JAMES M. HAYEN.**
GRAY & HAVEN,
ATTORNEYS AND COUNSELLORS AT LAW,
In Building of Pacific Insurance Co., N. E. corner Cal-
ifornia and Leidesdorf streets,
27v16 SAN FRANCISCO.

REMOVAL.

DR. BEERS, Dentist,
Has removed from Tucker's Building to
No. 109 Montgomery street, three doors
north, opposite the Occidental. 2v20-3m

Dr. J. H. PAINE, Dentist,
Wadsworth House, No. 225 Bush street,
between Cosmopolitan and Occidental
Hotels, San Francisco.

Business Cards.

A. H. JORDAN,
Architect, Designer and Draughtsman,
No. 430 Montgomery Street,
SAN FRANCISCO. 15v19-4y

Farmers and Mechanics
BANK OF SAVINGS,
No. 235 Sansome Street.
Interest paid on Deposits. Money Loaned on Real Estate.
H. DUTTON, President.
GEO. M. CONDEE Cashier. 19v15-3m

J. HOOVER,
PUBLISHER,
And Wholesale Dealer in
Fine Chromos and Lithographs.

The Largest Assortment in Philadelphia.
WHOLESALE DEPOT:
No. 804 Market Street, Philadelphia, Penn.
9v20-6m

C. B. FETY,
SEAL ENGRAVER
AND LETTER CUTTER.
Seals, Brass Stamps, Steel Punches, etc. Orders by
express promptly attended to. No. 622 CLAY STREET,
bet. Kearny and Montgomery, San Francisco. 23v20-3m

PIERRE A. FORTIER,
Practical Optician
105 1/2 Montgomery Street, up stairs.
The only manufacturer in the United States who can
make Glasses adapted to any imperfection of sight.
Price very moderate. 24v20-3m

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WM. BARTLING. **HENRY KIMBALL.**
BARTLING & KIMBALL,
BOOKBINDERS,
Paper Rulers and Blank Book Manufacturers.
505 Clay street, (southwest cor. Sansome),
15v12-3m SAN FRANCISCO.

J. F. PAGES,
SEAL ENGRAVER,
AND LETTER CUTTER.
Brass and Steel Stamps and Dies, 608 Sacramento street,
San Francisco. Orders by express promptly attended to.

SAN FRANCISCO
CORDEGE COMPANY.
Manila Rope of all sizes. Also, Bale Rope and Whale
Line constantly on hand. Mining Ropes of any size
and length manufactured to order.
TUBES & CO., Agents,
611 and 613 Front street.

SAN FRANCISCO MILL.
HOBBS, GILMORE & CO.,
Manufacturers of Boxes,
Market Street, bet. Beale and Main.
For sale—Mahogany, Spanish Cedar, and other Woods.

J. M. STOCKMAN,
Manufacturer of
PATTERNS AND MODELS,
(Over W. T. Garratt's Brass Foundry,
S. E. Corner of Mission and Fremont sts.,
6v14 1/2 SAN FRANCISCO.

L. SCHUMANN,
PIONEER
Meerscham Pipe Manufacturer,



No. 341 KEARNY STREET,
Between Bush and Pine streets, San Francisco.

The first and only Manufactory on the Pacific Coast.
MEERSCHAUMS MOUNTED WITH SILVER. Meerscham
Pipes Billed and Repaired. Amher Mouth-pieces Fitted.

AMERICAN MILLS,

M. BURKE, PROPRIETOR,
Nos. 30 and 32 California Street.
Joh work of all kinds in the Drug and Spice Line
promptly attended to.
SECOND DEPARTMENT.—Feed Ground. Corn Meal, Oat
Meal, Graham Flour, etc., constantly on hand. 7v20-6m

California File Manuf'g Co.

437 BRANNAN STREET, bet. Third and Fourth.
W. WUSTHOFF, L. KRAMER, M. HARRIS, J. BURKE.

REAPER AND MOWER SECTIONS, BARS
AND KNIVES COMPLETE.
At a saving of 50 per cent. New Files of every description
on hand and made to order. Old Files re-cut, and war-
ranted equal to new. Orders from the country promptly
attended to. 6v19-4y

A. J. HAIGHT,
Gold Pen Manufacturer,
315 Montgomery Street,
Room No. 16, up stairs, San Francisco.
GOLD PENS REPAIRED. Watches, Clocks and Jewelry
repaired and warranted. 8v20-6m

SAN FRANCISCO
PIONEER SCREEN WORKS,
JOHN W. QUICK,
No. 203 Fremont Street, near Howard.
Screen Punching of all kinds and qualities for Quartz,
Cement, Flour and Rice Mills, at Eastern prices. 10v20

THE GIANT
POWDER COMPANY.
BANDMANN, NIELSEN & CO.,
General Agents,
No. 210 Front Street, San Francisco. 25v19

THEODORE KALLENBERG,
Machinist, and Maker of Models
for Inventors.
All kinds of Dies, Stamps and Punches made. Also,
all kinds of Small Gears cut. Repairing done on very
reasonable terms, and in the best manner. No. 10
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SAWING AND PLANING MILL.

D. A. MACDONALD, J. H. MACDONALD,
JOSEPH MCCOLL, H. CHAPMAN.
D. A. MACDONALD & CO.,
Manufacturers of DOORS, SASHES, BLINDS AND
MOLDINGS, 217 to 225 Spear street, and 218 to 226
Stewart street, between Howard and Fillmore, San Fran-
cisco. 15v20-3m
Finishing Work for buildings constantly on
hand and got up to order. 20v20-3m

SEVERANCE, HOLT & CO.,
MANUFACTURERS OF
Diamond-Pointed Drills
AND DRILLING MACHINERY.
For Mining, Quarrying, Shafting, Tunneling, Prospect-
ing, Draining, Grading and Submarine Blasting. Spec-
ial attention given to Deep Boring for testing the value
of Mines. Also to Boring Artesian Wells. Office, 318
CALIFORNIA STREET, San Francisco. 25v20-3m

SAN FRANCISCO
STARCH WORKS.LAVERY'S SNOW-FLAKE
YEAST POWDER.

Corner Eighth and Brannan Streets.
Office, 302 California street, up stairs,
23v20-3m **W. J. LAVERY & CO.**

DEWEY & CO.
San Francisco.
Scientific Press
U. S. & Foreign
PATENT AGENCY.

OCCIDENTAL
Insurance Company
OF SAN FRANCISCO.
Cash Capital, \$300,000
GOLD COIN.

OFFICE, 436 CALIFORNIA STREET.
Fire and Marine Insurance.
All Losses paid in U. S. Gold Coin.
A. G. STILES, President.
B. ROTHSCHILD, Secretary. 8v17

Railroads and Steamers.

Central Pacific Railroad.

Time Schedule, July 18, 1870.

EASTWARD.		Express Train Daily.	Passenger Train Sundays excepted	Mixed.*
San Francisco	Leave	8:00 A.M.	4:40 P.M.	7:00 P.M.
Oakland	"	8:30 A.M.	4:30 P.M.	"
San Jose	"	7:45 A.M.	4:35 P.M.	"
Stockton	"	12:02 P.M.	7:53 P.M.	"
Sacramento	Arrive	1:50 P.M.	9:30 P.M.	7:40 A.M.
Sacramento	Leave	2:10 P.M.	"	8:00 A.M.
Marysville	Arrive	4:00 P.M.	"	1:15 P.M.
Chico	"	6:45 P.M.	"	5:20 P.M.
Colfax	Leave	5:00 P.M.	"	4:00 P.M.
Reno	"	1:15 A.M.	"	5:45 A.M.
Winnemucca	"	9:10 A.M.	"	10:15 P.M.
Battle Mountain	"	12:00 P.M.	"	3:50 A.M.
Carlin	"	3:10 P.M.	"	10:00 A.M.
Elko	"	4:40 P.M.	"	12:30 P.M.
Kelton	"	1:30 A.M.	"	7:45 A.M.
Ugden	Arrive	6:00 A.M.	"	5:00 A.M.

WESTWARD.		Express Train Daily.	Passenger Train Sundays excepted	Mixed.*
Ogden	Leave	6:00 P.M.	"	6:00 P.M.
Kelton	"	10:12 P.M.	"	1:30 A.M.
Elko	"	8:45 A.M.	"	7:15 P.M.
Carlin	"	10:15 A.M.	"	9:45 P.M.
Battle Mountain	"	1:25 P.M.	"	3:05 A.M.
Winnemucca	"	4:35 P.M.	"	10:00 A.M.
Reno	"	1:00 A.M.	"	11:30 A.M.
Colfax	"	8:45 A.M.	"	12:50 A.M.
Chico	"	6:50 A.M.	"	10:30 A.M.
Marysville	"	9:10 A.M.	"	2:30 P.M.
Sacramento	Arrive	11:25 A.M.	"	6:30 P.M.
Sacramento	Leave	1:45 A.M.	7:00 A.M.	7:30 P.M.
Stockton	Arrive	1:40 P.M.	"	"
San Jose	"	5:35 P.M.	12:01 P.M.	"
Oakland	"	5:30 P.M.	12:10 P.M.	"
San Francisco	"	6:00 P.M.	12:40 P.M.	9:30 A.M.

"Local Trains."

From	From	From
SAN FRANCISCO.	OAKLAND.	BROOKLYN.
P. 5:50 A.M.	B. 5:40 A.M.	B. 5:30 A.M.
D. 8:00 "	B. 5:55 "	B. 6:45 "
9:00 "	8:00 "	7:50 "
D. 10:00 "	10:00 "	9:50 "
11:00 "	11:00 "	"
D. 12:00 P.M.	12:00 P.M.	11:50 "
D. 3:00 "	3:00 P.M.	2:50 P.M.
5:15 "	4:00 "	"
5:45 "	5:20 "	5:10 "
B. 11:30 "	6:55 "	6:45 "
From	From	From
SAN FRANCISCO.	ALAMEDA.	HAYWARDS.
B. 7:20 A.M.	B. 5:25 A.M.	B. 4:30 A.M.
E. 9:20 "	B. 7:25 "	B. 7:30 "
BC. 9:30 "	E. 9:10 "	E. 8:30 "
EC. 11:30 "	B. 9:35 "	B. 9:00 "
1:30 P.M.	E. 11:35 "	E. 11:00 "
4:30 "	1:35 P.M.	"
6:00 "	4:35 "	3:55 P.M.
	E. 6:05 "	"

B. Sundays excepted. E. Sundays only.
D. To Oakland only. C. To Alameda only.

A. TOWNE, Gen'l Sup't. C. P. R. R.
T. H. GOODMAN, Gen'l Pass'gr Agent, Sacramento.



The following time will take effect

Sunday, April 24, 1870.

GOING NORTH—DAILY (SUNDAYS EXCEPTED).

New World	Trains	Trains	Trains
Leave	Leave	Arrive at	Arrive at
S. Francisco.	Calistoga.	Sacramento.	Marysville.
7:00 A.M.	11:15 A.M.	11:20 A.M.	1:00 P.M.
4:00 P.M.	7:15 P.M.	8:20 P.M.	9:30 P.M.

ON SUNDAYS.

8:30 A.M.	12:20 P.M.	12:45 P.M.	5:00 P.M.
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GOING SOUTH—DAILY (SUNDAYS EXCEPTED).

Train	Trains	Trains	New World
Ma.	Le.	Calistoga.	Arrives at
S. Francisco.	Calistoga.	Sacramento.	S. Francisco.
5:00 A.M.	6:45 A.M.	6:10 A.M.	10:30 A.M.
1:15 P.M.	2:45 P.M.	3:15 P.M.	7:30 P.M.

ON SUNDAYS.

10:15 A.M.	3:00 P.M.	2:30 P.M.	5:45 P.M.
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TICKETS for sale at 313 Montgomery street, or on board

steamer New World. R. S. MATTISON, Superintendent.

L. C. FOWLER, General Freight and Passenger Agent.

N. B.—Branch Office of Western Union Telegraph Com-
pany, Front and Vallejo street wharf.

Vallejo, April 24, 1870. 13v20-1y

Pacific Mail Steamship Company.—For

NEW YORK, VIA PANAMA. PRICES GREATLY REDUCED.

Leave wharf corner of First and Brannan streets punc-
tually at 11 o'clock A. M. on the 3d and 15th of each

month (except when other date falls on Sunday, then

on Saturday preceding), for PANAMA, connecting, via

Panama Railroad, with one of the Company's splendid

steamers from ASPINWALL for NEW YORK.

August 3......MONTANA

Connecting with the Alaska.

All steamers touch at Acapulco; the steamer of the 2d

is expected to touch at San Jose de Guatemala; steamer

of the 18th touches at Manzanilla.

For Japan and China.—Steamers leave on the

1st of every month, punctually at noon, for YOKO-

HAMA and HONGKONG, connecting at Yokohama with

the Company's Branch Line for SHANGHAI, via Higo

and Nagasaki.

August 1.—GREAT REPUBLIC, Captain Deane.

Apply at the Pacific Mail Steamship Company's office

corner Sacramento and Leidesdorf streets.

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ELDRIDGE & IRWIN, Agents.

California Steam Navigation

COMPANY,

Steamer CAPITAL.....CAPT. E. A. POOLE

CHRYSOPELIS.....CAPT. A. FOSTER

YOSEMITE.....CAPT. W. BROMLEY

CORNELIA.....CAPT. E. CONKLIN

JULIA.....CAPT. E. CONKLIN

Two of the above steamers leave BROADWAY WHARF

at 6 o'clock P. M. EVERY DAY (Sundays excepted), one

for Sacramento and one for Stockton, those for Sacra-

mento connecting with light-draft steamers for Marysville

Colusa, Chico, and Red Bluff.

Office of the Company, northeast corner of Front and

Jackson streets.

13v17 1/2

B. M. HARTSHORNE,

President.

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—VIA—

THE OHIO, BURLINGTON AND MIS-
SOURI RIVER RAILROAD.

NEW YORK.....\$133 00

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Ticket Office, No. 208 Montgomery Street.

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Metallurgy and Ores.

MINING SCHOOL.

Mosheimer's Practical Mining School

Will be reopened by the FIRST OF JUNE, and practical
instruction given in all branches of Assaying,
Crushing, Amalgamating, Concentrating, Smelting and
Refining Ores; also Erecting Furnaces and Reduction
Works of every kind. To give all miners a chance to
learn Assaying in Ores (what everyone ought to) I have
reduced my former charge for

Assaying Ores.....\$5 00

To work Gold and Silver Ores.....100 00

Smelting and Refining, including Assaying.....150 00

Many gentlemen who have been taught in my estab-

lishment will bear testimony that in a few days they

learned more than they expected to learn in a month.

Before going into mining, every man ought to know

how to test ore, and then he will go to work with pru-

dence and never fail to be successful. Apply to

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A. T. GREEN,

COMMISSION MERCHANT,

No. 3 Front Street San Francisco.

Agent for SAMPLING, CRUSHING, ASSAYING and

SELLING OF ORES. Shipments received from miners,

and the entire business transacted with promptness and

accuracy. MERCHANDISE of all descriptions pur-

chased and shipped on Commission for Country Mer-

chants. Consignments of PROVISIONS received and

sold at the highest market prices.

Refers, by permission, to Jas. Linforth, of Linforth,

Kellogg & Co.; Jona. Hunt, Prest. Pacific Insurance

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Donohoe, of Donohoe, Kelly & Co.; Falkner, Bell & Co.;

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Esq. 23v20-3m

MORRIS & WHITE,

Practical Assayers and Metallurgists,

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Ores of all kinds worked by Pan Amalgamation, Chlo-

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the Fire-assay as any persons on the Pacific Coast.

15v20-3m Gold and Silver Ores and Sulphurets bought.

12v20-4y

CALIFORNIA ASSAY

The large majority of United States and Foreign Patents granted to inventors on the Pacific coast during the past few years, have been obtained through the agency of DEWEY & Co., publishers of the SCIENTIFIC PRESS. Established in the year 1860, we have an extensive patent library, with full record of cases on this coast, and can give the best and most reliable advice as to the patentability of new inventions.

The California Powder Works

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SPORTING,

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POWDER,

FOR SUPERIOR QUALITY, FRESH FROM THE MILLS. It being constantly received and transported into the interior, is delivered to the consumer within a few days of the time of its manufacture, and is in every way superior to any other Powder in Market. We have been awarded successively

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By the MECHANICS' INSTITUTE and the STATE AGRICULTURAL SOCIETY for the superiority of our products over all others. We also call attention to our

HERCULES POWDER,

Which combines all the force of other strong explosives now in use, and the lifting force of the BEST BLASTING POWDER, thus making it vastly superior to any other compound now in use.

A circular containing a full description of this Powder can be obtained on application to our Office. 16720-3m JOHN F. LOHSE, Secretary.

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PAINT OILS,

CONSISTING OF

KEROSENE, LARD, SPERM, ELEPHANT, POLAR, TANNERS, NEATSFOOT, BOILED AND RAW LINSEED, CASTOR AND CHINA NUT.

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Spirits of Turpentine and Alcohol.

Lamps and Lamp Stock!

An elegant and complete assortment.

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5v17-1f

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California Bonzest,

A CALIFORNIA PATENT, manufactured in San Francisco. A Condiment

Rare, Rich and Spicy.

Very palatable, productive of digestion and health. An ANTISCORBUTIC, and cure preventive

Against Diseases incident to Sea Life.

A SPLENDID APPETISER.

TRY IT ONCE, and you will never be without it.

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DEWEY & CO.,

No. 414 Clay street, S. F.

IMPORTANT NOTICE.

On SATURDAY, THE SIXTH DAY OF AUGUST, we propose publishing an
IMMENSE DOUBLE-SHEET EDITION

— OF —

THE SCIENTIFIC PRESS,

Containing about sixty columns, devoted exclusively to information concerning the

Agricultural, Manufacturing and Other Resources of California,

ENTITLED,

"A GUIDE FOR EMIGRANTS TO CALIFORNIA!"



Great care and much labor has been bestowed upon the compilation, in order to supply a much-needed want—viz: reliable facts in a condensed, readable and cheap form for the use of persons abroad desirous of emigrating to CALIFORNIA.

The following will be the most prominent features embraced:

Climate and Soil; Natural Wealth and Resources; Productions in Agriculture and Manufactures; Past, Present and Future of the State; Agricultural Districts; Public Lands; Laws Relating to Pre-Emption and Homesteads; Tables of Statistics from Official Reports; Lands for Sale; Railroads; Routes of Travel; Methods and Cost of Travel; Distances; Suggestions to Immigrants, etc., etc.

Each regular subscriber to the SCIENTIFIC PRESS and those purchasing single numbers on the day of issue will be entitled to one copy free of charge. Extra numbers will be sold at 15 cents per copy, or \$10 per hundred, and will be mailed to any address on receipt of remittance by Post Office Order or otherwise.

All persons desirous of promoting the growth and development of California, and wishing to communicate facts to their Eastern or European friends, can, at a trifling cost, avail themselves of the present opportunity.

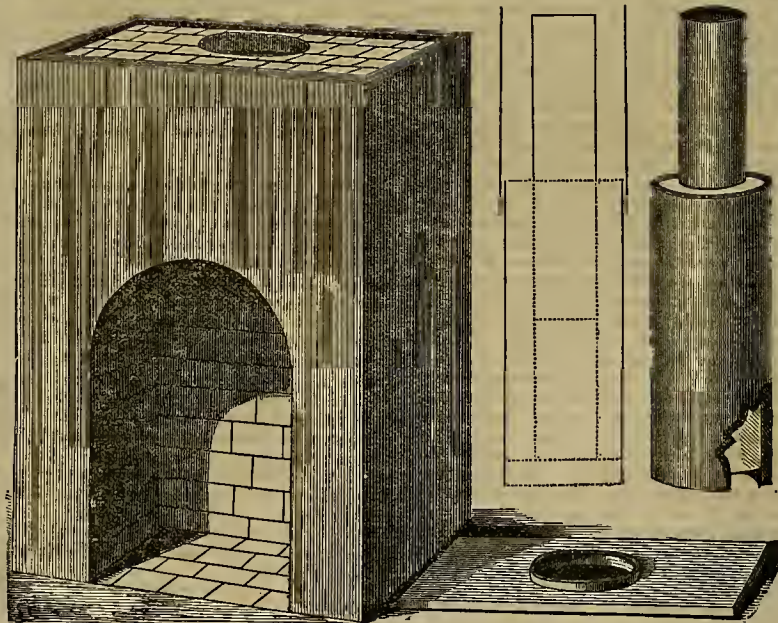
A limited number of ADVERTISEMENTS will be inserted at reasonable rates.

DEWEY & CO.,

Publishers Scientific Press, 414 Clay Street.

San Francisco, July, 1870.

Mann's Patent Earthquake (and Fire) Proof Chimney.



This invention affords a real improvement, which is much needed in this section of country, and as it is just as cheap, can be built more quickly, with less trouble and always perfect, it is very desirable and likely to supersede the old style of chimney.

The chimney is constructed entirely of metal. The lower portion, made of cast, sheet or hollow iron, with a proper opening for a fire-place (which may be built of brick), is of any suitable shape and is intended to rest upon any foundation or upon the floor. If desired, as the whole weight of the chimney will not exceed six or seven hundred pounds. The left-hand figure shows the general appearance of this lower portion. On the right is the chimney-flue, shown in section also, in the middle figure, and below this, is the cover for the lower portion.

The flue is cylindrical and consists of two pipes, one inside of the other, with the annular space between them filled with cement, plaster of paris, asbestos, or other non-conducting material. This flue is secured to the cover, which is fastened to the lower portion of the chimney by rivets or other proper means. The illustration shows the device with one fire-place and one flue. But it can easily be constructed for two fire-places, opening into adjoining rooms on opposite sides of the chimney.

The chimney may be placed directly on the floor, if necessary, and any suitable fire-proof fire-place can be constructed in the recess in the lower portion. Heating stoves may be connected with it at any point, and thus the heat is utilized for warming rooms to a very great extent. It is so light that it is quite applicable when a fire-place is needed only in the upper story or stories of a building. The exposed part of the iron can be painted so as to represent brick-work, or ornamented as desired.

Besides this possibility of a cheap and easily-constructed chimney which can be placed in any room, are to be added its fire-proof qualities. As the pipes are made breaking joints, there is no danger of fire should the chimney be racked. This is a point of no small importance.

It cannot be shaken down by an earthquake unless the house comes down with it. It is absolutely fire-proof, as it is impossible by this construction to have such a thing as a defective flue. It does not take up one-half the room of a common chimney.

These chimneys can be constructed of different sizes and styles and kept on hand for sale, so that they can be ordered and set up at once, greatly facilitating rapid building in the country or city.

The inventor offers part of the patent right for sale. He will contract for chimneys on liberal terms.

Address the inventor and patentee,

2v21-1m

BENJAMIN F. MANN, Oakland.

DESIGNS AND PLANS

— FOR THE —

NEW CITY HALL

— OF —

SAN FRANCISCO.

Office Board of City Hall Commissioners, southeast corner of Sacramento and Montgomery streets, San Francisco, June 22, 1870.

The Board of City Hall Commissioners hereby give notice that they will be prepared to receive at their office, on or before the FIRST DAY OF NOVEMBER NEXT, designs and plans for the new City Hall of San Francisco.

The Commissioners, in order to obtain the very best design and plan, invite the fullest competition among architects, and to this end have resolved to offer the following premiums:

First—For the design and plan selected and adopted.....\$2,500
Second—For the second best design and plan..... 2,000
Third—For the third best design and plan..... 1,500
Fourth—For the fourth best design and plan..... 1,000
Fifth—For the fifth best design and plan..... 500

The premiums payable in City Hall warrants.

As a guide to architects in the preparation of the designs and plans, the Commissioners have prepared a pamphlet containing full instructions and suggestions, as well as the terms and conditions upon which the premiums will be awarded.

Pamphlets can be had on application at the office of the Commissioners.

Any design or plan in which the requirements of the Board, as set forth in the printed instructions, have not been reasonably complied with, will be rejected from the competition.

P. H. CANAVAN, Chairman,
JOS. G. EASTLAND,
CHAS. E. McLANE,
City Hall Commissioners.

26v20-4m



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INSURANCE COMPANY.

OFFICE,

S. W. Corner California and Sansome Streets

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Fire and Marine Insurance.

CAPITAL.....\$500,000 00

SURPLUS..... 267,115 63

TOTAL ASSETS.....\$767,115 63

13v20-3m

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Earthenware, French Porcelain,

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THE LARGEST AND MOST COMPLETE STOCK

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Orders for large or small quantities promptly filled. Packing performed in the most skillful and thorough manner. SMALL PARCELS forwarded by Mail when desired. Nurserymen and Dealers supplied on liberal terms. Descriptive and illustrated priced Catalogues sent prepaid on receipt of stamps, as follows:

No. 1—Fruits.....10 cents.
No. 2—Ornamental Trees.....10 cents.
No. 3—Greenhouses.....5 cents.
No. 4—Wholesale.....FREE.

2v21-5m

ELLWANGER & BAR RY,
ROCHESTER, N. Y.

Reading for the Hour.

Duration of Late European Wars.

In the Crimean war of 1853-6, Turkey declared war against Russia October 5th, 1853. Russia declared war against Turkey November 1st. France and England declared war against Russia March 27th and 28th, 1854. The battle of Alma was fought September 20th; battle of Balaclava, October 25th; battle of Inkerman, November 5th. Sardinia joined the allies January 26th, 1855. The Malakoff was taken by the French September 8th. Sweden joined the allies November 21st; and hostilities were suspended February 29th, 1856. The wars between the Western Powers and Russia lasted two years looking one month.

The Italian war of 1859 was begun by the rejection of the Austrian ultimatum by Sardinia April 26th. The Austrians crossed the Ticino April 27th. The French entered Genoa May 3d. The battle of Montebello was fought May 20th; battle of Magenta, May 30th and 31st; and the battle of Solferino June 24th. The peace of Villafranca was signed July 11th. Hostilities were active but ten weeks.

The Schleswig-Holstein war of 1864 began by the invasion of Schleswig by the Prussians February 1st. The Prussians took Duppel April 18th, and Alsen July 9th. The treaty of peace between Denmark and Germany was signed at Vienna October 30th. Actual hostilities covered a space of twenty-two weeks.

The German Italian war of 1866 was begun by Prussia June 14th. Italy declared war against Austria June 20th. The battle of Custoza was fought June 24th, and the battle of Sadowa July 3d. The treaty of peace between Prussia and Austria was signed at Prague, August 23d, and between Austria and Italy at Vienna, October 4th. Actual hostilities between the belligerents lasted only five weeks.—*Ex.*

"Scissors."—Last night, Mrs. Lynch, a resident of Bank street, near Washington, and her alleged daughter-in-law, Mary, sat in opposite corners of a Sixth Avenue car, apparently very much displeased with each other. To the passengers nearest to them they related their domestic grievances. Mrs. Lynch is a woman about sixty years of age, and her alleged daughter-in-law, Mrs. Lynch, Jr., appeared to be not many years younger. From the story of the two women, it appeared that the younger woman had been married before, and that five years ago her husband died, leaving her with three children to care for. She recently married the son of Mrs. Lynch, alias Mrs. McGuire, but they did not live happily together, and he left her a few days ago. Yesterday she called at her mother-in-law's residence, determined to stay there until her husband should return. The matron of the house decided otherwise, and, locking up her door, took a ride to Central Park. Mary also took a ride in the same car, and to the same place. They returned together to Vesey street, and then started up town again on a Third Avenue car, and they had made twelve trips in this way, up to eight o'clock, and at that hour were determined to keep it up all night if necessary.—*N. Y. Tribune.*

A CALIFORNIA GLACIER.—In yonder mountain valley is a vast body of ice, slowly seeking a lower level and warmer climate, and grinding to atoms the huge ramparts of rock on either side of it. Centuries pass, and though its progress has been but little, its work has been wonderful. On and on it marches, till the warm winds of the plain sweep up to it. Here the hot sun greets it. It eats into the bold front of the glacier, until it changes its form and pace. Meanwhile a river is making, which feeds the speed of the huge monster that formed it. Lower and lower, the glacier creeps; higher and higher, the river rises. It grows with the day; it grows with the night. It becomes a stranger to all manner of decorum. It springs again and again at the rocky sentinels above it, and finally crumbles them into its bosom. It uproots the trees that stand in its pathway. It scars the breast of the mountains with its terrible iceberg batteries. It licks up the soil of the smaller valleys, and deepens that of the larger ones. It dashes through the narrow gorges, changing into boulders the huge rocks that oppose its progress. It is everywhere king, everywhere madman, everywhere a power for new and radical changes.—*Overland Monthly for August.*

THE CROMWELL OF THE NEW WORLD.—At the Garita de San Cosmo, the stern old champion of Republicanism, the man of many adventures and the most wonderful history, and most varied fortunes, the man of the iron will and indomitable resolution, which stood out on every feature, the man with the charmed life, who has escaped unscathed from more plots, conspiracies and accidents, than any other man now living; the man who will live in history as one of the wonders of our age; the man sent by Providence to repel foreign invasion, crush and destroy the despotism of the church, free the people, establish schools, suppress insurrection, deal the last blow at imperialism in America, and rule a turbulent nation with a rod of iron—the citizen President Benito Juarez, stood waiting to receive the nation's guest. He was dressed in plain black, and had not even a liveried servant in attendance; his wife and daughter accompanied him. The brief friendly greeting over, and the other members of our party having been introduced by Señor Bossero, the cavalcade resumed its way and entered the capital city of the Republic.—*Albert S. Evans.*

A MAN LOSES HIS WIFE AT CARDS.—About eight or nine months since a man living in the northern part of this city went out into the northern part of the State to seek his fortune in the new mines of that section, leaving his wife and one child here in town. Some seven months ago a gallant



TOO FOND OF PICTURES.—After the Canada Illustrated News.

disciple of St. Crispin persuaded the White Pine widow to take up her abode with him in a house which he furnished for her. The new pair lived together for about seven months, when a few days ago the genuine husband returned. Of course there was trouble in the camp, but after some quarreling the two men agreed to play a game of seven-up for the woman. The game came off last Saturday night, and the husband won his wife back by just "two points." The man claimed his wife, and the man of leather could not say but that he had fairly won her. The woman preferred the shoemaker, but the husband and winner was determined to have his own. He packed up what furniture they possessed, and last Saturday evening, with all his household goods and gods, left by a fast freight wagon for California. When the wagon started from North C street there was quite a scene. A crowd of nearly 100 persons had collected to see the husband carry away his "stake," and there was much merriment over the romantic affair. The woman cried, and wanted to stay with the shoemaker, and the shoemaker cried at parting with the treasure he had lost by not holding enough "trumps." He asked some of the crowd if they thought he would be arrested if he attempted to take the woman out of the wagon. They told him he had lost her "on the square," and he must bear it like a man; so the wagon moved on, and soon the fair one was "gone from his gaze."—*Territorial Enterprise.*

ANOTHER JUBILEE.—Mr. S. Bngbee, originator of the festival for the benefit of the Mercantile Library, and Mr. Levy, the famous cornet player, propose a novel musical jubilee, to be held at the Pavilion, if allowed. Among the items proposed are:—lighting the building with a thousand Chinese lanterns; baying a fountain of Cologne water, illuminated by an electric light; an orchestra of 35 pieces under the direction of Mr. Levy; etc., etc. Four concerts are to be given; one half of the profits are to go to the S. F. Benevolent Association, and the rest to other charities.

CONSUMPTION OF BEER IN EUROPE.—It is estimated that the quantity of beer consumed in Europe each year would require to contain it a canal nearly five English miles in length, 50 feet deep and 200 feet broad. Germany drinks 121,500,000 gallons of wine and 446,600,000 gallons of beer. Great Britain and Ireland consume 728,200,000 gallons of beer, and France, 600,000,000 gallons of wine and 151,800,000 gallons of beer.

On the Bavarian border is a little village—Heiligen Ehesdorff—of 1,000 inhabitants. In this village the yearly consumption of beer amounts to 536,804 quarts, or nearly two quarts per day to each inhabitant. Heiligen Ehesdorff supports three inns and twelve beer saloons, or one to every sixty-six of the population. It is the champion beer-drinking town of the world. Their beer costs its inhabitants eighteen thalers each per year.

Some of the German names for beer and for its distinctions and varieties are amusing. Village devil, belly-ache, shaky head, shaky cap, mule, death-blow, death-head, peace and unity, cool blonde, clack, god-down, cuckoo and buffalo, are among the appellations.—*American Eclectic Medical Review.*

WOULDN'T COME OUT.—The chairman of an Iowa vigilance committee, who was instructed to duck a person, whose acts had made him obnoxious to the community,

San Francisco Prices of Copper Ores.

SAN FRANCISCO, July 21, 1870.

W. T. Atwood states the following as the approximate price at which copper ores can now be sold in this city. There is no sale for ores which assay less than 10 per cent.:

	Per ton	Per cent.	Per ton	Per cent.
12 per cent. ore.....	\$24 00	18 per cent. ore.....	\$41 40	
13 " " " " " " " "	26 65	19 " " " " " " " "	44 65	
14 " " " " " " " "	29 40	20 " " " " " " " "	48 00	
15 " " " " " " " "	32 25	25 " " " " " " " "	82 50	
16 " " " " " " " "	35 20	30 " " " " " " " "	75 00	
17 " " " " " " " "	38 25			

Ores assaying above 30 per cent., \$2.50 per unit. Bars at the rate of 13c. per lb. for pure copper.

THE JURY failed to agree in the important patent infringement suit, between Treadwell & Co. and Baker & Hamilton, concerning the patent rights on the Huie and the Sursa Gang Plows.

A new serial story by a distinguished American writer, whose name is held in reserve, is to be begun in the August GALAXY. The tale is said to be full of incident, dramatic, novel in scene and character, and admirably adapted for serial publication. j330

MARAVILLA COCOA.—For Breakfast.—The Globe says: "Various importers and manufacturers have attempted to attain a reputation for their prepared Cocos, but we doubt whether any thorough success has been achieved until Messrs. Taylor Brothers discovered the extraordinary qualities of 'Maravilla' Cocoa. Adapting their perfect system of preparation to this finest of all species of the Theobroma they have produced an article which surpasses every other Cocoa in the market. Entire solubility, a delicate aroma, and a rare concentration of the purest elements of nutrition, distinguish the Maravilla Cocoa above all others. For homeopaths and invalids we could not recommend a more agreeable or valuable beverage." Sold in packets only by all Grocers, of whom also may be had Taylor Brothers Original Homeopathic Cocoa and Soluble Chocolate. Steam Mills Brick Lane, London. 5v20-1y

A VALUABLE BOOK FOR INVENTORS AND ARTISANS.—Dewey & Co., publishers of the SCIENTIFIC PRESS and Patent Agents, have just issued a neat little volume of over five hundred well executed cuts of the principal mechanical movements known. These useful representations of the various appliances of power are printed side by side with explanatory notes, which make the subject clear to every reader. Such a book should be in the hands of every mechanic, and form part of every public school library. It is a handy book, and cheap enough for every farm, shop and factory. Sent to any address from the SCIENTIFIC PRESS office, postpaid, for \$1.—*New Age.*

TO MINERS, MILLMEN AND METALLURGISTS. Kustel's new work on the Concentration of all kinds of Ores, and the Chlorination Process, for Gold-bearing Sulphurets, Arseniurets, and Gold and Silver Ores generally, is the best and most complete work issued. It contains 120 diagrams, illustrating machinery, etc., which alone are of the greatest value. Price, \$7.50, postage paid. Published by Dewey & Co., publishers of the Scientific Press, San Francisco.

LAYERS' ELEMENTS OF COMPOSITION.—This is a valuable book of 166 pages, containing plain and simple instructions in the art of composition. It should be read by all intelligent persons who desire to write or speak English correctly or eloquently. Printed and sold by Dewey & Co., Scientific Press Office.

MULLER'S Brazilian Spectacles are just the thing for people fond of reading whose eyesight is beginning to fail. His great skill as an optician enables him to suit all conditions of sight. It is Muller who supplies the city with opera glasses. *

DR. HARTMANN, Physician, Oculist and Medical Electrician, cures all diseases of the eye, such as Granulated Eye Lids, Inflammation of the Eye, Opacities of the cornea cured permanently. Also, Paralysis, Rheumatism and all Nervous and Chronic Diseases, and all Female Complaints. 314 Bush street. 25-520.

IMPORTANT TO PATENTEES.—The undersigned desires the General Agency for New England States or Massachusetts for saleable patent articles, through agents and retail dealers. Address HOSMAN & Co., Old State House, Boston, Mass. 4v21-2w

VAST QUANTITIES OF IVORY DESTROYED.—Thousands of teeth that might last a lifetime are lost every year, simply because the parties concerned either forget or do not appreciate the fact that SOZONOL, duly applied, renders the dental substance proof against decay. *

ACCIDENTS will occur even in the best regulated families, and "SPALDINO'S GLUE" should be kept on hand. *

JAS. A. SULLIVAN, of Calaveras county, is requested to call at this office, or address us, on business. *

HAVING had numerous applications to purchase the right to manufacture CHAMPAGNE MEAD (the great temperance drink), we will state that we are now prepared to sell State and County Rights on reasonable terms.

KENYON, GASS & Co. 2v21-3m

TO FARMERS.—Stevens & Bro's Egg Boxes, holding 30 dozen, supplied free of charge, by John Gray & Co., No. 210 Clay street, San Francisco, to all customers. The eggs are kept cool and free from moisture and mould, are in no danger of being broken, and require no re-counting. 20v20-3m

PHOTOGRAPHY.—For Cabinet Photographs, or Enamelled Cards, of the very best quality, you must go to the NEW YORK GALLERY, Nos. 26 and 27 Third street, San Francisco. Every picture warranted to give satisfaction. 10v18-6m B. F. HOWLAND.

THOMAS O'NEIL Ornamental Glass Cutter, No. 10 Stevenson street, up stairs. Stained, Ground and Ornamental Cut Glass to order on reasonable terms. 14v20

BOILER FILING saves twenty-five per cent. of fuel. BERRY & FLOOR'S MACHINERY DEPOT, No. 114 California street. 1v21-3m

CONTINENTAL Life Insurance Co., 302 Montgomery street, corner of Pine.

BLOCK TIN AND SOLDER WIRE, broom wire, piano covering wire, etc., manufactured by Joshua Gray, 437 Brannan street. 24v19-8m

New Mining Notices.

Eagle Quicksilver Mining Co.—Location of Works : Santa Barbara County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 27th day of July, 1870, an assessment of twenty dollars (\$20) per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, at his office, room No. 26, Haywood's Building, No. 419 California street, San Francisco, California.

Any share upon which said assessment shall remain unpaid on Monday, the 15th day of September, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 26th day of September, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

T. W. COLBURN, Secretary.

Office, Room No. 26, Haywood's Building, 419 California St., San Francisco, California. jy30.

Jennie A. Consolidated Mining Company, White Pine District, Nevada.

Notice.—There is delinquent upon the following described stock, on account of assessment levied on the twentieth day of June, 1870, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificates.	No. Shares.	Amount.
D Cook.....	2	200	0
R Stokes.....	43	1000	100 00
A Deligne.....	4	2000	200 00
A Deligne.....	21	2000	100 00
J H Cook.....	55	1000	100 00
J H Cook.....	66	600	50 00
J H Cook.....	57	500	50 00
J H Cook.....	58	250	25 00
J H Cook.....	59	100	10 00
J H Cook.....	60	125	12 50
J H Cook.....	61	125	12 50
J H Cook.....	62	125	12 50
J H Cook.....	63	100	10 00
J H Cook.....	64	100	10 00
J H Cook.....	65	100	10 00
J H Cook.....	66	100	10 00
J H Cook.....	67	100	10 00
J H Cook.....	68	100	10 00
J H Cook.....	69	100	10 00
J H Cook.....	70	75	7 50
J H Cook.....	71	75	7 50
J H Cook.....	72	50	5 00
J H Cook.....	73	50	5 00
J H Cook.....	74	50	5 00
J H Cook.....	75	50	5 00
J H Cook.....	76	25	2 50
J H Cook.....	78	25	2 50
J K Skinner.....	8	3000	300 00
Herman Todter.....	79	25	2 50

And in accordance with law and an order of the Board of Trustees, made on the twelfth day of June, 1870, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the office of the Company, on the fifteenth day of August, 1870, at the hour of twelve o'clock, M., of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

Office, New Merchants Exchange, California street, San Francisco, California. jy30.

Pinto Mining Company, Location of Works : "Silverado," Pinto District, White Pine County, Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the twenty-second day of July, 1870, an assessment of ten (10) cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, at 426 Montgomery street, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on the twenty-fifth day of August, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Thursday, the fifteenth day of September, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

D. B. ARROWSMITH, Secretary. jy30.

Pogonip Flat Silver Mining Company,—Location of Works : White Pine, Nevada.

Notice.—There are delinquent upon the following described stock, on account of assessment levied on the 15th day of June, 1870, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
A. B. Wingar.....	362	750	\$22 50

And in accordance with law, and an order of the Board of Trustees, made on the 15th day of June, 1870, so many shares of each parcel of said stock as may be necessary, will be sold at public auction at the office of the Company, No. 1 Express Building N. E. corner California and Montgomery streets, San Francisco, Cal., on the 18th day of August 1870, at the hour of 12 o'clock M., of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

J. J. OWENS, Secretary.

Office No. 1 Express Building N. E. cor. California and Montgomery street San Francisco, Cal.

Mining Notices—Continued.

Kincaid Flat Mining Company, Tuolumne County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the twentieth day of July, 1870, an assessment of two dollars and a half (\$2.50) per share was levied upon the capital stock of said Company, payable immediately in United States gold and silver coin, to the Secretary, 220 Clay street, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on the twenty-fourth day of August, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the fourteenth day of September, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

D. H. CROWE, Secretary. jy23.

Office, 220 Clay street, San Francisco. jy23.

THE SCIENTIFIC PRESS.—Mr. W. H. Murray, special traveling agent for the Scientific Press, is a very sociable and pleasant gentleman. He speaks in high terms of the mineral resources of Owyhee, and predicts for our camp a bright future. After examining the mineral and agricultural resources of Idaho, he will proceed overland to Montana and Colorado. He has secured quite a large list of subscribers for the Scientific Press, which is devoted to mining, farming and the mechanic arts, and is inferior to no publication of the kind in the United States.—Aviation, June 18th.

Cordillera Gold and Silver Mining Company, Chihuahua, Mexico.

Notice.—There are delinquent upon the following described stock, on account of assessment levied on the eighth day of June, 1870, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
John L. Titcomb.....	150	17	\$8 50
W R Cooper.....	50	52	26 00
S T Welch.....	276	10	5 00
S T Welch.....	277	10	5 00
D W Waldrath.....	123	100	6 50
J Walch.....	100	33	6 50
Hurry Blackman.....	252	21	10 50
Henry Blackman.....	254	26	13 00
Henry Blackman.....	278	24	12 00
Henry Blackman.....	283	40	20 00
William N Wade.....	222	50	25 00
William N Wade.....	283	100	50 00
C W McLaughlin.....	280	225	112 50
P M Kelley.....	190	3	1 50
P M Kelley.....	226	2	1 50
O A Hall.....	251	82	16 00
C A S Hall.....	250	20	10 00
John Kern.....	50	50	50 00

And in accordance with law and an order of the Board of Trustees, made on the eighth day of June, 1870, so many shares of each parcel of said stock as may be necessary will be sold at public auction at the salesroom of Maricopa Dore & Co., No. 327 Montgomery street, San Francisco, on Monday, the first day of August, 1870, at the hour of 12 o'clock M., of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

HENRY R. REED, Secretary. jy16.

Office, 321 Washington street, San Francisco. jy16.

Evening Star No. 1 Silver Mining Company,—Location of Works: White Pine County, State of Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the first day of June, 1870, an assessment of five (5) cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary, at the office of the Company, Room 5, No. 302 Montgomery street, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on Saturday, the second day of July, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the twenty-fifth day of July, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

WM. H. WATSON, Secretary.

Office, Room 5, No. 302 Montgomery street, San Francisco, California. jy16.

POSTPONEMENT.—The day for deeming stock delinquent on the above assessment is hereby postponed until the first day of August, 1870, and the sale thereof until Wednesday, the twenty-fourth day of August, 1870. By order of the Board of Trustees.

W. H. WATSON, Secretary.

Globe Gold and Silver Mining Company.

NOTICE OF ANNUAL MEETING.—Location of Mine and Works: Monitor District, Alpine County, California. Notice is hereby given, according to law, that the ANNUAL MEETING of the Stockholders of the Globe Gold and Silver Mining Company will be held on Tuesday, the 2d day of August, 1870, at 4 o'clock, P. M., of that day, at the office of the Company, No. 481 Bryant street; the object of the meeting being to elect Trustees for the ensuing year, to serve till their successors shall be duly elected and qualified; also, to set upon a proposition to remove the office of the Company to Monitor; and for the transaction of such other business as may come before it. By order of

J. WINCHESTER, President.

B. SHRAFF, Secretary pro tem.

Dated San Francisco, June 30, 1870. 1m.

Latawana Mining Company—Near Hamilton City, White Pine, State of Nevada.

Notice.—There are delinquent upon the following described stock, on account of assessment levied on the second day of June, 1870, the several amounts set opposite the names of the respective shareholders, as follows:

Stockholders.	No. of Certif.	Shares.	On Acct.	Ass't Due.
D M Hosmer.....	5	20	20	\$3 00
D M Hosmer.....	7	20	20	3 00
D M Hosmer.....	9	20	20	3 00
D M Hosmer.....	10	20	20	3 00
D M Hosmer.....	12	10	10	1 50
D M Hosmer, Trustee.....	150	1000	150	00
D M Hosmer, Trustee.....	151	100	1 50	00
D M Hosmer, Trustee.....	152	100	1 50	00
D M Hosmer, Trustee.....	153	104	15 50	00
R Savage.....	20	50	2 50	00
R Savage.....	104	300	45 00	00
R Savage.....	109	100	15 00	00
S A Post.....	35	10	1 50	00
P Conklin.....	104	400	60 00	00
S E Holcombe.....	127	10	1 50	00
M M Baldwin.....	114	10	50	1 00
M M Baldwin.....	149	450	24 50	49 00
Richard H Savage.....	115	10	1 50	00
R Canfield.....	123	40	6 00	00
D Walker, M.D.....	129	20	3 00	00
A P Everett.....	134	100	15 00	00
A P Everett.....	156	50	7 50	00
William Krug.....	137	50	7 50	00
William Krug.....	138	50	7 50	00
William Krug, Trustee.....	167	100	15 00	00
William Krug, Trustee.....	197	227	34 05	00
William Krug, Trustee.....	198	400	60 00	00
John Clement.....	141	90	13 50	00
A Martinon, Trustee.....	188	4248	537 20	00
Chas C Bowman.....	155	500	75 00	00
L D Simpson.....	157	55	14 25	00
E Wilder.....	161	1000	150 00	00
R Cohn.....	170	100	15 00	00
C H Burton.....	180	328	49 20	00
Botts & Wise.....	175	800	120 00	00
C F McDermott.....	176	100	15 00	00
S Heydenfeldt.....	181	300	16 00	00
S Wellington, Trustee.....	182	572	100 80	00
C Wellington, Trustee.....	184	100	15 00	00
C Wellington, Trustee.....	189	100	15 00	00
C Wellington, Trustee.....	191	100	15 00	00
John G Ayres.....	193	200	30 00	00
T Aroud Chareard.....	195	100	15 00	00
R E Doran.....	200	200	30 00	00
G W McReyth, Trustee.....	203	600	90 00	00

And in accordance with law and an order of the Board of Trustees, made on the second day of June, 1870, so many shares of each parcel of said stock as may be necessary, will be sold at the office of the Company, 614 Merchant street, Room 25, San Francisco, Cal., on Saturday, the sixth day of August, 1870, at the hour of one o'clock P. M., of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

A. MARTINON, Secretary.

Office, 614 Merchant street, Room 25, San Francisco, California. jy15.

THE SCIENTIFIC PRESS is devoted specially to matters of machinery, inventions and processes pertaining to the development of mines, and gives free and full discussions of such matters. Terms, \$4 per year.—White Pine News, May 4th.

Noonday Silver Mining Company.—Location of Works: White Pine Mining District, White Pine County, Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the twentieth day of July, 1870, an assessment of twenty (20) cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary, at the office of the Company, Room 21, Hayward's Building, 419 California street, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on the twenty-fourth day of August, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Tuesday, the thirteenth day of September, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

CHAS. E. ELLIOT, Secretary.

Office, Room 21, Hayward's Building, 419 California street, San Francisco, California. jy23.

Mountain City Mining Company.—Location of Works: Copo District, Elko County, State of Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the fourteenth day of July, 1870, an assessment of twenty-five cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary, at the office of the Company, Room 408 California street, San Francisco, Cal.

Any stock upon which said assessment shall remain unpaid on the twenty-ninth day of August, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the twenty-sixth day of September, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

T. B. WINGARD, Secretary. jy23.

Office, 408 California street, San Francisco. jy23.

North America Consolidated Mining Company.—Location of Works: White Pine County, State of Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the sixteenth day of June, 1870, an assessment of five (5) cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary, at the office of the Company, Room 5, No. 302 Montgomery street, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on the seventeenth day of August, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Wednesday, the seventh day of September, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

WM. H. WATSON, Secretary.

Office, Room 5, No. 302 Montgomery street, San Francisco, Cal. jy23.

Nevada Land and Mining Company.—Location of Works: Steptoe, Johnson & Latham, Antelope and Clifton Districts, Elko County, State of Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the twelfth day of July, 1870, an assessment of one (1) cent per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary, at his office, Room 5, No. 302 Montgomery street, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on Thursday, the eleventh day of August, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the twenty-ninth day of August, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

WM. H. WATSON, Secretary.

Office, Room 5, No. 302 Montgomery street, San Francisco, California. jy15.

Pogonip Flat Silver Mining Company.—Location of Works: White Pine, Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the fifteenth day of June, 1870, an assessment of three (3) cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, No. 1 Express Building, northeast corner Montgomery and California streets, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on the twenty-third day of July, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the eighth day of August, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

T. J. OWENS, Secretary.

Office, No. 1 Express Building, northeast corner Montgomery and California streets, San Francisco. jy25.

POSTPONEMENT.—The day for advertising delinquent list of the above Company is hereby postponed to the second day of August, 1870, and the day of sale to the eighteenth day of August, 1870. By order of the Board of Trustees.

T. J. OWENS, Secretary. jy23.

San Francisco, July 20th, 1870.

New Advertisements.

A Practical Assayer and Metallurgist, Capable of working all kind of ores by Pan Amalgamation, Chlorination and Smelting, is desirous of an engagement. First-class references.

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The Gardner Automatic Stop Governor will give you perfect regularity of speed and positive insurance against all accidents, resulting from slipping or breaking of the Governor or driving belts. Cost less than any other FIRST-CLASS GOVERNOR.

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Will save 80 per cent. of Tallow, is automatic in its action and will give the Cylinder a steady supply of Tallow or Oil whenever the Engine is in motion. No water or leakage. Cost from \$5 to \$40, according to size.

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Will save 90 per cent. of Oil. They are easily applied to all Shafting and all other hearings. For further information apply to

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Declared by Connoisseurs to be the only good SAUCE. The success of this most delicious and unrivaled Condiment having caused certain dealers to apply the name "Worcestershire Sauce" to their name inferior compounds, the public is hereby informed that the only way to secure the genuine is to ask for LEA & PERRINS' SAUCE, and see that their names are upon the wrapper, labels, stopper and bottle.

Some of the foreign markets having been supplied with a spurious Worcestershire Sauce, upon the wrapper and labels of which the names of Lea and Perrins have been forged, L. and P. give notice that they have furnished their correspondents with power of attorney to take instant proceedings against manufacturers and vendors of such, or any other imitations by which their right may be infringed.

Ask for LEA & PERRINS' Sauce and see names on wrapper, label, bottle and stopper. Wholesale and for export by the Proprietors, Worcester; Crosse and Blackwell, London, &c., &c., and by Grocers and Oilmen universally. Agents, CROSS & CO., San Francisco. 1v20-lyeow

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Wholesale and for export by the Proprietors, Worcester

San Francisco Metal Market.

PRICES FOR INVOICES.

Jobbing prices rule from ten to fifteen per cent. higher than the following quotations.

THURSDAY, July 28, 1870.

IRON.—Duty: Pig, \$9 per ton; Railroad, 50¢ @ 100 lbs.; Bar, 1¢ @ 1½¢ @ lb.; Sheet, polished, 3¢ @ lb.; common, 1½¢ @ 1½¢ @ lb.; Plate, 1½¢ @ lb.; Pipe, 1½¢ @ lb.; Galvanized, 2½¢ @ lb.	
Scotch and Eng. Pig Iron, 3¢ ton.....	\$31 00 @ \$32 00
White Pig, 3¢ ton.....	28 00 @ 30 00
Refined Bar, had assortment, 3¢ lb.	— 03 @ —
Refined Bar, good assortment, 3¢ lb.	— 04 @ —
Boiler, No. 1 to 4.....	— 04½ @ —
Plate, No. 5 to 9.....	— 04½ @ —
Sheet, No. 10 to 13.....	— 04½ @ —
Sheet, No. 14 to 20.....	— 05 @ —
Sheet, No. 21 to 27.....	— 05 @ —
COPPER.—Duty: Sheathing, 3½¢ @ lb.; Pig and Bar, 2½¢ @ lb.	
Sheathing, 3½¢ lb.....	— 26 @ —
Sheathing, Yellow.....	— 20 @ —
Sheathing, Old Yellow.....	— 10 @ —
Composition Nails.....	— 21 @ —
Composition Bolts.....	— 21 @ —
TR PLATES.—Duty: 25¢ cent. ad valorem.....	— — @ —
Plates, Charcoal, 1½¢ @ box.....	12 00 @ 10 50
Plates, 10 Charcoal.....	10 00 @ 10 50
Roofing Plates.....	10 00 @ 10 50
Banca Tin, Slabs, 3¢ lb.....	— 42 @ —
STEEL.—English Cast Steel, 3¢ lb.....	— 15 @ —
QUICKSILVER.—3¢ lb.....	— 65 @ —
LEAD.—Pig, 3¢ lb.....	— 7½ @ —
Sheet.....	— 10 @ —
Pipe.....	— 11 @ —
Bar.....	— 9 @ —
ZINC.—Sheet, 3¢ lb.....	— 10½ @ —
BORAX.....	— 35 @ —

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Steam Engine Builders, Boiler Makers, Machinists, Foundrymen, and Manufacturers of Car Wheels equal to the best imported, and guaranteed equal to Eastern Wheels.

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Flue or Tubular Boilers, with plain circular or spiral courses. Upright Flue or Tubular Boilers, Locomotive and Marine Boilers, and Wrought Iron Tanks of every description.

Hydraulic Pipe supplied at reasonable rates. In ordering, give the quantity of water to be supplied, height of the fall, and total length of pipe, so as to enable the firm to determine the diameter of the pipe and thickness of iron to be used.

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To Inventors.—The firm is prepared to assist in developing the plans of those who have the ideas but not the practical experience necessary to put the same in form, by making Drawings of their Inventions, giving them the benefit of their practical knowledge in the construction of Machinery, and attending to the manufacture and introduction of their inventions. 17v16r

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DR. ABORN

Has Consented to Remain on the Pacific Coast a while longer.

He can be consulted until the 10th of September, as follows: At the Auzeiras House, San Jose, from the 1st to the 31st of July; at 22 Kearny street, San Francisco, from the 1st to the 5th of August; at the Yosemite House, Stockton, from the 6th to the 31st of August; and again at 22 Kearny street, San Francisco, from the 1st to the 10th of September.

Card from Wm. Hoskins, Notary Public, Oak-

DR. ABORN.—I take pleasure in hearing testimony to your skill and Treatment for Catarrh and Bronchial Affection, having been under your treatment the past ten weeks, and find myself nearly cured. As you are about leaving for San Jose, I cheerfully recommend you to all similarly afflicted.

Oakland, June 3, 1870.

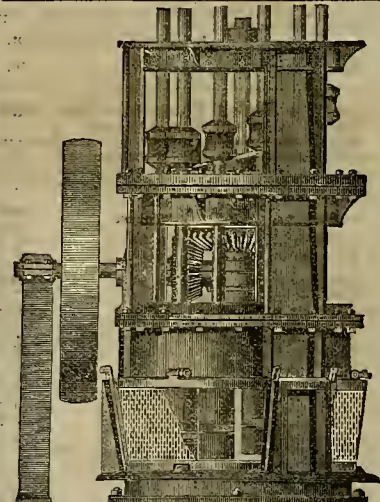
WM. HOSKINS.

No Painful Operations.

Dr. Aborn does not subject his patient to any painful or unpleasant operations. His treatment is mild, and safe for the most delicate child. The afflicted are hereby informed, that after the first visit, for many of the diseases which he makes a specialty, they can take the treatment home and use it until cured, without pain or interruption to their usual avocations.

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Hon. James A. Johnson, M. C., Lieut. Governor Holden, Charles N. Fox, Esq., S. O. Houghton, Esq., Gen. E. F. Beale, Melville Coffie, Esq., Wm. Hoskins, Esq., Messrs. Wm. B. Cooke, H. M. Jones, Henry Orman, Jr., J. H. Hartwick, Perry Dyer, J. S. Carter, Hubert Burgess, and many other prominent citizens of California, have willingly given their cards to the public, testifying to the efficacy of Dr. Aborn's treatment. Many cures have been effected by the Doctor within a few days, and a number of those cures were of many years standing, and had resisted all the ordinary modes of treatment. The usual success attending Dr. Aborn's treatment should inspire new hope of speedy recovery even in the most hopeless cases. 1v21-2m



HOWLAND PATENT ROTARY BATTERY

of 12 stamps. It requires no frame to put it up. Guaranteed to crush 1½ to 3 tons per day to the stamp. The best Battery ever used for amalgamating gold, or crushing silver ores, dry or wet. Can be put up on a mine in running order for one-half the price of the straight battery, and in three days after its arrival at the mine. 12-stamp battery, 20,000 pounds, with frame complete, price \$3,000; 6-stamp battery, 8,000 pounds, price \$1,300. All prices named to be paid in currency. Every mill run at shop before shipping.

California Stamp Mills.

All the various styles of Pans, Amalgamators, Separators, Settlers, Concentrators, Dry or Wet, for working Gold, Silver or Copper Ores, the same as built in California and at lower prices. SHOES AND DIES made of the best white iron. Send sizes and we will make patterns and forward Shoes and Dies at low prices. Engines, Boilers and fixtures, and other Machinery made to order. Also, Howland's Patent Rotary Valve Double or Single Engines.

Irons for the best California 10-stamp mill, straight battery, complete, \$1,600. Irons for low mortar, old style mill, much less. Send for a Circular.

Address

MORSE & SPERRY,

N. B.—Mr. W. H. HOWLAND, formerly of the Miners' Foundry, is now in San Francisco for a short time, and will receive orders for mining and other Machinery of Eastern manufacture at the lowest rates and most favorable terms. Orders may be left at S. W. HOWLAND & CO'S, 413 and 415 Mission street, between First and Fremont, San Francisco. 4v21-3m

Savings and Loan Society, 619 Clay

Street.—At a meeting of the Board of Trustees, held Friday, July 8th, a Dividend of eleven per cent. per annum was declared for the term ending June 30th, payable immediately. 4v21-2v

CYRUS W. CARMANY, Cashier.

NEW VOLUME, JULY 1, 1870.

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E. A. TOMPELINS, Grass Valley.

E 22v20

WM. H. MURRAY, whom we mentioned some time since as agent and correspondent of the Scientific Press, has returned from the North where he was very successful in introducing the Press in the mines. The fact is now fully known and appreciated that the Press is the only reliable mining paper published in the United States. The Eastern mining papers are simply guess work, while Messrs. Dewey & Co., being practical and scientific miners, know whereof they write, and are authority. They are No. 1 patent solicitors, likewise. In this department they are the Mann & Co. of the Pacific. Mr. Murray has been as far north as Idaho City, and after visiting Eureka, Mineral Hill and Railroad districts, will go east as far as Salt Lake and canvass among the Utah farmers. The paper contains an able agricultural department.—*Elko Chronicle*, July 7th.

New York Metal Market.

[CORRECTED WEEKLY FROM THE AMERICAN ARTISAN.]

New York City, Saturday, July 9, 1870.

IRON.

Fig. Scotch, No 1 (cash), per ton... \$37 50 @ \$42 00

Fig. American, No 1 (cash)..... 42 00 @ —

Fig. American, No 2..... 38 00 @ 39 00

Swedish, ordinary sizes..... 140 00 @ 155 00

Common..... 87 50 @ 92 50

Bedstead..... 95 00 @ —

Rods..... 100 00 @ 135 00

Horse-shoe..... 115 00 @ —

Hoop..... 125 00 @ 180 00

Scroll..... 110 00 @ 145 00

Nail-rods, per lb..... 8 1/2 @ 9 1/2

Spring..... 9 1/2 @ —

Tire..... 9 1/2 @ —

STEEL.

Bars, best cast, warranted, per lb... — 23 @ — 23 1/2

Sheet, best cast..... — 23 @ —

Sheet, second quality..... — 20 @ —

Sheet, third quality..... — 18 @ —

Saw-plates, circular..... — 27 @ —

Double-shear, warranted..... — 23 @ —

Single-shear..... — 19 @ —

Montague & Co. (cast bars)..... — 18 @ —

Machinery, round..... — 16 @ —

German, best..... — 18 @ —

German, goat..... — 13 1/2 @ —

German, eagle..... — 12 @ —

Bilster, warranted..... — 18 @ —

Bilster, common..... — 15 @ —

Jessop & Son's, common..... — 17 @ —

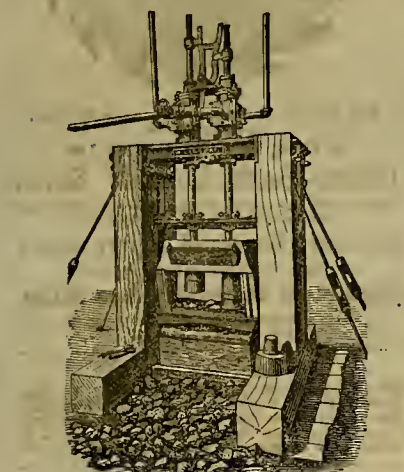
Double-refined..... — 25 1/2 @ —

Stone ax shapes..... — 26 1/2 @ —

Machinery.

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Patent Steam Stamp Mill.



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20v19-1f Supt. W. P. S. S. M. Co., Philadelphia.

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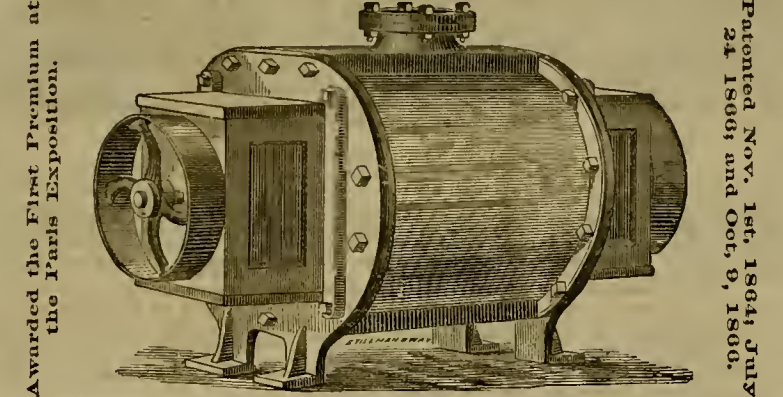
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1v1

Illustration of a horse.

Illustration of a bull.

Illustration of a horse.

MR. S. H. HERRING, agent for the Scientific Press, has called upon us, and is now in town. He informs us that the Press is rapidly increasing its circulation. We are pleased to hear it, for it is a journal that all should read. Valuable to farmers as well as miners, mechanics and others.—*Pojaronian*, June 16th.

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Illustration of a Seltzer bottle.

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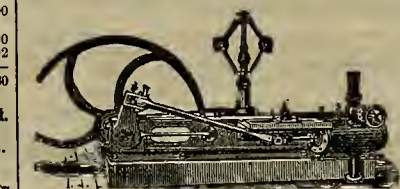
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Manufactured by the DELAMATER IRON WORKS
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than common engines. NOTE.—This improvement
has been applied in many cases to existing engines. Pam-
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SCIENTIFIC PRESS.

AN ILLUSTRATED JOURNAL OF SCIENTIFIC AND INDUSTRIAL PROGRESS,
Mining, Farming and Mechanic Arts.

BY DEWEY & CO.,
Patent Solicitors.

San Francisco, Saturday, August 6, 1870.

VOLUME XXI.
Number 6.

The Hydraulic Ram.

Comparatively few persons are aware of the large number of these little, useful, labor saving machines, which are constantly pounding away, day and night, all over the country, turning small streams of water out of the channels which nature designed they should traverse, and forcing it up through artificial veins and arteries to elevations accessible at all times to the wants of man. Owing to the naturally obscure location of springs, and the necessity of the ram being placed below the surface of the ground, they are seldom noticed by persons passing through the country; yet there are hundreds of them, at the present moment, working away in neighborhoods where the land is sufficiently rolling, and where springs abound with sufficient fall to work them.

The principle of the ram was first discovered by a Frenchman by the name of Montgolfin, about the year 1796; but they were not introduced into this country until about the year 1845, at which time a great improvement was made in the manufacture of small lead pipes, which seemed nicely adapted to the ram, and which aided very much in bringing it into more general use. Instances are quite numerous, (when they have been properly put in and all the circumstances are favorable,) of their having been working for over twenty years with comparatively very little expense; and there is no reason why they should not continue so to work for twenty years longer.

Like everything else the rams have been gradually improved, from year to year, but recently A. Gawthrop & Son, of Wilmington, Delaware, have made a specialty of manufacturing them.

They have improved the mode of casting so as to insure them all perfectly sound. They have introduced strong malleable iron keys and bolts, in fastening them together, instead of screw bolts, which are so liable to rust and get out of order. The gaskets, in forming the joints are all made of gum and sunk in grooves, so as to prevent their being drawn out of place by the force of the ram. Their machines have become very popular. Any further information concerning them can be obtained by addressing A. Gawthrop & Son, Wilmington, Del.

DEATH. Dr. D. W. C. Rice, formerly of Marysville, well known as former President of the California Pacific R. R. and a most excellent man, died this week.

STATE UNIVERSITY.—At the meeting of the Board of Regents on Tuesday, it was announced that Prof. Gilman declined the Presidency of the University; that the Committee on the Medical Department reported favorably with regard to the Toland Medical College; that Mr. F. L. A. Pioche presents to the University his ex-

Our Visitors.

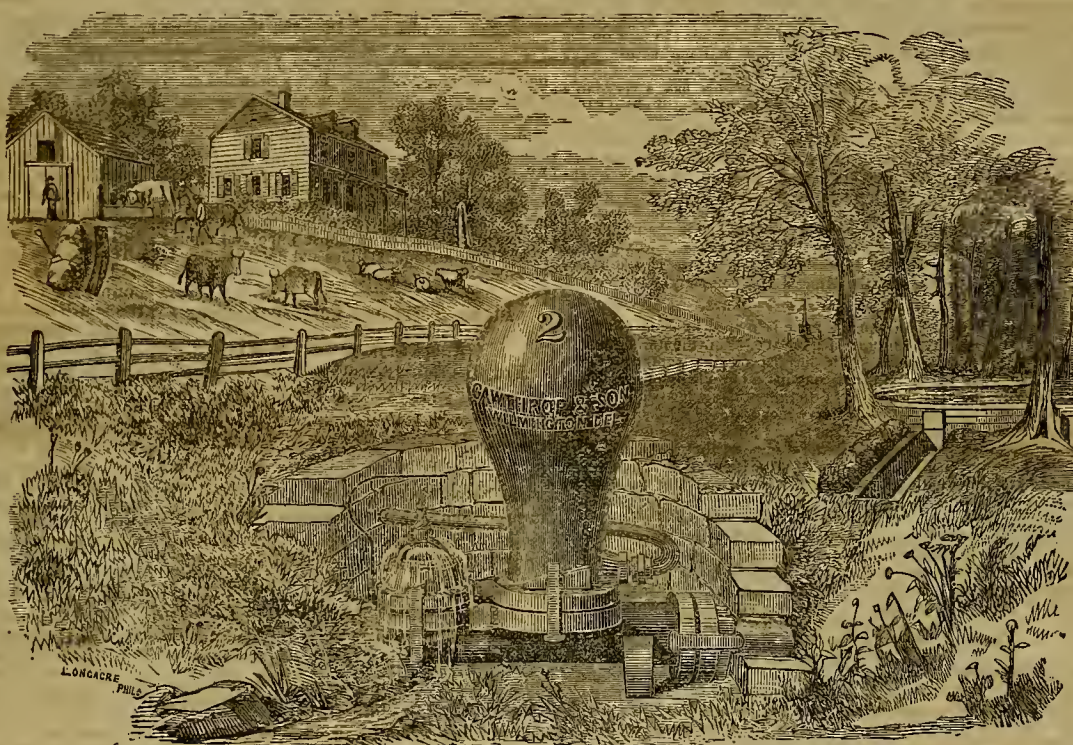
Among the many parties which have visited our coast this summer, none has been more welcome to us than the last, the "agricultural" one, which arrived here last week. Coming as representatives of the leading Eastern journals, which devote a

view of things without borrowing our glasses to look through. They will go back and make their various reports to the East. California will be treated of as it has actually appeared to them. Of course we shall be interested in their reports, and of course we shall hope to see them as favorable as possible.

Our only subject of complaint would be that we fear that they will not stay here long enough. California is so large, and has such varied climates and productions, that to do her justice, one needs to spend considerable time here; and, besides, California, is but a part of the coast. But while they are here, we hope to make the best of them, and desire that their trip may be made as pleasant and instructive as possible. The following are the names of the excursionists and the respective journals which they represent:—

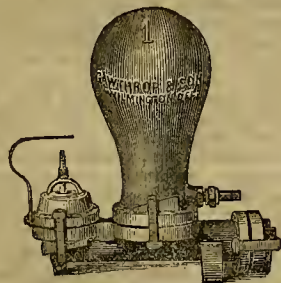
H. L. Reade, Ag. Ed. of *Hearth and Home*, New York, *Chairman*; J. B. Lyman, Ag. Ed., *N. Y. Tribune*, New York, *Secretary*; Mrs. J. B. Lyman, "*Kate Hunnibee*," of the *Hearth and Home*, New York; Henry T. Williams, Editor of *The Horticulturist*, New York, and Ag. Ed. of *The N. Y. Independent*, *Treasurer*; X. A. Willard, Dairy Editor *Rural New Yorker*, New York, and Vice Pres. Am. Dairy-men's Association; S. R. Wells and Wife, *American Phrenological Journal*, N. Y.; F. D. Curtis and Wife, *Troy Times*, and Vice President N. Y. State Agricultural Society; Hon J. V. C. Smith, ex-Mayor of Boston, P. T. Quinn, Horticultural Ed. *N. Y. Tribune*, Prof. J. A. Whitney, Ed. *Am. Artisan*, A. B. Crandell, Ag. Ed. *N. Y. World*, Com. from the N. Y. Farmers' Club; A. T. Emery, *Prairie Farmer*, Chicago, Ills.; Judge S. B. Noyes, *Mass. Ploughman*, Boston, Mass.; Mrs. S. O. Johnson, *Country Gentleman*, Albany, N. Y.; W. Steadman, *Norwich*

Advertiser, Norwich, Conn.; S. Higgins, *Norwich Bulletin*, Norwich, Conn.; J. M. Dodge, *Newark Register*, Newark, N. J.; Prof. A. Poey, Cor. *Rural New Yorker*, New York City. A hearty greeting to them all,



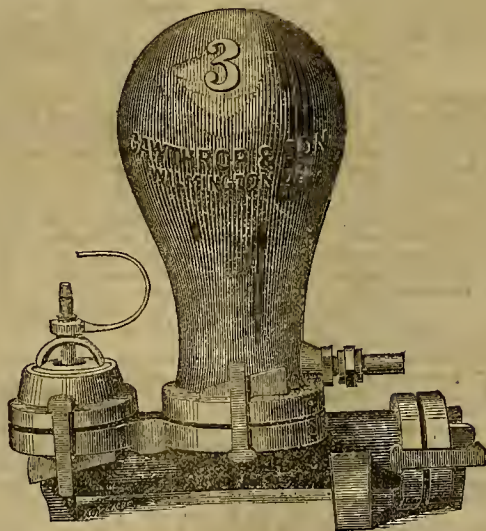
THE HYDRAULIC RAM ARRANGED IN PLACE FOR RAISING WATER.

tensive and valuable collection of minerals and a number of rare and very costly pictures. The Committee on Library was instructed to make arrangements for a pub-



lic reception of the donation and for returning thanks in a proper form for the magnificent gift of Mr. Pioche. Resolutions were adopted with regard to library matters. A letter was received, urging that Bret Harte be appointed Librarian.

THERE are in America and Europe more than 250 manufactories of India rubber articles, employing some 500 operatives each, and consuming more than 20,000,000 pounds of gum per year.



part or all of their columns to matters connected with the farming interests, their advent is no unimportant one for our coast. They have been looking around the country this last week, in a quiet way, and in small parties. They seem disposed to get a

Communications.

IN THIS DEPARTMENT we invite the FREE DISCUSSION of all proper subjects—correspondents alone being responsible for the ideas they advance.

Mineral Hill District, Nevada.

[Written for the Scientific Press.]

Palisade Station.

EDITORS PRESS:—I promised your readers that I would give a description of a trip I intended to make to the Mineral Hill and Eureka districts, and to let them know what was going on there. In traveling thither, one leaves the railroad at Palisade station, which is about 33 miles west of Elko. Here all the trains stop and connection is made with Woodruff & Ennor's stages which run to White Pine.

Palisade station is destined to be a very important place. Of this the railroad company is aware, and is enlarging the freight depot and affording many facilities for the forwarding business. I am informed that 75 tons of base bullion were received here in June alone from Eureka, and it is thought that the amount will be doubled this month, and swelled almost without limit by the ore shipments from Secret Cañon, Pinto, Eureka, Mineral Hill and Railroad districts, of which places this is the natural outlet; and it will likewise be helped in its growth by the agricultural interests of Pine Valley, already quite considerable. Wells, Fargo & Co. have their express office here and a post office has been established.

I cannot omit mention of the natural beauties around Palisade. Here the Humboldt river runs through a narrow gorge, with the rocks rising perpendicular on each side to a height of 500 to 1000 feet, and even higher. The scenery is really magnificent and deserves all the praise which has been given it.

Stage Lines.

I send you a rough diagram intended merely to denote the relative position of the places here and the lines of communication. The stage line of Paine, Russell & Co. runs from Carlin as far as Eureka, three times a week. Between Carlin and the junction of their road with the one from Palisade, however, the country is hilly and the hauling difficult, while the road from Palisade is not only level but also much shorter. On this road run daily the stages of Woodruff & Ennor, which continue on through Mineral Hill and Eureka to White Pine, a distance of 120 miles and on the pleasantest route, according to common report, which exists in the State. Certainly the road up Pine Valley is a very pleasant one. This valley contains a large amount of meadow land, is well watered by Pine creek and near its centre is a tract of 2,500 acres of marsh, covered with tule growth. Of the gentlemanly proprietors of the Woodruff & Ennor line, and their attention to the comfort of travelers, I have previously written. Having again passed over their line, I am all the more ready to recommend it. The firm is most excellently represented here by Mr. W. B. Daugherty, one of the best of agents.

Railroad District.

About six or eight miles east of a point some nine miles from Palisade is situated Railroad District. As I could not conveniently get any conveyance thither, and was pressed for time, I did not visit the mines. Here, as I understand it, copper is the predominating metal, the amount of silver being comparatively small. Still the ore is rich enough to pay for shipping and the place is growing in prosperity. There is a smelting furnace erected here, but this is not working at present. I have favorable reports concerning the mines from persons who are supposed to be conversant with the state of affairs.

Mineral Hill.

Leaving Pine Valley, in which the road runs for some 31 miles from Palisade, we follow up a long cañon, with grass-covered slopes, and enter the town of Mineral Hill. This now flourishing camp was discovered in June, 1869, by Jas. Ward and D. R. Northey. These gentlemen, in company with D. McDonald and John Sheehy, located a number of ledges on the hill and started the mining district, of which Mr. Northey was Recorder at the time. They took, in the beginning, 2,250 pounds of ore to the Austin mill, which yielded at the rate of \$555.75 per ton. This came from the Live Yankee ledge.

The hill is beautifully wooded with nut-pine and cedar, and hence fuel can be obtained at the rate of \$4.50 per cord. The cañon in which the town is situated, is well-supplied with water. That the climate is healthy is attested by the fact that not a single death has yet occurred here, which fact is also indicative of a peaceful disposition on the part of the inhabitants, who number somewhere about 300 persons. Originally tena, "wickiups," and holes in the ground furnished habitations to the miners, but good, comfortable buildings are now being erected.

The formation is slate and limestone, but all the mines hitherto discovered are in the lime-rock. This forms a capping over the slate, which latter reaches nearly to the summit on the eastern, but appears some 300 feet below it on the western side of the hill. On the northern side the slate extends up a distance of some 350 feet above the town. Several tunnels have been run in the slate to strike ledges—one, the Grass Valley, near the city, is in some 145 feet; at a distance of 125 feet the slate

(which at the surface is of a brown color) is as black as coal. Another tunnel, 200 feet higher up the hill, has been run in 103 feet. Small bodies of quartz have been struck, but no ore as yet.

The ore comes in bodies or veins, from five to forty feet wide, on the ridge and throughout the limestone. The direction of the individual veins is north and south. How deep down they extend and whether they penetrate through the slate, no one knows definitely as yet, for the deepest shaft is not over 50 feet down and is still in the limestone. No fossils have been found, I may here remark, in this locality, as far as I can learn. The ore contains considerable galena and is very rich. I send you a number of specimens, and likewise a copy of the results of working a number of lots of ore at the Austin mill and at Reno. You will observe that the amounts worked are large enough to be fair samples, varying from 2,120 to 17,526 pounds; and that the average of the fifteen lots is a little over \$515 per ton.

Mineral Hill M. Co.

The early prospectors formed a company, known as the Mineral Hill M. Co., which own the principal mines and have some forty locations, all of which are on the western slope and are included within an area of half a mile. There is a good wagon road, now being built, for hauling ore to the mill. The company employs some 25 men in extracting ore and have now a large amount on the dump.

The Live Yankee, the pioneer mine, is situated about the middle of the ridge and shows a large amount of fine looking ore on the dump. Next to this is the Gray Eagle, where, however, not much is now going on. The Silver Queen is in a large body of ore of extremely fine appearance. The Giant shaft is 53 feet deep. This was sunk to strike the Giant mine, but in sinking, the Give Out mine was tapped, and drifts run 20 feet each way on the lode, which had apparently good walls. The ores assay finely. There are 150 tons on the dump, and the ore worked at Reno netted \$390 per ton. The Giant mine has 100 tons of high-grade ore on the dump. This has a very large body of ore which averages in the mill about \$100. The Star of the West, near the last, has a shaft 45 feet deep and ore of about the same quality. But a lot of 14 tons has been shipped which yielded from \$700 to \$900 per ton. Keeping on the ridge still, we get to the Mary Ann, with a shaft 28 feet deep, and 100 tons of ore on the dump, ore which will yield upwards of \$500 in the mill, and I was shown some 12 sacks which I was assured would yield nearly \$2,000. The above mines belong to the Mineral Hill company.

Other Mines.

The Austin mine is owned by J. C. Crombie, A. Plummer, J. McCabe, Wm. Flemming, and J. Spencer. It is located on the summit of the mountain, and contains a large body of ore, which is worked like a quarry. The whole face of the cut, which is now about 35 feet high and upwards of 10 feet wide, shows good milling ore. There are some 300 tons on the dump, and 22½ tons (which were hauled 90 miles to Austin, and hence, perhaps, sorted a little more carefully than if they were to be milled in the district) gave \$650 to the ton. This company owns also the Spencer mine, on the east side of the hill, where there is a body of ore 12 feet thick, and an incline already 20 feet down. Fifty tons of fair ore are on the dump. The Western Slope, with a shaft 20 feet deep in first-class ore, and the Troy South, with \$300 to \$400 ore, are likewise owned by Spencer & Co.

The Ogden mine, owned by Curtis & Huber, has a shaft twenty-five feet down in a solid body of smelting ore which contains a large amount of lead, and assays \$70 to \$180. The Capella, owned by Malley & Co., is on the western side, contains considerable iron and lead, and assays well. The McIntire, located in July, 1869, and situated on the north side of the hill, contains good ore, yielding \$200 to \$250 in the mill, but is not worked at present.

Most of the above mines are getting along finely. They are all crowded into this small space, which is certainly remarkable for its abundance of good ore. Outside of this district there are but few mines, and these do not appear to be very rich.

A Custom Mill.

Messrs. Curtis & Huber, the well known millmen from Austin, who have been closely watching the development of this district, have concluded to erect a mill and a Stetefeldt furnace. Through the kindness of Mr. John Huber, I was conducted through the works, which are rapidly approaching completion. They were commenced on May 6th, 1870. The main building will be 137x108 feet, and will have 10 stamps and provisions for more as they are needed. The engine, made by Booth & Co., will be of 80-horse power, with a boiler 15 feet long and 54 inches in diameter, and containing 68 tubes. There will be six Wheeler pans and three large settlers.

The furnace is being built under the supervision of Mr. C. Weberling, who appears fully competent for the business. There will be used 200,000 bricks, 11,000 pounds of castings, 4,000 pounds of wrought iron, and 4,000 pounds of machinery—the iron work being furnished by Booth & Co. The stock will be 75 feet high, and to reach this the dust, etc., will have to travel from the fire-place upwards of 400 feet. The right for this district to use the furnace cost, I should judge, \$20,000; the erection of the furnace, \$12,000; and the whole cost of the mill and furnace must amount to about \$60,000. There will be thus a capacity of working some 20 tons daily, at least; some say from 30 to 40 tons. The charge for milling will be \$35 per ton, the ore being worked up to 85 per cent. of the assay value. The whole affair, in the hands of Messrs. Curtis & Huber, will be made first-class, and their erecting such a mill speaks well for the prospects of the place.

Neighboring Districts.

Some fifteen miles west of this camp are the counties, district and range of mountains, and to the east is the Inskip range. Two miles to the south is Cave Hill, where there are a few locations. The name is derived from a fine, large cave, containing beautiful stalactites.

About four and a half miles to the southeast lies Railroad Hill, where I understand there are some very promising locations, although the ore is of rather a low grade. Still farther on south of the last place is a new camp known as the King District, where copper predominates.

About twenty-six miles due north is situated Railroad District. This is a few miles from the Central Pacific Railroad, and is reached from Palisade Station.

Off for White Pine.

Leaving Mineral Hill on Woodruff & Ennor's line, we proceed on to Eureka, a distance of 52 miles. We started at 10 p.m., and traverse a good road, judging from the easy motion of the coach. At daylight we reach Sulphur Springs, whose name is sufficiently indicative of its chief attraction, and get to Eureka in time for breakfast. [We have a special communication concerning this district.—Eps.] The through passenger has here thirty minutes for breakfast at the Parker House, which is kept in good style and is exceedingly neat and comfortable,—so much so that one is greatly tempted to lay over here. Should one decide to do so, he will be amply repaid. The district is worth a visit, and Mr. Parker knows well how to make the stay most agreeable. Having learned from experience that it is most useful to the traveler to know where is the best place to put up, I have no hesitation in warmly recommending mine host Parker and his excellent hotel.

After breakfast the coach rolls on to Hamilton. When, by easy grades, we have arrived at the summit of the road over Diamond Mountain, we have a charming view of the mountain ranges, the most prominent being the White Pine range, and the intervening valleys. Fourteen miles from Eureka we come to Pinto, now developing to a place of considerable importance and promising well. Thence, without further stop, we keep on at a rapid trot until we reach Hamilton. And so we have made our trip from Palisade over the pleasantest route I know of in this State, and in as comfortable coaches as I have yet tried. This is the route and the stage line to take if one wishes to see some of the most important mining camps, best accommodations and finest scenery in Nevada.

W. H. M.

Idaho Territory Correspondence.

[Written for the Scientific Press.]

EDITORS SCIENTIFIC PRESS:—In compliance with your request, I will endeavor to furnish such items of news from time to time, concerning this section, as may seem to be worthy of public note abroad, and with this view send you the present communication. It may contain a few items, probably you may consider them "news" of sufficient interest for the readers of the SCIENTIFIC PRESS. Your correspondent makes no pretensions whatever to scientific knowledge or attainments, and hence contracts to do no more than to send such facts and occurrences and descriptions and statistics, as are falling under his observation and coming to his knowledge in other than a scientific guise, technically speaking.

Quartz Mining.

The present mining season in Boise county, is nearly over for bill and har mining claims, but is usually open until winter sets in, in the creek claims. Heretofore Boise Basin, the great placer mining camp of the county, has attracted but little attention except for its placer gold deposits. These have been so rich, extensive and productive, yielding more millions of dollars in gold dust, than has been officially credited in U. S. Government Reports to all Idaho Territory, in the years 1863, '64, '65, '66, '67, '68 and '69, that quartz mining has received comparatively little attention. A few lodes have been partially developed, and have been profitably worked, among which are the King, Specimen and Mammoth lodes on Summit Flat, above Pioneer City; the Elkhorn, near Pioneer City; the Pioneer Lode on, Granite Creek, and a few others. In the Banner District several fine, well defined ledges have never yet been worked at all, owing to want of capital on the part of the owners, and no mill has yet been erected there for crushing rock. Within a few years, this district, situated about thirty miles northeasterly from this city will be adding very materially to the productive wealth of the country. The Yellow Jacket company, recently organized, are putting up a ten stamp mill upon their lode, some two miles above Granite Creek village, and expect to be able to commence crushing rock by the middle of September next. They have nearly 1,000 tons of fine rock already out of the ledge, ready for crushing, and confi-

dently anticipate very profitable results. The Pioneer company are working their ledge and mill with favorable results. The King mill on Summit Flat has been in operation only a part of the season, but with good results. These three are the only quartz mills at present being operated or preparing for work in the county. The day of quartz mining in fact, is only just arriving in this new country. The day will come when Boise county quartz will give a good account of itself, and yield immense fortunes to men engaging and investing in it.

Placer Mining.

Some of the placer claims of this county have paid better this season than ever before, but the majority of them only moderately well. One obstacle the miner has to contend with, is the high price of water charged by the ditch-owners, which prevents the mining of large areas of good mining ground as yet. Like the old placer mining camps of California, Boise Basin is gradually being exhausted, though as in Nevada county, California, the creek claims are yearly increasing in value by the "tailings" from the high bars and hills adjacent, which are annually deposited in the creek claims. Bed rock flumes will sooner or later be constructed, where feasible, which will prove immense sources of profit to the owners. Twenty miles in length of such a flume of proper size in More's creek below this city would be worth millions of dollars.

Weather—Agriculture.

The extremely hot weather of this summer, prevailing so distressingly almost everywhere in the United States, according to the newspapers of the day, has scarcely made an appearance here so far, there having been comparatively few hot days. The sun now declining southward, and the days gradually shortening and the nights lengthening, the greatest degree of mid-summer heat may reasonably be supposed to have passed, and the nights, always cool and pleasant in the hottest weather, are already growing perceptibly cooler.

In the agricultural districts of this county, and in Ada county adjoining, on the south and west, the crops are abundant.

The grasshopper pest of previous years has not made its appearance the present season, and the acreage of land under cultivation is greater by one-fourth than that of any former year in Idaho Territory. It is believed that breadstuffs, vegetables and, in fact, the products of the soil generally, this year raised in Idaho, will be nearly if not quite equal to the home demand and consumption of those articles and products. From time to time in the future, if acceptable, I will continue this correspondence.

Boise.
Idaho City July 25th, 1870.

THE DANCE OF DEATH.—In the immense Hall of Knights, which occupies the whole length of the western side of the castle, another story relates that the cruel Knight, Sir Strange, one of the first lords, who held the castle in fief of the Crown, caused his daughter to be danced to death by her six rejected wooers, whom she had refused in favor of a poor sculptor who had been sent to the castle to exercise his art in decorating the chapel. Their secret meetings were discovered by one of the rejected lovers, and brought to the knowledge of her father. The proud knight, in his grief and rage at what he deemed the disgrace of his house and ruin of his daughter, ordered the low-born artist to instant execution in the court-yard, and which he compelled the wretched daughter to witness from the window of her room in the turret. The same evening she was ordered to dress herself for a ball, and conducted to the great hall, where she found her father and six knights awaiting her. No other woman was present, and the unnatural parent informed her that these six cavaliers would now test her boasted power of tiring everybody out in a dance. If she succeeded, her life would be spared; if not, she would not leave the hall alive. The dreadful dance of death began, and, it is said, she exhausted her four, and almost her fifth, when the fearful exertion and her panting breath caused her girdle to burst, and she instantly dropped dead on the floor, her heart-blood dyeing the planks, leaving an indelible stain, like that of Rizzio and Holyrood, to mark the spot of her cruel murder.—*Overland Monthly.*

LECTURE.—Dr. Isaac Rowell delivered a very interesting lecture last Saturday evening, in the Mechanics' Institute, on the subject of "Climatic Influences," especially as affecting animal and plant life in the various geological epochs.

Mechanical Progress.

Phosphates in Dyeing.

M. Collas, of Paris, has recently succeeded in using phosphates as a mordant in dyeing and calico printing. To this end, he passes the yarn or the cloth through a weak solution of a phosphate in an acid, and afterwards through a dye bath or an alkaline bath, by means of which the phosphate is fixed upon the fibre: the stuff, after being prepared in this manner, is ready to be dyed or printed with aniline, or with vegetable, or animal colors. The stuff thus prepared may be passed through a solution of tannin before being printed or dyed. Thus, for instance, in order to dye in dark colors, the yarn or cloth is immersed in a warm and clear decoction of one kilogramme of sumac in four and a half liters of water, of from 30° to 40° C., after which, the stuff is wrung out. It is then immersed for twenty or thirty minutes in an acid solution of phosphate of lime of 50° Baumé and when wrung out and washed it is ready to be dyed. Purple, especially, yields fine hues. In order to dye with insoluble colors, the cloth is immersed in a mixture of gelatinous phosphate of lime with a solution of gelatin in water, having a temperature of 2° or 30° C. Cochineal-lake may be prepared in this manner by stirring gelatinous phosphate of lime-hydrate into a filtered decoction of cochineal. M. Alfraise, according to the *Moniteur Scientifique*, believes this gelatinous phosphate to be of great importance.

DOUBLE STEAM BOILERS.—*Engineering* speaks thus of the plan of M. Felix: "The system consists in adding to an ordinary boiler a second boiler so arranged that it is heated by the steam in the first. Thus, in one case, it is proposed to provide the first boiler with a dome of unusual size, this dome being divided horizontally by a plate, from which tubes depend into the steam space of the boiler. The upper part of the dome above the division plate forms, in this case, the boiler from which the steam is drawn for the supply of the engine. The first boiler is heated by a fire in the usual way, but inasmuch as all the steam formed in it is condensed by contact with the tubes of the second boiler, the contained water is evaporated over and over again, and the only fresh supply needed is that required to make up losses by leakage. It is claimed as one of the advantages of the system that inasmuch as there is no renewal of the water in the first boiler (except the slow renewal rendered necessary by leakage) there can be no formation of incrustation on the surfaces exposed to the fire; while on the other hand in the second boiler—where of course incrustation will form as usual—none of the surfaces incrustated are exposed to a higher temperature than that of the steam in the first boiler."

THE ELEVATED RAILWAY.—The *Iron Age* pronounces this a failure. During the occasional intervals between break-downs it has had considerable patronage; few, however, go over it a second time. "It is constructed with but little apparent regard for scientific or mechanical principles; and does not realize in any sense the expectations of those who have furnished the money expended. The method of propelling the cars by means of an accession of endless wire cables is not a success in any respect, as the motion is uneven and disagreeable, and the gradual loss of impetus in passing over the bridges between the sections, necessitates a succession of sudden jerks as the tracks attached to the cables come in contact with the apring affixed to the under part of the car. The worst feature of the road, however, is the weakness of the structure, sustained by single posts, and possessing no side braces or supports to overcome the lateral motion of the heavy cars balanced upon the spreading arms that hold the tracks."

EXPERIMENTS IN TIMBER DRYING.—M. Violette has exposed pieces of several sorts of wood for two hours to steam at 7½ pounds pressure to the square inch, raising the temperature to 480° Fahrenheit, before the experiment was finished. The wood decreased considerably in weight; elm and oak one-half, ash and walnut two-fifths, and pine one-third. It became stronger; oak was increased in strength five-ninths, walnut one-half, pine two-fifths, and elm one-fifth. Maple and pine treated by steam at 487° were, by this process rendered more valuable for musical instruments than is possible by any other known. —*Technologist*.

PYRO-PHOTOGRAPHY.—The following is from the last number of the *Technologist*: "A new and important progress has been achieved, namely, the application of the enamel photography to all specialties of glass painting, or the so-called pyrophotography. We are now able to produce an exact and enduring copy of any picture on a sheet of glass—a transparent photographic glass picture. The process is as follows: A mixture of honey, glycerine, and gum like substances, in certain proportions, is dissolved in water and poured in a thin layer upon the glass on which the picture is to be produced. This layer becomes hard when dried at a temperate heat, but remains nevertheless hygroscopic. When, however, a bi-chromate is added to it, the property of this mixture is modified in such a manner, that exactly in the ratio in which it is exposed to the light, it loses its property of becoming gummy, and instead of this, assumes a horn-like appearance. But all the shaded parts again grow gummy, exactly in the degree to which the shadow prevents the light from acting. It is evident that in order to produce a copy on the glass, it is only necessary to cover with a glass diapositive or an engraving on paper made transparent with oil, the transparent layer modified by a chromate, and to expose the sensitive plate for from five to fifty minutes to the action of the sun. If such a plate has been subjected to the sun, not a trace of a picture can be perceived, but as soon as a black or brown flux, which must be of a flour-like fineness, is dusted over the surface, a true copy of the original will make its appearance, and will stand out with great purity and vigor. It is then only necessary to wash out the finished picture in water, and to expose the plate to a white heat in a glass furnace in order to obtain an image that can only be destroyed with the glass itself."

BRONZE GUNS.—It is well known that bronze, as a material for guns, has the merit of toughness and resists explosive bursting better than iron. But it has been considered objectionable for rifled guns, on account of its softness, and for other reasons. *Engineering* for July 8th says: "Messrs. Montefiori-Levy and Kitzel, nickel manufacturers, of Val-Benoit, near Liège, lately conducted a series of systematic experiments with bronze hardened in various ways. They found that by casting ordinary bronze in chills its hardness and tensile strength were greatly increased. By alloying a small proportion of phosphorus with it they found that an immense augmentation of strength and hardness was the result. After satisfying themselves by various tests that phosphoric bronze cast in chill is, as far as the resistance to static pressure and strain is concerned, vastly superior to ordinary bronze, however cast, they deemed it worth while to institute, under the auspices of the Belgian government, a series of gunnery experiments with the new metal. Phosphoric bronze has long been known. But until the present time no experiments so formal and systematic as those now in progress, have ever been carried out. Two guns have been cast—small smooth-bore muzzle-loaders—one of the ordinary and one of the phosphoric bronze, the latter having been cast in chill. These guns are being tested for hardness, for resistance, for non-liability to corrosion. The experiments are being carried out at Liège by the Belgian officials, in the presence of representatives from nearly all the European nations. Thus far, we are informed, the new metal has established a great superiority."

DELIQATE TEST FOR IRON IN MINERAL WATER.—M. Felix Bellamy macerates 12 parts logwood shavings in 100 parts of alcohol, purified by digestion on quicklime, and distillation from a glass retort. On adding twenty drops of this tincture to two hundred cubic centimetres of water free from iron, the liquid becomes yellow if carbonic acid predominates, or rose-violet if the earthy or alkaline bicarbonates are present. If a clean iron wire be then introduced, the color will lessen to change in the space of one or two minutes, blue striae forming round the metal and passing to the bottom.

NICKEL-PLATED VALVE-SEAT BOLTS.—The *Scientific American* gives cuts of two bolts used side by side for three months, one of which was plated with nickel, and the other not. The first was only slightly discolored; the other so nearly destroyed by corrosion, that less than half the substance of the exposed portion remained.

Scientific Progress.

LIQUID OF HIGH DISPERSIVE POWER FOR PRISMS.—Prof. Gibbs describes in *Silliman's Journal* for July a new method of preparing a liquid for this purpose. We quote: "A solution of phosphorus in bisulphid of carbon has a dispersion nearly one and a half times as great as bisulphid of carbon alone, but becomes turbid on exposure to sunlight from the formation of amorphous phosphorus. It occurred to me that by dissolving sulphur with the phosphorus the formation might be prevented. The solution, as thus obtained, has a pale yellow color, but is perfectly clear and undergoes no change by the action of light. I have been in the habit of preparing it by dissolving one part of dry flowers of sulphur and two parts of phosphorus in four or five parts of bisulphid of carbon, and filtering the liquid through a well dried ribbed paper filter. The refractive and dispersive power of the solution will of course vary with the quantity of phosphorus and sulphur dissolved. By a gentle heat the whole, or nearly the whole, of the bisulphid of carbon may be driven off, a liquid compound of sulphur and phosphorus remaining which has so high a mean refractive power that it cannot be employed with prisms having a refractive angle of more than 45°–50°. The same end may, however, also be attained by continually adding phosphorus to a saturated solution of sulphur in bisulphid of carbon, in which phosphorus appears to be soluble without limit."

IRON PRECIPITATED BY THE GALVANIC CURRENT.—The *American Journal of Science and Arts* for July gives some notes by Lenz in relation to the properties of iron precipitated in the metallic form by the battery: "The iron examined was deposited by Klein's process from a solution of the mixed sulphates of iron and magnesium. Weak currents were employed, and the solution was kept neutral by carbonate of ammonia. Iron so thrown down has a beautiful fine-granular structure, showing no traces of crystals under the microscope. Its color is a soft bright gray. Its hardness is very remarkable—not less than 5.5 of the ordinary mineral scale, and it is excessively brittle, so that it may be rubbed to powder between the fingers. When the iron is slowly reduced upon a polished surface, it is free from flaws and has a velvety look. As it becomes thicker, bubbles or pits are formed as small oval depressions. When heated over a fire the iron loses many of these properties in a remarkable degree. Its hardness diminishes and becomes 4.5; its brittleness entirely disappears, and it becomes so flexible and tenacious that it cannot be broken by repeated bending or even by folding and strongly smoothing down the folds. When heated in vacuo the iron changes color and becomes almost as white as worked platinum. The ignited iron rusts very quickly both in air and in previously boiled water; this is not the case with the metal before ignition. In the electric series unignited iron stands nearer to copper than the ignited metal."

THE GLOBE UNINHABITABLE WITHOUT THE OCEAN CURRENTS.—James Croll, of the Scotch Geological Survey, gives figures to show that the function of the two great oceans is to remove the heat from the equator and carry it to temperate and polar regions. "Aerial currents could not do this. They might remove the heat from the equator, but they could not carry it to the temperate and polar regions; for the greater portion of the heat which aerial currents remove from the equator is dissipated into stellar space. But of what avail would it be, though ocean currents should carry heat to high latitudes, if there were no means of spreading the heat thus conveyed over the land? The function of aerial currents is to do this. Upon this twofold arrangement depends the thermal condition of the globe. Exclude the waters of the Pacific and the Atlantic from temperate and polar regions and place them at the equator, and nothing now existing on the globe could live in high latitudes."

WALLACE ON NATURAL SELECTION.—The author of this new book thinks that Man, at least, could not have reached his development through Natural Selection. We quote a single paragraph: "A brain slightly larger than that of the gorilla would, according to the evidence before us, fully have sufficed for the limited mental

development of the savage; and we must therefore admit that the large brain he actually possesses could never have been solely developed by any of those laws of evolution, whose essence is that they lead to a degree of organization exactly proportionate to the wants of each species, never beyond those wants—that no preparation can be made for the future development of the race—that one part of the body can never increase in size or complexity, except in strict co-ordination to the pressing wants of the whole. The brain of prehistoric and of savage man seems to me to prove the existence of some power, distinct from that which has guided the development of the lower animals through their ever-varying forms of being."

MOTION WITHOUT HEAT BY MOLECULAR CHANGE.—The following is an extract from Liebig on the Origin of Muscular Power, translated for the *Bowdoin Scientific Review*: "Nitric chloride is formed by the action of chlorine upon ammonia; if the ammonia is in excess no nitric chloride is formed, but the ammonia is decomposed with evolution of much heat; if there be no excess of ammonia nitric chloride is formed without any increase of temperature; it is clear that the heat set free, in the first case, is bound up (gebunden) in the other in the nitric chloride, and upon the decomposition of the latter it appears not as heat, but as motion. There are many cases in which mechanical effects or motion are produced by an inner or molecular motion. The magnitude of the effect depends in this case upon the equilibrium or tension of the molecules."

The department of glass tears furnishes a good example of such inner tension; if any part of the surface is marred it flies apart and is reduced to a fine glass powder, in this case without change in the composition of the glass. The separation takes place among the homogeneous particles of the glass, and not among its elementary constituents. In the case of fulminating silver, nitro-glycerine and other substances, a separation of the elements themselves takes place. Nitro-glycerine and fulminating silver may be heated to 100° without decomposition; but the crushing of a minute crystal of the latter with the point of a pen-knife, or a slight blow upon the nitro-glycerine, inducing a change in their molecular constitution, produces a fearful explosion. If nitro-glycerine fall drop by drop upon iron at a glowing heat it is completely consumed, the combustion being attended by a slight hissing sound. In the one case there is developed by the blow an enormous mechanical power, and in the other, by combustion, heat is produced. The mechanical power is the result of an inner or molecular motion; the heat, of the complete combustion of the constituents of the nitro-glycerine. These examples cannot explain muscular power; they only prove that by a change in the molecular constitution of certain compounds, without the agency of oxygen from without, great mechanical effects can be produced."

FRENCH ACADEMY—ELECTRICAL NOTES. *Nature* says: M. Janin recently communicated to the French Academy of Sciences two notes by M. Trévon on electric currents. "In one of these the author cited some further observations in support of his assertions that two currents cannot circulate in opposite directions in the same wire or in the same Geissler's tube; in the second he indicated a method of explaining the course of the currents in telegraphy when terrestrial communications are employed without a return wire. He maintained that the soil is to be regarded as a common reservoir rather than as a conductor.—A note by M. J. Mario on the phenomena of electrostatic induction was read. From his experiments he proposed a theory of terrestrial currents, according to which the air would be a source of positive electricity acting by induction upon the earth."

Two immense shafts arrived at the Bethlehem depot the other day, via the North Pennsylvania Railroad, direct from the machine shop, Philadelphia, intended for the gigantic engine at the zinc mine at Friedensville, said to be the largest machinery erected for pumping water in the world. These shafts each weigh 16,412 pounds, or over 16 tons the two. It was necessary to use a span of 18 mules and a wagon of extraordinary size to convey each singly to the place of destination, which was effected without delay or accident.—*Iron Age*.

Mining Summary.

The following information is gleaned mostly from journals published in the interior, in close proximity to the mines mentioned.

California.

ALPINE COUNTY.

TARSHISH.—*Chronicle*, July 23d; A recent survey reveals the fact that the lower tunnel will have to be run one hundred feet further than the distance calculated upon. Work in the shaft has been temporarily suspended.

EXCHECQUER.—Work upon the building has been commenced.

GLOBE.—*Miner*, 23d: The quartz struck last week, proved to be only an outlying ledge, but on passing through it rock of favorable character was entered.

SCHENECTADY.—The stoppings of work in the down shaft created some stir and many surmises. One report has it that they struck into an immense body of soft ore richer than any ever found in the mine.

AMADOR COUNTY.

FINE ROCK.—*Ledger*, 30th Mr. Kennedy hibited some very fine rock from a claim he has lately discovered in Walker's field. The rock shows gold all through it.

SOLD.—The Richmond mine at Enterprise, was sold Thursday to a Philadelphia Co. who will at once commence operations on it.

LANCHA.—Murray & Morrow have at last got into their claim on the bar at Lancha Plana; the dirt on the bed rock pays twenty-five to fifty cents per ton.

ON THE RIVER.—We learn that the miners on French Bar have got into the river and are doing well.

CALAVERAS COUNTY.

FIRST-RATE ROCK.—*Chronicle*, 30th; One hundred and eight tons of quartz, from "Frank Barney" mine at Mosquito Gulch, yielded \$4,900 in the Burr mill at Railroad Flat.

EL DORADO COUNTY.

PAYING.—*Placerville Democrat*, July 30; We are informed that some of the claims on Quartz Hill have been paying remarkably during the week—one claim as high as \$100 to the pan.

SPANISH HILL.—At a miner's meeting held on the 23d, new laws were adopted, making three days work each and every three months, necessary to hold a hill, or drift claim, and three day's work each and every six months to hold a ravine, or surface claim. Also, obliging all claim-holders to record anew within 60 days from date.

FRESNO COUNTY.

BUCHANAN HOLLOW.—The Millerton *Expositor*, July 20th, learns that there is talk of starting up the copper mines again.

MARIPOSA COUNTY.

PROSPECTING.—*Gazette*, July 29th; We learn that the Mariposa Co. has been prospecting an extension of the Princeton mine. They found a vein four feet in thickness, the rock of which prospects \$30 per ton.

NEVADA COUNTY.

EUREKA TOWNSHIP.—*Transcript*, July 27th; The hydraulic miners at Moore's and Woolsey's Flats, and along that great gravel range, have been doing a good business this season. The amounts cleaned up last week aggregated \$30,000. The claims are being consolidated, and they will work in future with larger quantities of water. In the Blue Banks claims, tunnels have been run in different places, and good prospects found in every part of the ground. The owners are arranging to work on an extensive scale. At Snow Point, further down on the same range, Blackwell & Co. have run a bed rock tunnel 400 feet. They will soon raise up to the gravel, and put up hydraulic works.

NORTH BLOOMFIELD.—The company employ 280 men, and gangs on each end of the ditch push the work. The dam across the canyon at Bowman's has been raised to the height of sixty feet.

PROSPECT MINE.—The 50 tons rock from the ledge by this name located near the Grizzly, paid \$500. They now have a 50-foot incline and a 3-foot ledge.

BIRCHVILLE.—The owners have their hoisting works nearly completed, and will commence raising rock in a few days. Their incline is down 150 feet.

METROPOLITAN.—The test by arastras was favorable, and the erection of a mill has been commenced.

BLACK & YOUNG.—The work, both in the mill and mine, is kept up night and day, and thirty-five to forty men are employed. We understand the mine is paying a fair profit.

CONTEMPLATED PURCHASE.—Same of 28th:

We are informed that an English company have under consideration the purchase of the Eureka mine, at Grass Valley. The English Co. have been notified that the mine can be purchased for \$1,080,000.

OMEGA.—Same of 31st: The miners are mostly enganged in cleaning up the bed-rock, preparatory to the final clean up. On Wednesday, a nugget worth \$108 was found in the claims of Burwell & Fuller, and the next day Sam. Hinds picked up a lump worth \$80 in the Prescott claims. The most of the companies will finish cleaning up next week.

RANDOLPH FLAT.—*Gazette*, 27th: William Coombs and J. Grant, are reported to have struck rich gravel in their shaft.

SEVEN-THIRTY MINE.—*Grass Valley Union*, 27th: On Monday there came out in a painful of rock, gold to the value of \$1,500. Two specimens not as large as a man's fist, are valued at \$700. The shaft is down 120 feet. Same of 28th, says: The Seven-Thirty sent in yesterday at 5 o'clock specimens valued at \$2,500 taken out during the day. The mine has yielded since Monday, over \$5,000 worth of gold.

BOWERY MINE.—The rock coming out is fully as good as any which has been crushed. It has averaged \$83 per ton from the surface.

The Grass Valley *Union* of Aug. 2d, says—in reference to the report that an English Co. had been informed that the price of the Eureka mine was \$1,080,000,—that it is a mistake, and that "if any negotiations for the sale of the mine are pending, these are based on \$2,000,000 as the price. The \$1,080,000 figure is a report of a year old. We speak "by the card."

PLACER COUNTY.

PARAGON.—*Herald*, 23d: This claim at Bath, near Forest Hill, owned by Breece and Wheeler, is one of the best in the county. It is worked 3,500 feet into the mountain, at which point it is 450 feet below the surface.

ST PATRICK.—Same of 30th: This mine was conditionally sold some weeks ago for a large sum, but from want of funds or disagreement among the purchasers the bargain was not consummated, and the claim is yet the property of Mr. Eaton. The ledge is sixteen inches thick and has paid from this surface down. There are now thirty tons of quartz at the mouth of the shaft ready for the mill, which will yield \$300 to the ton. Mr. Eaton has taken out \$5,000 in the past few days. For a 40-pound lump of quartz, containing sulphurets and free gold, Mr. E. refused at Grass Valley \$800.

FOREST HILL.—*Stars and Stripes*, 28th: The tunnel of Fett & Co. has been driven 600 feet, and struck the ledge 400 feet below the surface. This vein is five inches in thickness, and yields away up in the hundreds—both in free gold and sulphurets.

TODD'S VALLEY.—Pond & Co. have secured control of all the principal mines and of the ditch that furnishes water. They work two sets of claims; one at the lower end of the valley, where the gravel deposit is eight feet deep, and the other at the head, with a face that will average fifty in depth. During the season, which lasts five to eight months, they use 1,000 inches of water. In the shallow lower diggings they wash off ten to fifteen acres annually, with an average yield of \$10,000 per year. In the deeper upper claims a proportionate amount of ground is removed, yielding annually from sixteen to twenty-four thousand dollars. * * Systematic operations have been commenced in the old Mountain tunnel. Kelly, a member of the original company, has always retained faith in it, and having, during the intervening years, acquired a title to half of it, gave a company of Sacramento capitalists that half for a one-twelfth interest in a new company, formed to push on the work in proper style.

LAST CHANCE.—The Morning Star Cement claim has been paying regularly for seven years. Last year, in spite of some drawbacks, it paid a dividend of \$250 per month to each of the six shares. This year it will be better. For the present month the dividend will exceed \$500 per share. The claim in which Hon. John Yu e made his recent strike adjoins the Morning Star to the eastward.

SAN BERNARDINO COUNTY.

THE MINES. *Guardian*, July 23d: Within 6 miles of the city is a cinnabar vein 300 feet wide, which yields an ounce of quicksilver to the pound of ore. The Holcomb Valley placers are good, and the quartz is worked with profit in arastras. Yellow stone and Clark districts, to the north-east, are promising. In the San Jacinto range, Mr. Stamp is working with arastras a vein that yields \$100 per ton. In

the same range, are the Jesuit and Old Padre veins, which are rich.

The Lytle Creek gold mines, ten miles to the north west, have been worked five years and still yield wages. Near the head waters are three or four mines of argentiferous galena that assay over \$50 per ton. The tin discoveries show specimens richer than the Temescal ore. We predict that this county will soon attract moneyed men.

SIERRA COUNTY.

ITEMS.—*Messenger* July 30th: Watson and Ift at the Oro, are in with the new tunnel 80 feet—about 200 in all. They are beginning to get quartz. Phoenix Mill at Sierra City, is getting along finely. P. Grant, is running the Ned Leonard Mill. Alleghany is getting to be a lively camp. The Oriental at Alleghany, will commence crushing rock next week. The Gold bluff mill recently cleaned up a handsome sum. The McCormick boys are getting good pay in the New York claims, at Alleghany.

SISKIYOU COUNTY.

The Yreka *Union* of the 27th learns that the Black Bear and Klamath quartz claims on Salmon are paying largely. At the Black Bear they have arranged machinery to work the sulphurets.

STANISLAUS COUNTY.

LAGRANGE. *Tuolumne City News*, of the 29th: This camp is not yet played out. A company, representing fifty thousand dollars capital, has been formed, with the view of constructing a huge cement dam across the river at the falls above town. From this will be canals, covering a large area of mining lands.

TRINITY COUNTY.

SILVER. *Journal*, 30th: B. C. Wattles brought this week a specimen of rich silver bearing rock from a ledge on the head of Brook's Gulch near Northfork.

INOIAN CREEK.—The ledge of Silcox & Coon, is promising. But a few inches in width at this commencement, at a depth of thirty feet the vein is six feet across, and the rock rich. Several hundred pounds in a large mortar and washed in a pan, yielded at the rate of \$4 per hundred.

EVERY CITIZEN INTERESTED.—On Wednesday, John Martin and M. F. Griffin, acting for the people generally, made choice of a spot in the Sloan & Fox claims, three quarters of a mile from the Todd place, to sink a shaft to test the question whether a paying deposit exists under the false bed rock in the Weaver Basin. This is something that should have been done long ago.

ITEMS.—The Marysville *Appeal* gets these Trinity items from its traveling agent: On Clear Creek John Harrison is working a claim with two white men and seven Chinamen, and it is yielding from one and a half to two ounces of gold per day to a man. At French Gulch, Walter Whitney is working a hank claim, out of which he is taking, by his own labor, from \$40 to \$50 a day. The Mt. Washington are working ten men in their tunnel, and crushing eight tons a day, which yields \$20 to the ton.

Idaho.

LOOM CREEK.—The *New North West* of July 23d has heard direct from Oro Grande. There are about 400 men in the camp. Mining has gone slow, on account of the water. These are paying from \$30 to \$40 per day to the hand.

SNAKE RIVER.—The *corrine Reporter* has a letter from Eagle Rock, July 10th. Two rockers are at work here. The only one which has a fair start, is making \$10 to \$12 a day to the two men. The writer thinks the bars for miles will pay more or less perpetually; the deposit being renewed yearly by the freshet.

CHIPMUNK MINE.—*Avalanche*, July 30th Four tons of ore turned out \$1,192 in Franks arastra.

Montana.

PILGRIM BAR.—*Dear Lodge Indepi* Holcomb & Beery made a clean up last week of \$4,500 Catching & Co., \$4,800. Several companies have been compelled to suspend for the season on account of the scarcity of water.

PIKE'S PEAK.—McClell & Co. have sold their ground to Blair & Co., for six thousand dollars. On Brattan Bar the German Co. have bought out one of their partner, fourth interest for two thousand five hundred dollars. Catching & Co. cleaned up \$4,900; Beery and Holcomb \$4,500. Walker Fly & Co. have not struck pay yet. Steele & Co., and Hagau & Co. are doing well. All the claims on Gold Hill are winding up for the season.

Nevada.

COPE DISTRICT.

CRESSENT.—*Elko Chronicle*, July 31st:

H. M. Grant, of Mountain City, shipped to San Francisco, July 27, five bars of bullion from the Crescent mine. Value \$6,053.11. Also a gold bar from this surface mines, of the value of \$800.

ASSAY OF BULL-RUN ORE.—T. B. Fitzhugh had an assay of ore from the Potosi ledge, which gave silver per ton \$163.08. This was an average of the rock.

BRUNO DISTRICT.—*Independent*, 27th: There are four companies taking out ore for shipment. The Mountain King has changed hands, and the new Co. has commenced work. The rock looks fine. The Chrysopolis has been taking out ore and is now shipping. The Miner's Rest ore looks well.

HUMBOLDT.

HARMONY DISTRICT.—*Register*, 30th: We learn that the ledge recently discovered is three feet wide and rich in free gold.

GALENA DISTRICT.—The Butte is working sixteen miners, the Shiloh and White mines about the same, and the Avalanche has been leased to a San Francisco Co. The English Co. in Copper Canyon employ fifty men. The Little Giant at Battle Mountain continues to pan out handsomely.

PROSPECTING.—*Silver State*, July 29th: A number of citizens have been prospecting. Several fine looking ledges have been discovered. In the Cayote country very rich float ore was found, assaying \$301 per ton.

Tom Harris' shaft is down 30 feet, and the ore yields by mill process somewhere up in the hundreds.

REESE RIVER.

BULLION.—*Reveille*, 25th: Friday an Saturday shipped through Wells, Fargo & Co. 17 bars of silver bullion, weighing 1,280 pounds; value \$18,754.05. Of this 7 bars, of the value of \$4,658.34, were from Belmont; the balance from the Manhattan mill.

BETTER TIMES COMING.—Same of 30th: The Manhattan mill is running steadily and the rich ore waiting reduction so long will soon be converted into coin.

WASHOE.

YELLOW JACKET.—*Enterprise*, July 31st: The daily yield is 300 tons, one-half from the 900-foot level. Operations on the north works have been suspended and the entire force will be engaged on ore which will yield a large profit.

SAVAGE.—No new developments. It appears to be the intention to place the mine on a paying basis or allow it to remain unworked. The most rigid economy has been adopted.

SIERRA NEVADA.—The ledge of which we gave notice a few weeks since is developing finely. A shaft has been sunk to the track level, all the way in good ore. The mill is stopped a few days for repairs.

CROWN POINT.—About fifty tons of low-grade ore daily from the upper levels. An air drift has been commenced.

CHOLLAR-POTOSI.—The yield for the week foots up 1,580 tons of ore; average assay, \$65 per ton. The greater portion is obtained from the Belvedere and Blue Wing sections. The bullion shipped during the week is \$67,617.60.

HOPE.—The daily yield is 40 tons, which averages \$25 per ton.

GOULD & CURRY.—A small seam of ore was discovered in the Potosi section. It may lead to an important discovery.

HALE & NORCROSS.—Daily yield 295 tons, the greater portion from the 1,200-foot level. The prospects are gratifying.

OPHIR.—The tunnel south from drift No. 2 is still driven at good speed.

OCCIDENTAL.—Preparations are being made for starting up the new mill at an early date.

VIRGINIA CONSOLIDATED.—The drift west at the 500-foot level, is in 505 feet. The ground has become quite soft.

BELCHER.—The ore seam at the 152-foot level is narrower, yet assaying splendidly.

KENTUCK.—Daily yield 25 tons.

CALEONTA.—About the usual amount of ore extracted from the 200-foot level and winze.

SACRAMENTO AND MEREDITH.—The mill is kept running at its full capacity.

WHITE PINE.

ITEMS. *News*:—Two tons of ore from the Robinson mine, near the Trench, sold at \$250 the ton, to be shipped by San Francisco to Swansea, as an experiment. Operations on Autumn No. 2 have been commenced. . . . A series of three mines, one mile north of Mount Ophir, pronounced promising. . . . In three days Jennie A. ledge was stripped 60 feet and 50 tons first class melting ore taken out. One hundred tons more in sight. . . . Chicago capital is interested in Kern District. . . . Strike in South Aurora richest yet. . . . Gov. Matteson will erect three melting furnaces

and separating works in connection therewith. Sub-committees appointed by citizens meeting at Hamilton to put in shape the town plan for separating works. The mill at Hot Creek is running. Splendid specimens brought in from Mohawk Canyon. Mr. Heffron and Dr. McMeans have commenced the erection of a smelting furnace in Robinson District. Report from Robinson on the 26th was that Col. Cummings' reduction works were completed. The average of ore from the mines in the district is \$178 silver. An assay of Dr. McMeans' ore from the Carbonate showed \$2,000 gold, and \$400 silver, to the ton. The Eagle (Walsh) furnace at Swansea is running finely.

Ely District.—Pioche City Cor. of News: Meadow Valley Co.'s work going on steadily, in sinking and drifting. Burke mine producing first-class ore, which is reduced at Ely and Raymond's mill. American Flag looks well. Crook shows at 60 feet a fine body of good ore. Vermilion looks better. Bowery shaft down 70 feet, with good ore nearly all the way. Pioche No. 7 shows good ore through the whole length. The Meadow Valley Co.'s mill is a very complete affair; rock breaker 20-stamp battery, ten new-style pans, five 7 foot settlers, and two Hungerford concentrators. It was put in motion July 15th and worked to perfection. The machinery is from Booth & Co., San Francisco.

Eureka District.—Sentinel, 30th: The Eureka Consolidated broke ground yesterday for a new furnace of 20 tons capacity, which will be completed in 30 days. This will make the capacity of this company alone forty tons per day. J. J. Dunne, has purchased the Macnevin furnace, and has commenced work for the erection of a refinery. Spring Valley, 12 miles west of Eureka, has between 300 and 400 locations in all. The Reeves and Barry has croppings 45 feet thick, and 10 feet high, extending 300 feet east and west. Ore can be traced through the whole extent. Forty tons worked at Austin, gave all the way from \$90 to \$636 per ton. Ten tons North Star were worked from \$60. to \$250. Several other mines show fairly for the amount of work done.

MINERAL HILL.—This camp is 50 miles north of Eureka; and for the present we will place it under that head, instead of under Reese River as heretofore. The Sentinel gives these items.—A new ten stamp mill will soon be running. The ore is very rich.

Two tunnels are being run into the Hill. The one by the Grass Valley Co. has just struck a body of very fine ore.

The tunnel being run by the Pacific Tunnel Co. is in one hundred and twenty-five feet, and strikes are being constantly made of fine ore.

HOOSAC TUNNEL BLASTING.—The nitro-glycerine is delivered in solid form at the magazine, being frozen and packed in ice. The Shanleys never keep more than 500 pounds in their magazine, and seldom more than 300. It is contained in earthen jars on a low bench, a thin layer of water covering the dreaded oil. The magazine is cool and pleasant, but it is not a place where one would choose to sit and smoke during a warm afternoon.

When the requisite number of holes for a blast have been drilled, word is sent to the surface, and the man who handles the glycerine brings it down in little tin cans containing a pound and a half each. Any man may handle gunpowder in a tunnel, but only a few are permitted to touch glycerine, and they do nothing else. The cans are inserted in the drilled holes, with the ends of the exploders inserted in the cork. These ends are connected with wires extending to the battery far away. The workmen have meantime been removing the drill machines and the platform on which they rest, the rubber pipes which convey the compressed air, the tools and every other useful and destructible thing, to a distance of 200 feet or more. The wires are then attached to the two poles of a magneto-electric battery, and a few turns of the little crank are given. A faint thud, a puff of air striking the face, and the work is done. One of the men goes forward and carefully inspects all the holes to make sure that every one has been exploded, and having ascertained the fact, the miners come forward to renew their drilling and to clear away the debris of the blast.—*Boston Advertiser.*

NEW YORK has a big proposition. Some one wants a grand building constructed all around the city for docks and piers. Here all public business is to be transacted, and the top, 100 feet wide, is to form a public promenade and garden. It is only a proposition as yet.

LYNX CREEK MINES. About nine miles eastward from Prescott, Arizona, is Lynx creek. This runs down a ravine, some twelve miles long, in a northeasterly direction, then turns to the East to disappear, after a while, in the sand. At the head of the ravine, in a granite formation, there is a network of veins. The principal ones run S. W. and N. E., dipping about 40 to 45° easterly. They are rich in free gold and sulphurets. While assays run at times very high, \$60 is given as a fair average for free gold, and the sulphurets are said to run very much higher. Among the prominent mines here may be mentioned the Accidental, the Box Elder, Uncle Billy Pointer's, etc. Uncle Billy is working an adit for himself, and taking out \$40 to the ton, without touching the sulphurets. Shelden, with his mule arastra, is getting out \$275 to the ton. The Accidental has been thoroughly explored. Two shafts, about 150 feet apart, have been sunk, one 60 and the other 73 feet. A tunnel, 150 feet long, taps the ledge 150 feet deep. The vein has a thickness of pay ore of 3½ feet. There are, as is generally the case here, good walls on either side. There is an abundance of ore, sufficient to run a 20-stamp mill which is to be erected, and Mr. G. T. S. Curtis has just arrived here to arrange concerning this, and has given us the above items. There is an abundance of wood and water in the place. A road about eighteen miles long, runs down the creek and then to Prescott, which can also be reached by a trail over the hills, which reduces the distance to some nine miles. Mr. Curtis speaks most favorably of various districts, as the silver mines of Turkey creek, etc., etc. Notwithstanding its location, with its rich veins, low prices of labor, etc., Arizona still offers many inducements to the miner. According to this gentleman, the Indians are not so much feared there as outsiders think. If the people were given arms and the authority to use them, there would be but little trouble from the red skins.

THE NEW QUICKSILVER MINES at San Bernardino have been visited by the *Guardian*, who says: The mines are situated near the mouth of City Creek, with a stream of water within fifty feet. On the opposite side is limestone, and on the lower granites. Between these two are masses of conglomerate rock, and in the center is the vein of cinnabar—some three hundred feet wide and dipping some 45 or 50 degrees. We examined the ledge with care, and having seen some of the ore retorted in town, are convinced that the parties have ore almost sufficient to supply the world for centuries. The owners have gone to work in earnest, and are running a tunnel into the mountain. They are only in some ten or twelve feet now, but the rock is easily worked with the pick only, and the workmen are able to make good progress daily. The vein has been traced a considerable distance, and extensions on the lead have been taken up.

NEW MEXICO ITEM.—There have been an extraordinary clean ups. A 24 hours run from Posse, Connollys & Co.'s claim at last Chance, netted 3 pounds of gold, with three men at work. From a 7 days, run on Deau & Sullivan's claim on Grouse, 54 ounces and 14 pwt. was the result. The California company on Humboldt Gulch, are cleaning up 22 ozs. per week. Gold dust is now shipped regularly to the Branch Mint at Denver. Twenty eight pounds was shipped from one house one morning the past week.

San Francisco Prices of Copper Ores.

SAN FRANCISCO, July 21, 1870.
W. T. Atwood states the following as the approximate price at which copper ores can now be sold in this city. There is no sale for ores which assay less than 10 per cent.

Per cent.	Per ton.	Per cent.	Per ton.
12	20 00	18	26 40
13	22 75	19	28 95
14	25 20	20	31 40
15	27 75	21	33 85
16	30 00	22	36 30
17	32 25	23	38 75

Ores assaying above 30 per cent., \$2.50 per unit. Bars at the rate of 13c. per lb. for pure copper.

San Francisco Stock Market Review.

THURSDAY EVENING, AUGUST 4, 1870.

The operations in the Stock Board during the past week have been, in the aggregate, quite large, if we take into consideration the present depressed condition of all markets. Chollar-Potosi, Savage, Original Hidden Treasure, and Yellow Jacket attracted most of the attention, large sales having been effected at an advance, with the exception of Yellow Jacket, which shows a slight recession. Of all the Comstock mines, Chollar-Potosi and Halo & Norcross give greatest promise for the future, judging from their present gratifying productive capacity. Otherwise, the reports of the various mines are not so satisfactory.

The Board of Brokers now occupy new and spacious rooms in Duncan's Building, on California street.

CHOLLAR-POTOSI—sold to a larger extent than during the previous week, realizing improved figures. For the week ending July 30th, 1,580 tons of ore were extracted, against 1,186 tons the previous week. All ore-producing localities have been yielding increased quantities. On the 18th floor, in the Belvidere section, the drift running south is again coming into good ore. The Potosi Tunnel, immediately under the 18th floor, is being worked to the width of 28 feet—all in good ore. On the 30th ult., \$34,734 in bullion was remitted to the office in this city.

HALO AND NORCROSS—was in moderate request, ruling at \$94 50 @ 92 50. During the week ending July 30th, 1,809½ tons of ore were extracted, of which 1,442 tons came from the seventh-station level. They have 5,451½ tons in the dumps. The sill-floor on the seventh level is being extended northward, and is now 130 feet north of the shaft. The quality of the ore continues good, but the vein has narrowed down to 23 feet. They are continuing to sink the winze below the seventh level, making slow progress, but are in good ore. The east and west cross-cuts now being run from the south drift, south of the shaft, have not yet reached either the east or west walls. These cross-cuts already show a vein 42 feet wide, but the quality of the ore thus far exposed is very moderate.

KENTUCK—is quiet. During the week closing July 29th, 224½ tons of ore were mined, assaying \$2,394, equal to \$10 67 per ton. CROWN POINT yielded 343 tons during the week ending July 29th, assaying \$4,541, equal to \$13 24 per ton. The incline is down 176 feet, which makes it six feet below the 1,100 level. They are now making better progress in this locality, on account of changes in the material. On the 2d inst., two bars of bullion, valued at \$4,168 79, were sent down from the mine.

OVERMAN—is rather dull of sale. The bullion yield for July amounts to about \$17,000. SEGREGATED BELCHER produced \$26,210 67 in bullion during the month of July, and to date, for August account, \$6,317. GOULD AND CURRY declined from opening rates. They extracted 313½ tons of ore during the week ending August 1st, the average assay showing \$39 60 to the ton. On the 2d inst., the development in the southeast drift, middle adit, looked quite favorable for a sufficient production to pay the expense of the entire drift. SIERRA NEVADA produced 792 tons from the ledge, and 50 tons from the gravel deposits, for the sixteen days ending July 31st.

EUREKA (Cal.) disbursed a dividend of \$750 per share, payable on and after the 5th inst.

MINING STOCK QUOTATIONS, AUGUST 4, 1870.

	Bid.	Asked.		Bid.	Asked.
Alpha Con.	74	74	Gold Hill M. Co.	30	30
American	—	—	Hale & Norcross	32	32
Belcher	64	64	Imperial	37	37
Bullion	—	—	Justice	—	—
Crown Point	44	44	Julia	—	—
Deauville	—	—	Kentuck	31	31
Gold Potosi	44	44	Confederate	2	2
Grass Valley	8	8	Occidental	4	4
Duney	—	—	Ophir	13	14
Excelsior	—	—	Overman	10	10
Flower	—	—	Savage	37	37
Gould & Curry	—	—	Sierra Nevada	10	10
			Silver Belcher	25	25
			Yellow Jacket	23	23

	Bid.	Asked.		Bid.	Asked.
Aurora Con.	53	53	Monday	60c	60c
Brode	—	—	Orig. Hidden Tr.	74	74
Chollar	—	—	Pocahontas	—	—
Chollar-Potosi	—	—	Pogonip & Otho	—	—
Hidden Tr. Con.	—	—	Silver Wave	—	—
Mammoth	50c	50c	Virginia	—	—

COMING.—According to common report we are to have soon another distinguished guest in the person of Wm. H. Seward.

New Incorporations.

The following have filed certificates with the County Clerk, San Francisco:
PANAMA M. Co.—Ely District, Nevada, August 3 Capital stock, \$24,000, in 20,000 shares. Trustees: M. Gardner, S. A. Raymond, S. Heydenfeldt, J. A. Pritchard, and G. Walton.
The following have been recorded in the Secretary of State's office, Sacramento:
BROOKS HILL M. Co. Nevada county, July 26. Capital stock, \$50,000, in 500 shares. Trustees: E. C. Webster, A. Lorchonso, and J. Burnett.
LA GRANGE FLOUR MILL AND DITCH Co.—Stanislaus county, July 28. Capital stock, \$40,000, in 400 shares. Trustees: W. E. Thursby, B. H. Delaney, R. Gannon, George K. Davis, and John Reed.

Meetings, Elections, Etc.

IDA ELMORE MINING COMPANY.—August 1st. Trustees: M. J. McDonald, John M. Wilson, A. P. Miner, O. H. Bogart and Louis Vesaria.
COLUMBIAN M. Co. Aug. 1. Trustees: Edmund Mark, (President), Jas. Milburn, E. F. Bucklin, D. R. Brown, and S. A. Sanderson. A. Nodal Secretary.

Mining Shareholders' Directory—Meetings, Assessments and Dividends.

[Compiled weekly from advertisements in the SCIENTIFIC PRESS and other San Francisco journals.]

NAME, LOCATION, AMOUNT AND DATE OF ASSESSMENT.	PAY	DATE
American, G. H., June 13, \$3.	Aug. 18—Aug. 6	
Aurora Cons. W. P., July 7, \$5.	Aug. 10—Sept. 1	
Alpha Cons. G. H., July 13, \$1.	Aug. 22—Sept. 20	
Crown Pt. G. H., \$3.	Sept. 6—Sept. 27	
Cosula, J. G., \$1.	Sept. 6—Sept. 27	
Cherokee Flat, B. G., June 17, \$5.	Sept. 10—Aug. 9	
Cons. Virginia, Storey, July 6, \$1.	Aug. 10—Sept. 1	
Daney, Lyon Co., July 8, \$1.	Aug. 11—Aug. 30	
Excelsior Argenta, June 22, 20c.	Aug. 11—Aug. 30	
Evening Star, No. 1, W. P., June 4, 5c.	Aug. 4—Aug. 24	
Goodyear, W. P., July 14, \$12.50.	Aug. 11—Aug. 11	
Gould & Curry, July 14, \$12.50.	Aug. 18—Sept. 12	
Hall & Van Dyke Cons., July 7, 50c.	Aug. 18—Sept. 12	
Julia, July 22, 75c.	Aug. 25—Aug. 12	
Jennie A. Cons., W. P., June 20, 10c.	July 25—Aug. 15	
Latawana, W. P., June 2, 15c.	July 14—Aug. 6	
Land Purchasers' Ass'n.	Aug. 30—Sept. 24	
Mountain City, Elko Co., July 14, 25c.	Aug. 29—Sept. 26	
Nevada, W. P., July 20, 20c.	Aug. 21—Sept. 30	
Nevada L. & M. W. P., July 12, 10c.	Aug. 11—Aug. 28	
N. Bloomfield Gravel, June 20, \$5.	July 27—Aug. 12	
N. America Cons., June 16, 5c.	Aug. 17—Sept. 7	
Oriental, Sierra Co., July 7, 25c.	Aug. 9—Aug. 30	
Pinto, W. P., July 22, 10c.	Aug. 25—Sept. 15	
Pogonip Flat, W. P., June 15, 30c.	Aug. 2—Aug. 18	
Reese River, W. P., June 11, \$2.	July 26—Aug. 16	
Silver Vault T. & M., W. P., July 20, 50c.	Aug. 25—Sept. 15	
Sophia Cons. 50c.	July 27—Aug. 16	
Wheeler, Pine Grove, June 28, 50c.	July 30—Aug. 20	

MEETINGS TO BE HELD.
Meadow Valley. Annual Meeting, Aug. 18
Union. Annual Meeting, Aug. 8

San Francisco Market Rates.

Wholesale Prices.	
THURSDAY EVENING, AUG. 4, 1870.	
Flour, Extra, \$ bbl.	\$6 41 @ 65 53
Do. Superfine.	5 25 @ 5 51
Co. Meal, \$ 100 lbs.	2 25 @ 2 51
Wheat, \$ 100 lbs.	1 50 @ 1 50
Oats, \$ 100 lbs.	1 50 @ 1 50
Barley, \$ 100 lbs.	1 00 @ 1 20
Beans, \$ 100 lbs.	2 00 @ 2 50
Potatoes, \$ 100 lbs.	1 00 @ 1 30
Hay, \$ ton.	9 00 @ 14 00
Live Oak Wood, \$ cord.	9 00 @ 14 00
China Rice, \$ bbl.	7 00 @ 12 00
Sheep, on foot, \$ lb.	2 50 @ 3 00
Hogs, on foot, \$ lb.	7 40 @ 8 00
Hogs, dressed, \$ lb.	9 00 @ 10 00

GROCERIES, ETC.	
Sugar, crushed, \$ bbl.	14 40 @ 14 40
Do. Hawaiian, \$ bbl.	13 40 @ 13 40
Coffee, Costa Rica, \$ bbl.	— @ 19
Do. Java, \$ bbl.	— @ 19
Tea, Japan, \$ bbl.	75 @ 1 00
Do. Green, \$ bbl.	60 @ 1 25
Hawaiian Rice, \$ bbl.	7 40 @ 8 00
Coal Oil, \$ gallon.	45 @ 6 50
Candles, \$ lb.	14 @ 17 1/2
Overland Sutter, \$ lb.	20 @ 25
Punch Butter, \$ lb.	20 @ 25
Isthmus Butter, \$ lb.	20 @ 25
Cheese, California, \$ lb.	10 @ 15
Eggs, \$ dozen.	40 @ 45
Lard, \$ lb.	10 @ 12 1/2
Ham and Bacon, \$ lb.	15 @ 16 1/2
Shoulders, \$ lb.	9 @ 10

THE BORAX COMPANY.—The Lower Lake Bulletin learns that the California Borax Company are about resuming operations after an inactivity of two years or more. The Borax Lake is quite low owing to the evaporation induced by the extreme heat this summer.

TO MINERS, MILLMEN AND METALLURGISTS.
Kustel's new work on the Concentration of all kinds of Ores, and the Chlorination Process, for Gold-bearing Sulphurets, Arseniurets, and Gold and Silver Ores generally, is the best and most complete work issued. It contains 120 diagrams, illustrating machinery, etc., which alone are of the greatest value. Price, \$7.50, postage paid. Published by Dewey & Co., publishers of the Scientific Press, San Francisco.

Farming and Gardening.

COMMUNICATIONS for this department are solicited from all parts of the Pacific States and Territories.

The Possibilities of Wheat Culture.

On examining the organization of a head of wheat, it will be found that each grain occupies a cell, and that generally, even in what is called a full head thereof, for every three cells "filled out" or containing grains, there will be two empty or imperfectly developed cells. These empty cells also, for the most part, will be found interspersed among the grains or cells which are filled, and not at the top or bottom of the head. The number of cells in a head is generally from 75 to 105; but, even under the best of cultivation, it is seldom that we find the number of grains to exceed 60; from 45 to 63 is the general average of good culture. But as Nature has evidently provided for at least one-third more in number, we should never think of ceasing in our efforts to improve, until the ultimate possibilities of the endeavor have been reached.

It is moreover claimed that if we could succeed in growing a perfect head—that is, in filling every cell with a grain of wheat, nature would then develop still other cells. A close examination of any healthy seed will exhibit certain rudimentary formations which goes to support such a supposition. If these sayings are facts, and we believe they are, and incontrovertibly established, it will be perceived that we are generally raising but about half as much wheat as we should raise from any given area; and moreover, it will be long before an absolutely full ear of wheat will be produced. The possibility of what we have alluded to may well be accepted when it is borne in mind that the hundred or more varieties of wheat now known, have all been produced from a wild growth which originally, produced a seed no larger than the smallest mustard seed.

Farmers, and especially wheat growers, would do well to study and think more of these things. Such study will be found a powerful incitement to improved cultivation, and earnest, intelligent efforts to reach the possibilities of wheat culture. Carefully examine your growing crops, bearing in mind the numerous hints which we have thrown out from time to time on this subject, and you cannot fail to be convinced that, as a general thing, the most careful cultivators have heretofore realized but half crops, and but few even that much. Experiment on small portions of your fields—say a few square feet, if no more—keep a record of your results, and you will be astonished at what you will learn.

Utilizing Marsh Grass—Management of Cows.

Mr. Phelps, of San Mateo, is making use of what is generally supposed to be a wholly useless product, the coarse grass growing in the muddy salt marsh, bordering his ranch, immense quantities of which may be seen growing all along the bay of San Francisco. This grass is cut by Mr. Cole with a grain cradle, each clip being thrown into a boat, pushed along over the mud by the side of the party cradling, then loaded into a scow at the most convenient point and taken to the landing. At the barn it is washed by discharging fresh water from a hose pipe on to it for the purpose of removing the salt. It is then fed to the milch cows with a small quantity of oil cake meal sprinkled over it. The fact that it is green has the effect to very much improve the color and flavor of butter at this season, when everything else is dry.

The above fact has been furnished us by a correspondent, for which we are much obliged. Cows in milk require much care and attention. When they are kept up frequent feeding is better than unfrequent. A given amount of food, fed five or six times a day, will keep up the flow of milk, when with the same amount, fed only three

times, they will fall off. Water, too, should be given often—more often than a cow will willingly seek for it if she has to travel any great distance. In frequent feeding care should be taken that no more is given at a time than will be eaten up clean, say in one hour and a half from the time it is placed before them.

In California the grass becomes dry comparatively early in the summer, and the milk, in consequence, scarce and thin, and the butter light colored. When grass fails and resort is had to hay, as among the dairies near this city; or when grass is plentiful, but dry, cows should have at least one feed per day, (two would be better) from roots or some green fodder, such as cornstalks, etc., in order to keep up the quality of the milk, and color, as well as quality of the butter. Many resort to extraneous means for coloring the butter, employing therefor annatto, a solution of scraped carrots or something of the kind. Such things may not be injurious to the butter, but they are, at best, but a poor substitute for the natural color, which should be secured by placing before the animal proper food. A little green food will add materially to the quantity, as well as quality, of both milk and butter, often two pounds per day or more to the former.

While corn, cut when half-grown, beets or some other roots are decidedly preferable, the substitute which Mr. Cole is employing, as above described, will no doubt answer a very good purpose, and especially as it can be obtained at ranches situated on the Bay in liberal quantities and at a very low cost.

The oil meal employed by Mr. Cole is a very valuable addition to his feed, and it is most surprising that so little is used in this State where it is so cheap. In England oil meal is largely employed at a cost of \$60 per ton, while we believe it is but \$30 or thereabouts, here. The English feed it to all kinds of stock, and regard it as almost indispensable. If we would have milch cows yield milk largely, we must give them variety in their food to stimulate their appetites. They will be all the better therefor, both in flesh and yield.

Crops in Alameda County.

Grain crops throughout portions of Alameda County that border along the bay, are a fair average with past seasons. Wherever the land was well tilled, and free from foul growth, if the seed were sown early, so as to be well started before the spring rains, heavy crops are the result.

The only failure of an average or more than an average crop, is in consequence of careless culture, and mismanagement, on the part of the farmer.

A busy scene of harvesting greets the eye of one traveling over the fertile district that reaches from Oakland to the borders of Santa Clara Co. The black smoke of the threshing engines, and the lighter, surging dust from the separators, often attract the attention; while stacks of packed grain, and loaded teams on their way to the ware-houses, are the cheering signs of plenty. Enquiring of a farmer, Mr. Clawita at Mount Eden township, who has finished his harvesting, how his crops turned out this season, we were informed that from 60 acres of barley he got 1500 sacks, averaging, 125 lbs to the sack, and from 75 acres of volunteer wheat and wild oats, he cut 200 tons of excellent hay.

Mr. Leonard Stone, near San Lorenzo, from 21 acres of Australian wheat, sown about the middle of December, on ground that had been cropped constantly to grain for ten years, got 55 bushels to the acre.

Mr. T. A. Brown, near Brooklyn, from a large field of oats on land that had been long and constantly cropped, averaged 46 bushels to the acre.

We are aware that in the eastern part of Alameda county, in Livermore Valley, and vicinity, that some crops were a total failure, but everywhere around the bay,

within direct influence of the moist sea, breezes one of the never failing garden spots of the Pacific, has vindicated itself beyond every doubt. The abundant yield of fruits, and of vegetables also add their curious richness to the products of a bountiful season.

Our Industrial Condition—The Homestead Mania.

Among the various evils which have resulted in a stagnation and lack of confidence in industrial enterprises on this coast, one may be mentioned as very prominent—the investment in homesteads and lands for speculative purposes, of such sums of money as were needed in active pursuits. "Put your money into land and let it lie" was the cry and rage one and two years ago. To such an extent was this kind of idle speculation carried, that most other enterprises were but secondary considerations with the masses. Farmers and others who owned land in the vicinity of our large towns, suddenly found themselves rich from the sale of such lands at greatly advanced prices, and this without any exertion of their own. And still fortunes were realized again and again, from selling the same lands at ever increasing rates. Farms were divided into tracts of a few acres, and again sub-divided into smaller lots; streets were laid out and "seven-by-nine" "homesteads" sold to anybody who had money, or the prospect of ever getting any. A little cash down, and monthly payments on the balance; or any way to get money from the people, were the plans adopted. Many and ingenious were the societies, incorporations and organizations formed for the purpose of inducing people to invest in such speculations. The display that was made by those who became rich from selling lands, only incited the masses to further investments. Magnificent residences and all the luxuries of extravagant wealth and pride became the order of the day, and a rivalry of competition in splendor, even brought ruin upon the fortunate ones in many instances. Whoever owned lands in the neighborhood of San Francisco was considered rich, while every one who could buy "ever so small a lot" was sure to make money or a fortune by investing. The word "crazy" has too rational a meaning to convey a proper idea of the reckless infatuation and avidity with which everybody "bit at the bait."

Lands that had been cultivated became "too valuable" to be devoted to producing crops; manufacturing interests were slow coaches; there was a faster way of making money than in making machines or running them. The Overland Railroad would be the making of the country; an immense population and travel would fill our State—buy up our land and build up our cities; imagination was unlimited; conjectures unbounded, and the wildest speculations were to realize fortunes without end! No need of home manufactures. We could make money by importing goods. Our mining excitements and other "prospects" all had weight. Our valuable time could better be employed in buying and selling lands and goods, than in producing the necessities of life. Government lands were bought up by the wholesale, while the cities and suburbs were retailed at immense profits. The rates of interest were kept up, out of the reach of industrial interests and every productive business lagged. And it still lags—and still we, a bankrupt and moneyless people, import what we might with economy produce at home. Our manufacturing interests are neglected. Moneyed men exhibit no desire to invest in industrial enterprises. They would sooner get interest, or wait for better times! And the man that has enterprise without ample means is actually discouraged from such pursuits.

But in the very nature of things, something must change, and radically change too. With the brightest skies we have the cloudiest prospects—with the richest soils we have the poorest farmers and the smallest profits. With a vast field of resources, almost undeveloped, and with every natural advantage for prospering, we are idly drifting down the current we ought to ascend. The Overland Railroad is not the sole cause of our trouble, as some of its enemies assert, although it is an expensive toy, bought with imported labor. The railroad would be quite as glad to bring

emigration, as the land owners would be to see it brought. But as long as manufacturing industry is discouraged, and it is necessary to enrich speculators to obtain farms in a favorable locality, just so long emigration will not be in a hurry to come to California. Neither is the high price of labor so much our misfortune as many suppose. When everybody gets enough work and good pay, times are good and money is plenty—a thousand little enterprises are encouraged that amount to great good, both in detail and in the aggregate.

Legitimate business enterprise is our great need, and the time has come when idle speculation will not pay; when some sort of economy is becoming necessary. Let money seek the ordinary channels of industry; let time and labor become of some remunerative value in supplying the necessities of life and of prosperity; let the actual and the real take the place of the flimsy foundation of fictitious values and imaginary schemes, and prosperity will again visit us.

S. H. HERRING.

PROFITS OF MARKET GARDENING.—Mr. E. Jones, an old American resident of San Leandro, who is raising vegetables for the curing and pickling establishment of Cutting & Co., of this city, has 90 acres under cultivation this season. From eleven acres of Marrowfat peas he sold 1,100 sacks at \$2,200 this season. He has four acres of Squash peppers, comprising 40,000 plants, which will average one pound to the plant, or 40,000 pounds. At two cents per pound—a low wholesale price—he will realize \$800. Mr. Jones has contracted 9,000 boxes of tomatoes to the same firm, at 62½ cents. At this very low price he will realize about \$175 to the acre. The bean crops this year, in Alameda county, have so far, from some cause, proved a failure; but the appearance of the vines now indicate a good late crop. Mr. Jones also cultivates a large lot of cucumbers, etc., etc., for pickling. He calculates on about \$100 profit per acre, on the most of his produce this season.

Nearly all of the vegetable business in Alameda county is carried on by the Portuguese—a very industrious and economical class of citizens. Very few of them can read and they are a very clanish sort of people, but they seem to take a pride in American institutions and educating their children. They have no desire to return to the old country, but may be depended upon as becoming part of our people. As a race they are not a bad element to be incorporated into our civilization.

S. H. HERRING.

GRASS SEED IN SOIL.—A somewhat interesting illustration of the length of time some seeds will remain dormant in the soil, without losing their vitality, was recently observed by Hon. T. G. Phelps, on his ranch near Belmont, San Mateo county. He has a piece of land bordering on some salt marsh, which was thoroughly ploughed three times, with intervals of several weeks between plowings, then sown with beets, and cultivated so often that no grass or weeds were allowed to appear. These beets were pulled as they were needed for feeding purposes. On quite a large portion of this tract the beets were not gathered until too late to put in any other crop, and as the ground had been perfectly bare of everything except beets for over fifteen months, and left as useless for the remainder of the season, it was a little singular to observe that burr clover started up in such profusion that 2½ tons per acre has just been harvested.

DAIRY PROFITS.—Mr. D. E. Knight, of Brooklyn, Alameda county, has sold, since the first of January, 450 pounds of butter, the produce of three cows that have fed upon pasture alone, at an average of 40 cents per pound, \$180 net. He has during the same time supplied his own family of five with milk and butter from the same cows, and raised twelve fine calves, worth \$125, from the skim milk. Mr. K. has also a fine lot of ducks and other poultry, which pay in like proportion.

What I Know of Farming—No. 29.

Esculent Roots—Potatoes.

In no other form can so large an amount and value of human food be obtained from an acre of ground as in that of edible roots or tubers; and of these the potato is by far the most acceptable and in most general use. Our ancestors, it is settled, were destitute and ignorant of the potato, prior to the discovery of America, though Europe would now find it difficult to subsist her teeming millions without it. In traveling pretty widely over that continent, I cannot remember that I found any considerable district in which the potato was not cultivated, though Ireland, Western England, and Northern Switzerland, with a small portion of Northern Italy, are impressed on my mind as most addicted to the growth of this esculent. Other roots are eaten occasionally by way of variety, or as giving a relish to ordinary food; but the Potato alone forms part of the every-day diet alike of prince and peasant. It is an almost indispensable ingredient of the feasts of Dives, while it is the cheapest and commonest resort for satiating or moderating the hunger of Lazarus. I recollect hearing my parents, fifty years ago, relate how in their childhood and youth, the poor of New England, when the grain crop of that region was out short, as it often was, were obliged to subsist through the following winter mainly on potatoes and milk; and I then accord to those unfortunatees of the preceding generation a sympathy which I should now considerably abate, provided the potatoes were of good quality. Roasted potatoes seasoned with salt and butter and washed down with hounteous draughts of frosh buttermilk, used in those days to be the regular supper served up in farmers' homes after a churning of cream into butter, and I have since eaten costly suppers that were not half so good.

The potato, say some accredited accounts, was first brought to Europe, from Virginia by Sir Walter Raleigh in 1586 or 1587, but I do not believe the story. Authentic traditions affirm that the potato was utterly unknown in New England, or at all events east of the Connecticut, when the Scotch-Irish who first settled Londonderry, N. H., came over from old Londonderry, Ireland, bringing the potato with them. They spent the winter of 1719 in different parts of Massachusetts and Maine, quite a number of them at Haverhill, Mass., where they gave away a few potatoes for seed, on leaving for their own chosen location in the spring, and they afterwards learned that the English colonists, who received them, tried hard to find or make the seed-balls edible the next fall, but were obliged to give it up as a bad job, leaving the tubers untouched and unsuspected in the ground.

I doubt that the potato was found growing by Europeans in any part of this country, unless it be in that we have acquired from Mexico. It is essentially a child of the mountains, and I doubt if it grew wild anywhere else than on the sides of the great chain which traversed Spanish America, at a height of from 5,000 to 8,000 feet above the surface of the ocean. Here it found a climate cooled by the elevation and moisture by melting snows from above, and by frequent showers, yet one which seldom allowed the ground to be frozen to any considerable depth, while the pure and bracing atmosphere was congenial to its nature and requirements. In this country, the potato is hardiest and thriftiest among the White Mountains of New Hampshire, the Green Mountains of Vermont, on the Catskills and kindred elevations in our own State, and in similar regions of Pennsylvania and the States further south and west.

My own place is at least 15 miles from, and five hundred feet above Long Island sound; yet I cannot make the potato, by the most generous treatment, so prolific as it was in New Hampshire in my boyhood, where I dug a bushel from 14 hills, grown on rough, hard ground, but which, having just been cleared of a thick growth of bushes and briars, was probably better adapted to this crop than though it had been covered an inch deep with barn-yard manure.

He who has a tolerably dry, warm, or sandy soil, covered two or three inches deep with decayed or decaying leaves and brush, may count with confidence on raising from it a good crop of potatoes, provided the seed be sound and healthy. On the other hand, all authorities agree that animal manures, unless very thoroughly rotted and intimately mixed with the soil, are injurious to the quality of potatoes grown thereon, etimulating any tendency to disease, if they do not originally produce such disease. I believe that swamp muck,

dog in summer or autumn, deposited on a dry bank or glade, and cured of its acidity by an admixture of wood ashes, or lime, or of salt (better still, of lime and salt chemically compounded by dissolving the salt in the least possible quantity of water, and elaking the lime with that water), forms an excellent fertilizer for potatoes if administered with a liberal hand. A bushel of either of these alkalies to a cord of muck is too little; the dose should be double if possible; but, if the quantity be small, mix it the more carefully, and give it all the time you can wherein to operate upon the muck before applying the mixture to your fields.

Where the muck is not easily to be had, yet the soil is thin and poor, I would place considerable reliance on deep plowing and subsoiling in the fall, and cross-plowing just before planting in the spring. Give a good dressing of plaster, not less than 200 pounds to the acre, directly after the fall plowing; if you have ashes, scatter them liberally in the drill or hill as you plant; and, if you have them not, supply their place with superphosphate or bone dust. I think many farmers will be agreeably surprised by the additional yield which will accrue from this treatment of their soil.

Those who have no swamp muck, and feel that they can afford the outlay, may, by plowing or sub-soiling early in the fall, seeding heavily with rye, and turning this under when the time comes for planting in the spring, improve both crop and soil materially. But even to these I would say, apply the gypsum in the fall, and the ashes or lime and salt mixture in the spring; and then, with good seed and good luck, you will be reasonably sure of a bounteous harvest. If a farmer, having a poor, worn out field of sandy loam, wants to do his very best by it, let him plow, sub-soil, sow rye and plaster in the fall, as above indicated, turn this under, and sow buckwheat late the next spring; plow this under in turn when it has attained its growth, and sow to clover; turn this down the following spring, and plant to let potatoes, and he will not merely obtain a large crop, but have his land in admirable condition for whatever may follow. I am quite well aware that such an outlay of labor and seed, with an entire loss of crop for one season, will seem to many too costly. I do not advise it except under peculiar circumstances; and yet I am confident that there are many fields that would be nearly doubled in value by such treatment, which would richly repay all its cost. That most farmers could not afford thus to treat their entire farms at once, is very true; yet it does not follow that they might not deal with field after field thus thoroughly, living on the products of forty or fifty acres, while they devoted five or six annually to the work of thorough renovation.

A quarter of a century ago we were threatened with the complete extinction of the potato as an article of food; the stalks, when approaching or just attaining maturity, were suddenly smitten with fatal disease—usually after a warm rain, followed by scalding sunshine—the growing tubers were speedily affected; they rotted in the ground, and they rotted nearly as badly if dug; and whole townships could hardly show a husel of sound potatoes.

A desolating famine in Ireland, which swept away or drove into exile nearly two millions of her people, was the most striking and memorable result of this widespread disaster. For several succeeding seasons, the potato was similarly, though not so extensively, affected; and the fears widely expressed that the day of its usefulness was over, seemed to have ample justification. Speaking generally, the potato has never since been so hardy or prolific as it was half a century ago; it has gradually recovered, however, from its low estate, and though, the malady still lingers, and from time to time renews its ravages in different localities, the farmer now plants judiciously and on fit ground, with a reasonable hope that his labor will be duly rewarded.

It seems to be generally agreed that clayey soils are not adapted to its growth; that if the quantity of the crop be not stunted, its quality is pretty sure to be inferior; and I can personally testify that the planting of potatoes on wet soil—that is, on swampy or spongy land which has not been thoroughly drained and sweetened—is a hopeless, thriftless labor—that the crop will seldom be worth the seed.

As to the ten or a dozen different insects to which the potato-rot has been attributed, I regard them all as consequences, not causes; attracted to prey on the plant by its sickly, weakly condition, and not really responsible for that condition. If any care for my reasons, let him refer to what I

have said of the wheat plant and its insect enemies.

There has been much discussion as to the kind of seed to be planted, and I think the result has been a pretty general conviction that it is better to cut the tubers into pieces having two or three eyes each, than to plant it whole, since the whole potato sends up a superfluity of stalks, with a like effect on the crop to that of putting six or eight kernels of corn in each hill.

Small potatoes are immature, unripe, and of course should never be planted, since their progeny will be feeble and sickly. Select for seed none but thoroughly ripe potatoes, and the larger the better.

My own judgment favors planting in drills rather than hills, with ample space for working between them; not less than thirty inches: the seed being dropped about six inches apart in the drill. The soil must be deep and mellow, for the potato suffers from drought much sooner than Indian corn or almost any other crop usually grown. I believe in covering the seed from 2 to 2½ inches, and I hold to flat or level culture for this as for everything else. Planting on a ridge made by turning two furrows together may be advisable where the land is wet; but then wet land never can be made fit for cultivation, except by underdraining. And I insist upon setting the rows or drills well apart, because I hold that the soil should often be loosened and stirred to a good depth with the subsoil plow; and that this process should be persevered in till the plant is in blossom. Hardly any plant will pay better for persistent cultivation than the potato.

As to varieties, I will only say that planting the tubers for seed is an unnatural process, which tends and must tend to degeneracy. The new varieties now most prized will certainly run out in the course of twenty or thirty years at furthest, and must be replaced from time to time by still newer, grown from the seed. This creation of new species is, and must be, a slow, expensive process, since not one in a hundred of these varieties possesses any value. I don't quite believe in selling—I mean in buying—potatoes at \$1 per pound; but he who originates a really valuable new potato deserves recompense for his industry, patience, and good fortune, and I shall be glad to learn that he receives it. *Horace Greeley.*

THE STANDISH STEAM PLOW.—The Massachusetts *Plowman* furnishes the following item with regard to what is being done with the Standish steam plough in Boston:

The new steam plough manufactured by Coffin & Standish, South Boston, was exhibited near their establishment between 4th and 5th streets, on Thursday afternoon of last week. The new plough is nineteen feet in length, and will plow from six to nine feet in width. It rests upon four wheels, and the ploughing is done by five sets of revolving knives, each about twenty inches long and two inches wide, and book-shaped at the end. A swath ten feet wide is ploughed at a time, and from three to twenty inches deep. In this case the power of the engine was thirty-horse. The plough cost \$10,000, and it is estimated will break up about thirty acres of land a day, with two men to manage it. It has a number of improvements on the original machine built at Martinez, in California, and is made stronger in some of its parts. It is the intention of the proprietors to work the machine briefly at Chicago, and then carry it to California as originally proposed.

TALL POTATOES.—There seems to be something peculiar about the "Big Tree" regions of this State, which has a tendency for the production of tall vegetation. The *Fresno Examiner* says that Mr. Wm. Hill planted a quarter of an acre upon his ranch, near the Fresno big trees, with potatoes, the tops of which grew to seven feet in height, while he took out a ton and a half of potatoes from the patch, equal to twelve tons of potatoes to the acre! The ground is shaded by trees and is very rich.

A NEW ROAD SCRAPER OR SCOOP.—A Californian now at the Western States has become much impressed with the value of a new scraper or scoop, which he thinks will revolutionize that class of work. He does not describe the machine; but says it will soon be offered for sale in this State.

THE LOWER CALIFORNIA EXPEDITION left the city, last Saturday, on the schooner *Fanny A. Hyde*.

Ramie, Nuts and Small Fruit.

A San Lorenzo, on the farm of Mr. Wm. Meek, there is growing a fine lot of 1600 ramie plants. Rooted cuttings were set in March, in fine light alluvial soil, and now stand from one to three feet high, with from 8 to 20 shoots or branches, which look vigorous and thrifty. The plants were a little backward in growing at first, but are now pushing ahead rapidly and give promise of success.

Land that will produce good corn, is said to be suited to the ramie. Irrigation is quite beneficial and will well reward the trouble in extra growth. It is the intention of the proprietor to propagate what he can by layers, with a design to extend the plantation as fast as possible.

Nut Trees.

Mr. Meek planted a pecan tree, nine years ago, which is now six inches in diameter, and twenty feet high, it is a beautiful, thrifty tree, but has not borne yet. An American Black Walnut of the same age is of the same size; and has produced a few nuts. He has two Burr Oaks the same age, from acorns gathered in Iowa. They stand fifteen feet high, are about three inches in diameter, and are bearing this season. Several California Black Walnuts planted at the same time, are over thirty-six feet high, and four feet in circumference—fine trees, bearing fruit. Several English walnuts are also doing finely.

Indeed it is evident that nut trees of all kinds, when planted in suitable soil and localities in this State, will be a sure success and profit.

Profits of Cherry Culture.

From six acres of about 600 trees, Mr. Meek has received for cherries, clear of expenses and commissions, over \$6,000 this season.

Currants.

About two acres of cherry currants, have given a clear profit in the sales of cuttings and fruit, of \$1,800, this season.

California Silk Business at the East.

A convention of silk manufacturers in the United States was held in New York recently to take some measures for the promotion of the silk-producing interest on the Pacific coast. We shall look with interest for a report of the doings of this convention. It is intimated that they contemplate the organization of a company, which will send an agent here, to examine our mulberry plantations and coconeries, with power to invert or loan money to enable our growers to extend their operations. Silk operators at the East, as well as in this State, are thoroughly confident, not only of the unsurpassable quantity and quality of our future cocoon crops; but also of the general profits which must be realized from them, wherever they are conducted with care and prudence. The experiments of the last five years have relieved all doubt as to the fitness of our climate, and the generally profitable nature of the business of raising cocoons and producing eggs or raw silk. The home production of raw silk is an important desideratum for the whole country; and Eastern manufacturers are exhibiting a most commendable and patriotic spirit in their efforts to foster the business in the only State in the Union where there is any probability of its becoming practicable and profitable.

STREET PAVING.—Some little alteration has been made in the usual practice of paving streets in London. The portion of Fleet street which has just been repaved, has been done in the following manner: The paving-stones were laid with strips of wood or hoop iron between each row of stones, to keep the rows apart. As soon as a sufficient number of rows were laid, the wood or iron strips were removed, and the spaces partly filled up with clean gravel. After this the remaining space was filled with melted asphalt. —*Scientific Journal.*

Scientific Press.

W. B. EWER..... SENIOR EDITOR.

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San Francisco:

Saturday Morning, August 6, 1870.

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Sixteen Pages Extra.

We have postponed our double sheet issue in order to print a THIRTY-TWO PAGE EDITION, shortly, containing the paper, already announced, entitled: "A Guide to California Immigrants." Its publication has been delayed partly on account of the printers' strike.

ACADEMY OF SCIENCE.—At the meeting on Monday a number of members were elected. Some fossils were presented by Mr. Hanks. Dr. Stout made some remarks on the excellence of carbolic acid for preserving specimens of Natural History. The largest animals can be thus preserved. Prof. Davidson spoke of the seals on the coast, giving some valuable and interesting facts. Dr. Cooper made some observations on a trip made to Castle Peak on the Sierras. The structure is basalt and conglomerate; neither climate, flora nor fauna are strictly alpine. Action is to be taken with regard to inviting the American Association to hold their next annual meeting in this city.

A SOCIAL MEETING of the Editorial party occurs at the Mechanics' Institute, on Friday evening, after we have gone to press. We should, however, be within the bounds of truth, were we to state that it was, (or will be, if any one prefers) a most enjoyable meeting. We have found our old friends of the party, still so dear to us, and our new ones so pleasant, that any meeting with them is a pleasure, and every thought of their approaching departure a regret. May they carry away with them as sunny memories of their visit, as we have experienced.

INTERESTING LECTURE.—We are happy to announce that the public will have an opportunity this (Saturday) evening to hear a lecture delivered by one of the excursionists now in this city. The Hon. J. V. C. Smith, formerly Mayor of Boston, will speak concerning Egypt—Its Ancient Splendor—Its Ruins—Its Modern Condition, Government and Institutions. The lecture will be delivered before the Mechanics' Institute and will commence at 7.45, P. M.

Separating Silver and Lead.

Now that the subject of separating works is being agitated at White Pine, a few words on this topic may not be out of place. The *News* has had much to say in regard to the matter, but as we have missed several numbers, we are unaware exactly how much. What we have seen was good. An establishment of the kind, well managed, and in which the miners themselves had a large interest, so that it would be conducted for the benefit of the mines, would be a most excellent thing for the place. One such would be amply sufficient, as this could always be enlarged to meet all requirements, and the expense of one large establishment would be much less than that of several smaller ones, and improvements would be introduced much sooner.

The old way of separating lead and silver was by cupelling the whole mass. As much lead, however, did not contain enough of the more precious metal to pay for the expense of this process, not only was much silver lost to the world, but many lead mines were valueless which otherwise would have made good returns. But when, in 1829, Pattinson invented his process for previously concentrating a large part of the silver in a small portion of the lead, mining received a new impulse. The process is founded on the fact that, on melting argentiferous lead in large quantities and letting it cool gradually and equally, a part will separate in the form of crystals, while the silver remains mostly in the liquid. A complete separation is practically impossible for several reasons. How far the desilverization can be carried out, depends on economical grounds. The enriching can be performed until the lead contains about 2 1/4 per cent. of silver, after which both crystals and liquid contain about the same amount of this metal. As to the high and low systems and their modifications, we doubt not that the *News* has enlightened its readers. The high system is generally applied to richer and less pure lead, and requires a larger number of pans (up to fifteen); the low system is used for poorer and purer qualities, but requires only two or three pans. Modifications are made according to circumstances. Experience has shown that the larger the amount treated, within reasonable limits, the better the process goes on. Hence it is desirable always to have as much as possible on hand, which is an argument for one large establishment rather than several small ones.

The pans generally used are of cast iron and have, with a capacity of 240 to 250 cwt., an inside diameter of about 7 feet, and a depth of 3 feet. It is a mistake to make them too thick, as their durability is not increased thereby and they apparently have no good influence on the crystallization. A thickness of 1 1/4 inches at the bottom and 1 inch at the top is ample. As the weight of the lead causes the heated vessel to belly out below, a masonry pillar underneath, to support the bottom of the pan, is often advisable. A good vessel is worn out by the alternate expansion and contraction of the iron, which causes the foundation of minute cracks through which the lead leaks. The length of time a pan lasts, is of course very indefinite and depends to a great extent on the management of the fire. A well made kettle may be used, generally speaking, for 250 to 300 crystallizations before the lead begins to go through, and for, say, 100 subsequent processes before it becomes useless. A large pan, according to the above figures, weighs, in round numbers, from 16 to 20 cwt., and would cost here \$100 to \$125. The foundries would be willing to furnish them at the very lowest prices possible (we have seen the proprietors in regard to this matter) provided they can only get a fair amount of custom. In Germany, pans of sheet iron (1/2 in.) have been tried, with success, we believe. These can be furnished there at a cheap price and

are preferable on many accounts (freight, for instance); but as the parts must be welded, and not riveted, they are not to be thought of here. In England we find many establishments using cast iron pans, 5 to 5 1/2 ft. wide and 2 1/2 to 2 3/4 feet deep and holding 6 to 10 tons. Our experience and what we have learned from those who have worked for years at the process, leads us to favor large amounts, other things being equal. The loss of lead varies greatly, say, from 1 1/2 to 5 per cent. according to its purity, and the management of the kettles.

For this process a large number of workmen are required. This renders desirable the use of machinery as far as possible. In Germany, small ladles are used and only manual labor is employed. In England, often larger ladles are taken and raised and lowered by means of a crane and pulleys. A gentleman at the Freiberg smelting works suggested, a number of years ago, an ingenious contrivance. He proposes a railway above the pans, on which runs a wagon frame. To this is attached a large ladle which just fits the inside of the pans. While the lead is cooling this revolves in the kettle so as to stir up the fluid metal and keep it throughout of the same temperature. When enough crystals have formed, by shifting the belting, the ladle with the crystals is raised by means of a screw on its suspending rod, then the wagon rolls over the proper pan and the ladle is lowered in a similar manner; and so the process is carried on. Having personally thoroughly exhausted ourselves in working hand-ladles in this process, we are practically aware of the exertion necessary, and are inclined to the use of machinery where the monetary conditions allow it.

When at Stolberg, near Aix-la-Chapelle, in 1868, we saw a process with three pans and stirring machinery, apparently the same as that described in the *News* of July 15th. The proprietors assured us that this was a great economical success, but refused to give any figures, or to let us remain longer than merely to see one operation.

Of late years the desilverization of lead by means of zinc has been pushing the Pattinson process in Europe. It is founded on the greater affinity of silver for zinc than for lead. The old Parke process was given up some time ago, on account of the trouble in separating the zinc and lead, and the consequent loss of the latter metal. The process has lately been revived in the Harz, and improved, and the Condurif process (of Toulouse, France) is highly spoken of. We can, however, but just mention it here. It is, in brief, as follows. About 22,000 lbs. of lead are melted in a kettle; from 1 to 2 per cent. of zinc is introduced and the whole stirred; the zinc scum which forms on top and holds most of the silver is removed and liquated: the desilverized lead is treated with steam in a closed kettle heated to a cherry-red heat, whereby the zinc is oxidized; the rich zinc scum concentrated (by liquation) is treated in different ways; by the Condurif method it is treated with steam; rich oxides and rich lead result; the latter is cupelled; the former are heated with hydrochloric acid; the chloride of zinc is lost; the residue is melted and gives rich lead for cupellation. This is merely the barest outline of the process. We may perhaps speak further of it at some future time. Meanwhile those interested can find a full description in the *Zeitschrift für das Berg-, Hütten- u. Salinenwesen* for last year, or an able translation of the same by Mr. F. Prime jr, in that valuable publication, the *Technologist*, commencing with the June number.

The above hints, derived from actual practice, may be of value at the present time. They are not intended as a description of the process, but merely as "extracts from the note-book".

On and after to-day, the banks in this city will close on Saturdays at 12 M.

Patents and Inventions.

A Full List of Patents Issued to Pacific Coast Inventors.

[FROM OFFICIAL REPORTS TO DEWEY & CO., U. S. AND FOREIGN PATENT AGENTS, AND PUBLISHERS OF THE SCIENTIFIC PRESS.]

FOR THE WEEK ENDING JULY 26TH.

FAUCET.—James H. Lord, San Francisco, Cal.

SPADE AND SHOVEL.—John W. Pearce, Suisun, Cal.

TUCK-CREASING ATTACHMENT FOR SEWING-MACHINES.—James Billings Safford, San Francisco, Cal.

CANDLESTICK.—Henry Zahn, San Francisco Cal.

NOTE.—Copies of U. S. and Foreign Patents furnished by DEWEY & CO., in the shortest time possible (by telegraph or otherwise) at the lowest rates. All patent business for Pacific coast inventors transacted with greater security and in much less time than by any other agency.

Notices of Recent Patents.

Among the patents recently obtained through Dewey & Co's Scientific Press American and Foreign Patent Agency, the following are worthy of mention:

CABLE-STOPPER.—J. Stitt, San Francisco.—A strong metal bar or rod is bent to a U-shape, or at right angles, so as to have the two arms parallel. On these arms are two cross-heads, arranged so as to slide up and down, and with blocks of India rubber or other elastic material between. Nuts at the ends of the arms prevent the lower cross-head from slipping off. A rod passes through the middle of the cross-heads and the blocks, and is secured by nuts at the end above the upper cross-bar. Hence, on drawing this rod outward, the blocks of elastic material are compressed, the upper cross-head sliding on the parallel arms. The upper end of this U-shaped bar is firmly secured to the proper chain or cable. The lower end of the rod above mentioned is also secured to a chain which terminates in a clutch or "devil's claw." This is a short iron bar, 1/4 which is slotted at one end, in which is pivoted, near its middle, one end of a rectangular piece of metal, 1/2 the projecting arm of which is slotted. The pivoted arm of this bar fits into the slot in the bar, 1/4 both slot and arm being beveled at the bearing point, and a ring is arranged to slide along the bar, 1/4 so as to bind the arm firmly in the slot. This ring is made polygonal, so as to be turned by a wrench, in order to bring a small slot in its inner side in position to unlock over a corresponding projection on the bar, 1/4.

DEVICE FOR CURLING HAIR.—S. L. Tibbals, Dutch Flat, Placer Co., Cal.—This is a device to be used for curling hair, rendering the process easy and convenient, and doing away with the usual curl-papers or leads, as well as the often injurious heated iron. It consists of a tapering piece of plate or sheet metal bent longitudinally into an S-shape; also of a pin made of a piece of wire bent upon itself so as to have a slight spring. One of the ends of this wire is bent or hooked so that it can be made to clasp the other. To curl the hair, (gentlemen will please read no further) it is wet or dampened in a solution prepared by the inventor, wrapped spirally on the tapering, S-curved iron and fastened, so that it will not untwist, by two pins, one on each side; one arm of the pins being inserted under the hair, through the groove in the iron, and then locking on the other which passes over the hair. The iron can then be withdrawn, leaving the pins to hold the curl in the proper position until it is desired to remove them.

ALARM TICKET NIPPERS FOR COUPON TICKETS.—I. Hyde, Oakland. We are generally supposed to hold a man innocent of any crime until he is found guilty. In practice, however, certain classes of men seem to be excepted from this rule; and among these are the conductors of street cars. It is a settled conviction on the part of the public that a conductor is dishonest with regard to making proper returns of fares received, and takes every possible occasion to secretly increase his income. We do not express any opinion as to the justice of this conviction, we merely give it as what appears to be a fact. To prevent any such dishonesty our conductors in this

city have certain ticket nippers, which cut off and hold the coupons, which can be removed out of the nippers only at the companies' offices by the proper persons. As, however, the dishonest man attempts this prevention measure to a great extent by sometimes pretending to cut off a coupon without actually so doing, the above device has been invented as more effectual. To describe it fully would take more space than we can give. Suffice it to say that it is a cutting apparatus so arranged and connected with an alarm, that on cutting a ticket, and only in such a case, the alarm is sounded, giving notification of the fact. If anything should be substituted for the regular ticket, the fraud would be discovered upon opening the box of the nippers at the office.

The New Patent Act.

AN ACT TO REVISE, CONSOLIDATE AND AMEND THE STATUTES RELATING TO PATENTS AND COPYRIGHTS.

Be it enacted by the Senate and House of Representatives of the United States of America, in Congress assembled, That there shall be attached to the Department of the Interior, the office, heretofore established, known as the Patent Office, wherein all records, books, models, drawings, specifications, and other papers and things, pertaining to patents, shall be safely kept and preserved.

SEC. 2. And be it further enacted, That the officers and employees of said office shall continue to be: one Commissioner of Patents, one Assistant Commissioner, and three examiners-in-chief, to be appointed by the President, by and with the advice and consent of the Senate; one chief clerk, one examiner in charge of interferences, twenty-two principal examiners, twenty-two first assistant examiners, twenty-two second assistant examiners, one librarian, one machinist, five clerks of class four, six clerks of class three, fifty clerks of class two, forty-five clerks of class one, and one messenger and purchasing clerk, all of whom shall be appointed by the Secretary of the Interior, upon nomination of the Commissioner of Patents.

SEC. 3. And be it further enacted, That the Secretary of the Interior may also appoint, upon like nomination, such additional clerks of classes two and one, and of lower grades, copyists of drawings, female copyists, skilled laborers, laborers and watchmen, as may be from time to time appropriated for by Congress.

SEC. 4. And be it further enacted, That the annual salaries of the officers and employees of the Patent Office shall be as follows: Of the Commissioner of Patents, \$4,500; of the Assistant Commissioner, \$3,000; of the examiners-in-chief, \$3,100 each; of the chief clerk, \$2,500; of the examiner in charge of interferences, \$2,500; of the principal examiners, \$2,500 each; of the first assistant examiners, \$1,500 each; of the second assistant examiners, \$1,500 each; of the librarian, \$1,500; of the machinist, \$1,000; of the clerks of class four, \$1,800 each; of the clerks of class three, \$1,600 each; of the clerks of class two, \$1,400 each; of the clerks of class one, \$1,200 each; of the messenger and purchasing clerk, \$1,000; of laborers and watchmen, \$720 each; of the additional clerks, copyists of drawings, female copyists, and skilled laborers, such rates as may be fixed by the acts making appropriations for them.

SEC. 5. And be it further enacted, That all officers and employees of the Patent Office shall, before entering upon their duties, make oath or affirmation truly and faithfully to execute the trusts committed to them.

SEC. 6. And be it further enacted, That the Commissioner and chief clerk, before entering upon their duties, shall severally give bonds, with sureties, to the Treasurer of the United States, the former in the sum of ten thousand dollars, and the latter in the sum of five thousand dollars, conditioned for the faithful discharge of their duties and that they will render, to the proper officers of the treasury, a true account of all money received by virtue of their office.

SEC. 7. And be it further enacted, That it shall be the duty of the Commissioner, under the direction of the Secretary of the Interior, to superintend and perform all the duties respecting the granting and issuing of patents which herein are, or may hereafter be, by law directed to be done; and he shall have charge of all books, records, papers, models, machines, and other things belonging to said office.

SEC. 8. And be it further enacted, That the Commissioner may send and receive by mail, free of postage, letters, printed matter, and packages relating to the business of his office, including Patent Office Reports.

SEC. 9. And be it further enacted, That the Commissioner shall lay before Congress, in the month of January, annually a report, giving a detailed statement of all money received for patents, for copies of records or drawings, or from any other source whatever; a detailed statement of all expenditures for contingent and miscellaneous expenses; a list of all patents which were granted during the preceding year, designating under proper heads the subjects of such patents; an alphabetical list of the patentees, with their places of residence; a list of all patents which have been extended during the year; and such other information of the condition of the Patent Office as may be useful to Congress or the public.

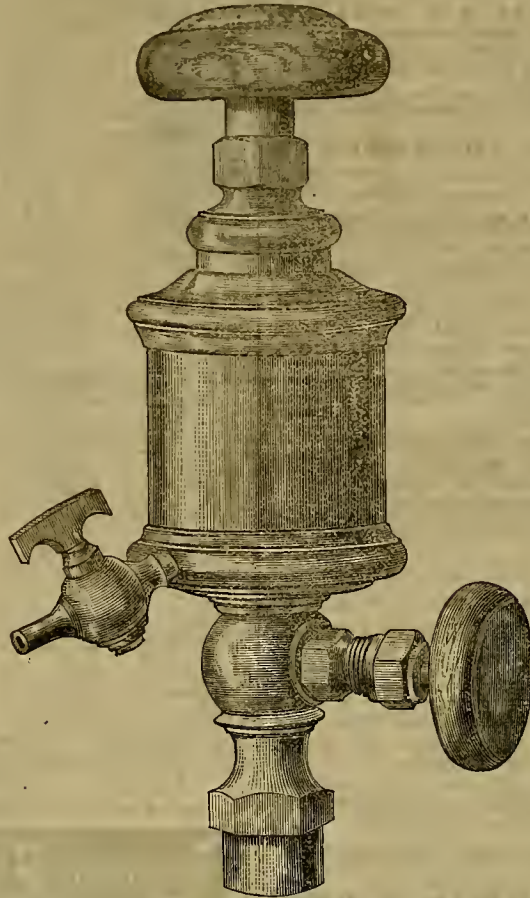
SEC. 10. And be it further enacted, That the examiners-in-chief shall be persons of competent legal knowledge and scientific ability, whose duty it shall be, on the written petition of the applicant, to revise and determine upon the validity of the adverse decisions of examiners upon applications for patents, and releases of patents, and in interference cases; and when required by the Commissioner, they shall hear and report upon claims for extensions, and perform such other like duties as he may assign them.

SEC. 11. And be it further enacted, That in case of the death, resignation, absence or sickness of the Commissioner, his duties shall devolve upon the Assistant Commissioner until a successor shall be appointed, or such absence or sickness shall cease.

[TO BE CONTINUED.]

A Automatic Cylinder Cup.

Concerning the device, which we illustrate to-day, we hear none but favorable opinions expressed. Indeed, it is one of those things, which plainly bear the marks of being good contrivances. It is simple, durable and effective, as can be seen by a glance.



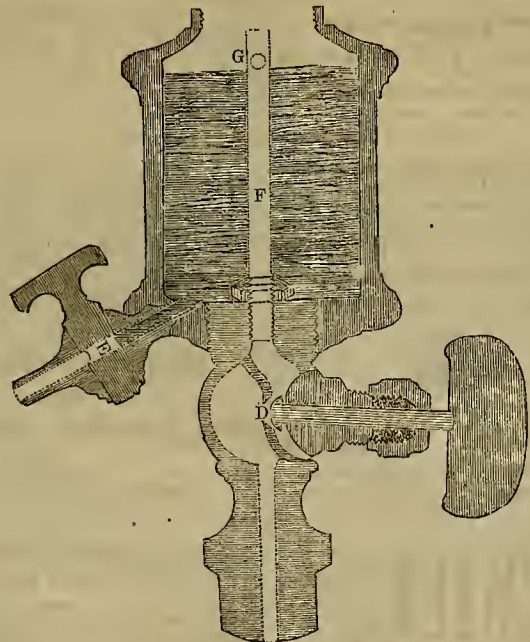
NATHAN & DREYFUS' PATENT AUTOMATIC CYLINDER LUBRICATING CUP.

Instead of admitting the tallow or other lubricant into the cylinder in considerable quantities, now and then, to be blown out immediately, this cup delivers it in regular drops into the body of the steam, which thereby becomes thoroughly greased

by its admission being regulated by the valve, D. Coming in contact with the top of the cup, it condenses, falls to the bottom and floats up the lubricant, until this reaches the hole, G, when it runs down the tube, falling into the steam, which disseminates it equally everywhere.

In this way nothing but clean oil or tallow is admitted into the cylinder, and the lu-

bricating is performed regularly the whole time that the engine is in motion. There is consequently a very great saving in tallow, and also a considerable increase in the power of the engine, and an economy in fuel. Proper lubrication of the work-



SECTIONAL VIEW OF THE CUP.

before passing into the steam chest; and thus it is disseminated in fine particles over all of the internal parts of the engine, which are thereby thoroughly and regularly lubricated.

The construction of the cup is simple and can be readily understood from the cuts. The cock, E, is for emptying and cleaning the vessel. The steam from the cylinder rises up through the centre tube,

screwing the tube, F, down further, so as to increase the condensing space in the cup. The engineer should ascertain, as nearly as possible, how much lubricating material is required for the valves and piston of his engine, and he can then regulate the flow to provide this amount. This contrivance, called the Nathan and Dreyfus Patent Automatic Cylinder cup, has proved in practice, as far as we can hear, to be reliable and also economical, which we can readily believe. The agent for it on this coast is Mr. Wilkie Darling, 629 Washington street, San Francisco.

Mineral Oil in Australia.

About eighty miles from Sydney, in New South Wales, near the western slope of the Blue mountains, large deposits of shale rich in oil, have been found, on the line of the Great Western Railway. The shale, as we learn from *Engineering*, occurs between layers of sandstone, in a seam from five and a half to six feet thick, and dipping about one in thirty-six to the northeast. About one hundred tons of shale are raised every week, transported by a tramway to the railroad, and thence to Sydney to supply the refining works at Waterloo.

Here the shale is retorted in a set of sixty retorts, five cwt. of rock being put into each retort. The vapor is condensed and collected in a large tank, then pumped into crude oil stills, five in number, and again collected in a tank. Then it is treated in acid agitators and allowed to settle, and then charged into soda agitators and subjected to a similar process. The agitators are for bringing any particle of oil into contact with the acid. When the oil has thus been made sufficiently pure it undergoes a final distillation.

The refinery has a capacity of 20,000 gallons per week, which can be finished by one man and a boy. The refined oil has an excellent reputation. Its specific gravity of 0.800 at 60° Fah., and the flaming point is 120° Fah. The demand for it is so great that the refinery will be enlarged at no distant day.

WORDS OF ENCOURAGEMENT.—A former reader of the *SCIENTIFIC PRESS*, in this State, but who is now traveling in the Western States, writes us among other things: "I miss the substantial and well-selected reading of the *SCIENTIFIC PRESS*." He institutes a flattering comparison between it and similar papers in the older states and adds: "It might not be doing any wrong to say, in this connection, that California has far more energy among her masses than the region of country in which I am traveling, with all its railroads and other advantages." The same correspondent, in speaking of the crops of Illinois and Ohio, pronounces the wheat crop medium; corn, excellent; oats and grain, good.

A scientific gentleman who has long been a regular subscriber, in writing from Woodstock, Md., and forwarding his subscription, says: "I am much pleased with your paper, and take great pleasure in reading it. * * * Receive my best wishes for your welfare, and for a large circulation for your valuable *SCIENTIFIC PRESS*."

EUREKA is getting along rapidly. It now has a paper, the *Sentinel*, published by Skillman & Co., which presents a remarkably neat appearance, and contains much matter of interest. We are glad to see these papers springing up in the new districts, especially when they promise so well.

TURTLE-RAISING is to be tried by an enterprising citizen of San Francisco. At least, he thinks of it.

SENTENCED.—Gen. O'Neil has been sentenced to two years imprisonment in the State Prison and a fine of ten dollars.

SANTA CLARA COLLEGE.—On the 9th inst. the Inauguration of the New Hall and Annual Commencement of this Institution, and on the 10th, the Celebration of the Philalethic Society, will be held. A special train will be run from San Francisco, going down at 4:30, P. M., and returning at the close of the exercises.

Professional Cards.

JOHN GORMAN,
NOTARY PUBLIC.

COMMISSIONER FOR

Nevada, New York, Etc.
No. 612 MERCHANT STREET. 5v20-3m

JAMES M. TAYLOR,
Attorney and Counsellor at Law,
Court Block, 636 Clay Street
SAN FRANCISCO.

JOHN BOAOH, Optician,
Has removed from 522 Montgomery street to
540 Washington street,
East of Montgomery.
Surveying Instruments made, repaired and adjusted
2v17-3m

GILES H. GRAY. **JAMES M. HAYEN.**
GRAY & HAVEN,
ATTORNEYS AND COUNSELLORS AT LAW,
In Building of Pacific Insurance Co., N. E. corner Cal-
ifornia and Leidesdorf streets,
27v15 SAN FRANCISCO.

REMOVAL.

DR. BEERS, Dentist,
Has removed from Tucker's Building to
No. 109 Montgomery street, three doors
north, opposite the Occidental. 2v20-3m

Dr. J. H. PAINE, Dentist,
Wadsworth House, No. 225 Bush street,
between Cosmopolitan and Occidental
Hotels, San Francisco.

Business Cards.

A. H. JORDAN,
Architect, Designer and Draughtsman,
No. 430 Montgomery Street,
SAN FRANCISCO. 16v19-qy

Farmers and Mechanics
BANK OF SAVINGS,
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Interest paid on Deposits. Money Loaned on Real Estate.
H. DUTTON, President.
GEO. M. CONDEE Cashier. 19v16-3m

J. HOOVER,
PUBLISHER,
And Wholesale Dealer in
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9v20-6m

C. B. FETY,
SEAL ENGRAVER
AND LETTER CUTTER.

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express promptly attended to. No. 622 Clay Street,
bet. Kearny and Montgomery, San Francisco. 23v20-3m

PIERRE A. FORTIER,
Practical Optician

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make Glasses adapted to any imperfection of sight
Prices very moderate. 24v20-3m

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Paper Rulers and Blank Book Manufacturers.
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15v12-3m SAN FRANCISCO.

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SEAL ENGRAVER,
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Brass and Steel Stamps and Dies, 608 Sacramento street,
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CORDAGE COMPANY.

Manila Rope of all sizes. Also, Bale Rope and Whale
Line constantly on hand. Mining Ropes of any size
and length manufactured to order.
TUBBS & CO., Agents,
611 and 613 Front street.

SAN FRANCISCO MILL.
HOBBS, GILMORE & CO.,
Manufacturers of Boxes,
Market Street, bet. Beale and Main.
For sale—Mahogany, Spanish Cedar, and other Woods.

J. M. STOCKMAN,
Manufacturer of
PATTERNS AND MODELS,
(Over W. T. Garratt's Brass Foundry,
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Meerscham Pipe Manufacturer,



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Pipes Bored and Repaired. Amber Mouth-pieces Fitted.

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AND KNIVES COMPLETE,
at a saving of 60 per cent. New Files of every description
on hand and made to order. Old Files re-cut, and war-
ranted equal to new. Orders from the country promptly
attended to. 0v19-qy

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Room No. 16, up stairs, San Francisco.
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repaired and warranted. 8v20-6m

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JOHN W. QUICK,
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all kinds of Small Gears cut. Repairing done on very
reasonable terms, and in the best manner. 15v19-3m
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ing, Draining, Grading and Submarine Blasting. Spe-
cial attention given to Deep Boring for testing the value
of Mines. Also to Boring Artesian Wells. Office, 318
CALIFORNIA STREET, San Francisco. 26v20-3m

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STARCH WORKS.

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Caveat filed Aug. 9, 1869. [16v20] G. B. DEAN.

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Commission Merchant,
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Bet. Front and Battery, San Francisco.
House established in 1850. 4v21

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\$65.00 THE
WHOLE WORLD
being judges—either
are the LAST, or also
are the BEST! Why?
Because the WEED
Machines TO
work faster—
\$500
hotter and with more
FAVORITY. Buy the
LATEST always. Call
and see S. E. Hear, 329
Kearny St. S. F. Ast.

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surpassed by any journal in the United States. Subscrip-
tion price per year by mail, \$6. Delivered in the city,
per month, 60 cents. Office, Odd Fellows' Hall, 327
Montgomery street, San Francisco. 19v19

Railroads and Steamers.

Central Pacific Railroad.

Time Schedule, July 18, 1870.

EASTWARD.		Express Train Daily.	Passenger Train Sundays excepted.	Mixed.*
San Francisco	Leave	8:00 A.M.	4:00 P.M.	7:00 P.M.
Yakima	"	8:30 A.M.	4:30 P.M.	"
San Jose	"	8:45 A.M.	4:45 P.M.	"
Stockton	"	12:02 P.M.	7:53 P.M.	"
Sacramento	Arrive	1:50 P.M.	9:30 P.M.	"
Sacramento	Leave	2:10 P.M.	"	7:40 A.M.
Marysville	Arrive	4:00 P.M.	"	9:10 A.M.
Chico	Arrive	6:45 P.M.	"	1:15 P.M.
		Daily East of Sacramento		
Colfax	Leave	5:00 P.M.	"	4:00 P.M.
Reno	"	1:15 A.M.	"	5:45 A.M.
Winnemucca	"	2:10 A.M.	"	6:45 A.M.
Carlin	"	12:00 P.M.	"	3:50 A.M.
Carlin	"	3:10 P.M.	"	10:10 A.M.
Elko	"	4:40 P.M.	"	12:30 P.M.
Kelton	"	1:30 A.M.	"	7:45 A.M.
Ogden	Arrive	6:00 A.M.	"	5:00 A.M.
WESTWARD.		EX- PRESS Train Daily.	Passenger Train Sundays excepted.	Mixed.*
Ogden	Leave	6:00 P.M.	"	5:00 P.M.
Kelton	"	10:42 P.M.	"	1:30 A.M.
Elko	"	8:45 A.M.	"	7:15 P.M.
Carlin	"	9:00 " "	"	9:45 P.M.
Battle Mountain	"	1:25 P.M.	"	3:15 A.M.
Winnemucca	"	4:05 P.M.	"	9:10 A.M.
Reno	"	1:00 A.M.	"	11:30 A.M.
Colfax	"	8:45 A.M.	"	12:50 P.M.
Chico	"	6:30 A.M.	"	10:30 A.M.
Marysville	"	9:10 A.M.	"	2:30 P.M.
Sacramento	Arrive	11:25 A.M.	"	6:30 P.M.
Sacramento	Leave	11:45 A.M.	7:00 A.M.	7:30 P.M.
Stockton	"	1:40 P.M.	8:35 A.M.	"
San Jose	Arrive	5:35 P.M.	12:01 P.M.	"
Yakima	"	5:50 P.M.	12:10 P.M.	"
San Francisco	"	6:00 P.M.	12:40 P.M.	9:30 A.M.

P. M.	A. M.	Local Trains.	A. M.	P. M.
3 00	9 00	Leave... SAN FRANCISCO... arrive	10 40	7 30
3 20	9 20	..... OAKLAND.....	10 12	7 05
4 40	11 00	..... NILES.....	8 40	5 35
5 35	12 00	Arrive... SAN JOSE... leave	7 45	4 35

From	To	From	To	From	To
SAN FRANCISCO.	OAKLAND.	SAN FRANCISCO.	OAKLAND.	SAN FRANCISCO.	OAKLAND.
B 6:50 A. M.	B 5:40 A. M.	B 5:40 A. M.	B 5:30 A. M.	B 5:30 A. M.	B 5:20 A. M.
D 8:00 " "	D 6:55 " "	D 6:55 " "	D 6:45 " "	D 6:45 " "	D 6:35 " "
9:00 " "	9:00 " "	9:00 " "	9:00 " "	9:00 " "	9:00 " "
D 10:00 " "	D 9:00 " "	D 9:00 " "	D 8:50 " "	D 8:50 " "	D 8:40 " "
D 11:00 " "	D 10:00 " "	D 10:00 " "	D 9:50 " "	D 9:50 " "	D 9:40 " "
D 12:00 P. M.	D 11:00 " "	D 11:00 " "	D 10:50 " "	D 10:50 " "	D 10:40 " "
D 3:00 " "	D 2:00 P. M.	D 2:00 P. M.	D 1:50 P. M.	D 1:50 P. M.	D 1:40 P. M.
D 4:00 " "	D 3:00 " "	D 3:00 " "	D 2:50 P. M.	D 2:50 P. M.	D 2:40 P. M.
D 5:15 " "	D 4:00 " "	D 4:00 " "	D 3:50 " "	D 3:50 " "	D 3:40 " "
D 6:45 " "	D 5:20 " "	D 5:20 " "	D 5:10 " "	D 5:10 " "	D 5:00 " "
B 11:30 " "	B 6:55 " "	B 6:55 " "	B 6:45 " "	B 6:45 " "	B 6:35 " "
From	From	From	From	From	From
SAN FRANCISCO.	ALAMOGA.	SAN FRANCISCO.	ALAMOGA.	SAN FRANCISCO.	ALAMOGA.
B 7:20 A. M.	B 6:25 A. M.	B 6:25 A. M.	B 6:15 A. M.	B 6:15 A. M.	B 6:05 A. M.
E 9:00 " "	E 7:30 " "	E 7:30 " "	E 7:20 " "	E 7:20 " "	E 7:10 " "
BC 9:30 " "	E 8:00 " "	E 8:00 " "	E 7:50 " "	E 7:50 " "	E 7:40 " "
EC 11:30 " "	E 9:30 " "	E 9:30 " "	E 9:20 " "	E 9:20 " "	E 9:10 " "
D 1:30 P. M.	E 11:30 P. M.	E 11:30 P. M.	E 11:20 P. M.	E 11:20 P. M.	E 11:10 P. M.
4:30 " "	E 1:55 P. M.	E 1:55 P. M.	E 1:45 P. M.	E 1:45 P. M.	E 1:35 P. M.
6:00 " "	E 6:05 " "	E 6:05 " "	E 5:55 P. M.	E 5:55 P. M.	E 5:45 P. M.

B Sundays excepted. E Sundays only.
D To Oakland only. C To Alameda only.

A. N. TOWNE, Gen'l Supt. C. P. R. R.
T. H. OODMAN, Gen'l Pass'g Agent, Sacramento.

SHORT ROUTE.



The following time will take effect
Sunday—April 24, 1870.

GOING NORTH—DAILY (SUNDAYS EXCEPTED).			
New World	Trains	Trains	Trains
Leaves	Arrive at	Arrive at	Arrive at
S. Francisco.	Calistoga.	Sacramento.	Marysville.
7:40 A. M.	11:15 A. M.	11:20 A. M.	1:00 P. M.
4:00 P. M.	7:15 P. M.	8:20 P. M.	9:30 P. M.

ON SUNDAYS.			
8:30 A. M.	12:20 P. M.	12:45 P. M.	5:00 P. M.

GOING SOUTH—DAILY (SUNDAYS EXCEPTED).			
Train	Trains	Trains	New World
Leaves	Leave	Leave	Arrives at
Ma. Jo.	Calistoga	Sacramento.	S. Francisco.
5:40 A. M.	6:45 A. M.	6:15 A. M.	10:30 A. M.
1:15 P. M.	2:15 P. M.	3:15 P. M.	7:30 P. M.

ON SUNDAYS.			
10:15 A. M.	3:30 P. M.	2:50 P. M.	6:45 P. M.

TICKETS for sale at 315 Montgomery street, or on board
STEAMER NEW WORLD. R. S. MATTISON, Superintendent.
L. C. FOWLER, General Freight and Passenger Agent.
N. B.—Branch Office of Western Union Telegraph Com-
pany, Front and Vallejo street wharf. 13v20-1y
Vallejo, April 24, 1870.

REDUCTION IN FARE

FROM
San Francisco to New York

—AND—
BOSTON,

—VIA—
THE CHICAGO, BURLINGTON AND MIS-
SOURI RIVER RAILROAD.

NEW YORK.....\$125 00
BOSTON.....130 25

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NEW YORK.....\$125 00
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NEW YORK.....\$125 00
BOSTON.....130 25

NEW YORK.....\$125 00
BOSTON.....130 25

NEW YORK.....\$125 00
BOSTON.....130 25

is expected to touch at San Jose de Guatemala; steamer
of the 18th touches at Manzanilla.

For Japan and China.—Steamers leave on the
1st of every month, punctually at noon, for YOKO-
HAMA and HONGKONG, connecting at Yokohama with
the Company's Branch Line for SHANGHAI, via Higo
and Nagasaki.

August 1—GREAT REPUBLIC, Captain Doane.
Apply at the Pacific Mail Steamship Company's office
corner Sacramento and Leidesdorf streets.
13v20 ELDRIDGE & IRWIN, Agents.

California Steam Navigation

COMPANY,

Steamer CAPITAL.....CAPT. E. A. POOLE
" CHRYSOPELIS.....CAPT. A. FOSTER.
" YOSEMITE.....CAPT. W. BROMLEY
" CORNELIA.....CAPT. E. CONCKLIN.
" JULIA.....CAPT. E. CONCKLIN.

Two of the above steamers leave BROADWAY WHARF
at 4 o'clock P. M. EVERY DAY (Sundays excepted), one
for Sacramento and one for Stockton, those for Sacra-
mento connecting with light-draft steamers for Marysville,
Colusa, and Red Bluff.

Office of the Company, northeast corner of Front and
Jackson streets.
13v12 **B. M. HARTSHORNE,**
President.

Metallurgy and Ores.

MINING SCHOOL.

Mosheimer's Practical Mining School
Will be opened by the FIRST OF JUNE, and practical
instruction given in all branches of Assaying,
Crushing, Amalgamating, Concentrating, Smelting and
Refining Ores; also Erecting Furnaces and Reduction
Works of every kind. To give all miners a chance to
learn Assaying of Ores (what everyone ought to) I have
reduced my former charge for

Assaying Ores.....\$ 60.00
To work Gold and Silver Ores.....100.00
Smelting and Refining, including Assaying.....150.00

Many gentlemen who have been taught in my estab-
lishment will bear testimony that in a few days they
learned more than they expected to learn in a month.
Before going into mining, every man ought to know
how to test ores, and then he will go to work with pru-
dence and never fail to be successful. Apply to

J. MOSHEIMER,
Office, 323 Montgomery street; Works, 2,003 Powell
street, San Francisco. 22v23-3m

A. T. GREEN,

COMMISSION MERCHANT.

No. 3 Front Street San Francisco

Agent for SAMPLING, CRUSHING, ASSAYING AND
SELLING OF ORES. Shipments received from miners,
and the entire business transacted with promptness and
accuracy. MERCHANDISE of all descriptions pur-
chased and shipped on Commission for Country Mer-
chants. Consignments of PROVISIONS received and
sold at the highest market prices.

Refers, by permission, to Jas. Linforth, of Linforth,
Kellogg & Co.; Jona. Hunt, Pres. Pacific Insurance
Co.; A. J. Ralston, Sec. Pacific Insurance Co.; Jos. A.
Donohoe, of Donohoe, Kelly & Co.; Falkner, Bell & Co.;
Badger & Lindenberg; Taffo & Co., and J. B. Roberts,
Esq. 23v20-3m

MORRIS & WHITE,

Practical Assayers and Metallurgists,
No. 30 and 36 Fremont Street,
SAN FRANCISCO.

Ore of all kinds worked by Pan Amalgamation, Chlo-
rination, or Smelting—guaranteeing to work as close to
the Fire-assay as any persons on the Pacific Coast.
Gold and Silver Ores and Sulphurets bought.
12v20-qy

CALIFORNIA ASSAY OFFICE,

(Successors to Geo. E. Rogers)
No. 512 CALIFORNIA STREET,
One door west of Montgomery.

H. H. LAWRENCE.....Manager.
J. A. MARS.....Assayer.
Analysis of Ores, Minerals, Waters, etc. 10v20

G. W. STRONG & CO.,

Metallurgical Works,
No. 10 Stevenson Street, near First.

Ores worked and Tests made with care. Also, Assays
of Gold, Silver, Copper, Lead, Tin, and other Metals.

RODGERS, MEYER & CO.,

COMMISSION MERCHANTS,

ADVANCES MADE
On all kinds of Ores, and particular attention
PAID TO
CONSIGNMENTS OF GOODS.

Our Agents.

Our Friends can do much in aid of our paper and the cause of practical knowledge and science, by assisting agents in their labors of canvassing, by lending their influence and encouraging favors. We intend to send none but worthy men.

Travelling Agents.

Wm. H. MURRAY—Montana, Utah and Colorado.
S. H. HERRING—California.
J. M. WOLF—Oregon.
L. P. McCARTY—California.
L. MINER—Montana, Utah and Colorado.

Resident Agents.

CENTREVILLE, Alameda Co., Cal.—L. G. Yates.
OAKLAND—W. H. Hardy.
SACRAMENTO—A. S. Hopkins, No. 70 J street.
JACKSON, Amador Co., Cal.—G. S. Andrews.
TREASURE CITY, Nev.—J. L. Robertson.
HAMILTON, Nev.—Thomas Starr.
CARSON CITY, Nev.—John G. Fox.
SHERMANTOWN, Nev.—P. C. Henfrew.
BOISE CITY, Idaho—Lamkin Bros.
SILVER CITY, Idaho—J. Capies.
HELENA, Montana—E. W. Carpenter.
BLACK HAWK, C. T.—Harper M. Orshood.
CENTRAL CITY, C. T.—Richards & Crane.
GEORGETOWN, C. T.—John A. Lafferty, Postmaster.
DENVER CITY, C. T.—Woolworth & Moffat.
CHEYENNE, D. T.—Robert Beers.
OMAHA, N. T.—Barkalow & Brothers.
PHILADELPHIA, Pa.—Fittler, Quigg & Co.
LONDON—George Street, 30 Cornhill, E. C.
HUDSON & MENET, 41 Park Row, New York.
NEW YORK—H. D. Dumont, 73 and 75 Fulton street.
A. O. KNOX, City Soliciting and Collecting Agent.

The California Powder Works

No. 314 CALIFORNIA STREET,
SAN FRANCISCO.

Manufacturers and have constantly on hand

SPORTING,
MINING,
And BLASTING
POWDER,

OF SUPERIOR QUALITY. FRESH FROM THE MILLS. It being constantly received and transported into the interior, is delivered to the consumer within a few days of the time of its manufacture, and is in every way superior to any other Powder in Market. We have been awarded successfully

Three Gold Medals

By the MECHANICS' INSTITUTE and the STATE AGRICULTURAL SOCIETY for the superiority of our products over all others.

We also call attention to our

HERCULES POWDER,

Which combines all the force of other strong explosives now in use, and the lifting force of the BEST BLASTING POWDER, thus making it vastly superior to any other compound now in use.

A circular containing a full description of this Powder can be obtained on application to our Office.

16v20-3m JOHN F. LOHSE, Secretary.

HAYWARD & COLEMAN

IMPORTERS AND REFINERS

—OR—
Illuminating, Lubricating,
—AND—
PAINT OILS,

CONSISTING OF

KEROSENE, LARD, SPERM, ELEPHANT, POLAR, TANNERS, NEATFOOT, BOILED AND RAW LINSEED, CASTOR AND CHINA NUT.

—ALSO—
Spirits of Turpentine and Alcohol.
Lamps and Lamp Stock!

An elegant and complete assortment.

SOLE IMPORTERS OF
Devoe's Illuminating Oil,
PATENT CANS.

5v17-1f 414 Front street, San Francisco.

California Bonzest,

A CALIFORNIA PATENT, manufactured in San Francisco. A Condiment

Rare, Rich and Spicy.

Very palatable, productive of digestion and health. An ANTI-SCORBUTIC, and sure preventive

Against Diseases incident to Sea Life.

A SPLENDID APPETISER.

TRY IT ONCE, and you will never be without it.

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SOLD AT No. 53 CALIFORNIA MARKET,
And by authorized Local Agents. 3v21-3m

ENGRAVING ON WOOD

DESIGNING AND ENGRAVING on wood and for electrotype cuts of every description, done by superior artists at the office of the SCIENTIFIC PRESS. Fine Cuts made for Book and Newspaper

Illustrations, and for Fancy Labels for printing in various colors; Monograms, Seals, etc., etc. Prompt execution and reasonable prices.

DEWEY & CO.,
No. 414 Clay street, S. F.

THE AMERICAN SUBMERGED PUMP.



Has a leather packing, is composed entirely of metal, rendering it less liable to get out of repair than the ordinary packed pumps. It is admirably adapted for Irrigating purposes and for Watering stock.

As a Safeguard against Fire it has no Equal.

One of the medium size being capable of protecting an ordinary frame dwelling. In short it is an article that

Every Farmer should have on his Premises.

PRICE LIST.

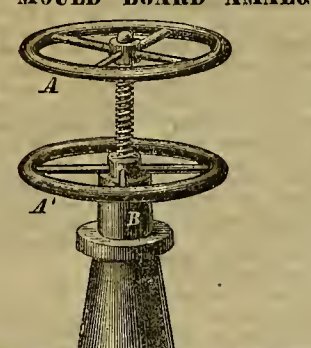
No. 0.—Iron, \$15 ; Iron Galvanized, \$17 ; Capacity, 500.....	Gallons per Hour.
" 1.—" 25 ; " 30 ; " 1,000 to 1,200.....	" "
" 2.—" 40 ; " 45 ; " 2,000 to 2,500.....	" "
" 3.—" 70 ; " 75 ; " 4,000.....	" "

Larger sizes made to order of any required capacity. Hand power.

MANUFACTURED AND FOR SALE BY

PACIFIC PUMP MANUFACTURING COMPANY,
City Agents, - - - WILSON & DIXON,
Plumbers and Gas Fitters, 318 Pine Street, San Francisco.

STEVENSON'S PATENT MOULD BOARD AMALGAMATING PAN.




This Pan is far superior to all others in several important particulars. The grinding millers are near the center, requiring less power. The plow-shaped grooves raise the quicksilver with the pulp regularly, with less power, without violence, and with better amalgamating effect, besides admitting of a larger charge. The inclined-shaped housings of the miller plate openings efficiently force the pulp directly under the millers.

It has been constantly running for over eight months, and has proved, in competition, to produce a higher percentage of bullion, with less power and with great saving of quicksilver, over any other pan in use. It is simple in construction and operation, and cheaper in first cost and economy in wear.

Manufactured at the Golden State Iron Works (co-operative), 19 First street, S. F.,
Where it can be examined and further particulars be learned ; or persons may apply to the inventor and patentee, Mr. C. C. STEVENSON, at the Douglas Mine, GOLD HILL, STATE OF NEVADA, where the Pans have long been in constant operation.

THE FIREMAN'S



FUND
INSURANCE COMPANY.

OFFICE,

S. W. Corner California and Sansome Streets
SAN FRANCISCO, CAL.

Fire and Marine Insurance.

CAPITAL.....	\$500,000 00
SURPLUS.....	767,115 63
TOTAL ASSETS.....	\$1,267,115 63

D. J. STAPLES, President.
O. T. LAWTON, Vice President.
CHAS. R. BOND, Secretary.

13v20-3m

OCCIDENTAL
Insurance Company
OF SAN FRANCISCO.

Cash Capital, - - - - - \$300,000

GOLD COIN.

OFFICE, 426 CALIFORNIA STREET.

Fire and Marine Insurance.

All Losses paid in U. S. Gold Coin.

A. G. STILES, President.
B. ROTHSCHILD, Secretary. 5v17

R. A. SWAIN & CO.,

IMPORTERS AND DEALERS IN

Earthenware, French Porcelain,
GLASSWARE,
Lamps, Lanterns
CUTLERY,
—AND—
FANCY GOODS,

N. E. Corner Sansome and Pine Streets.
24v20-3m

DESIGNS AND PLANS
—FOR THE—
NEW CITY HALL
—OF—
SAN FRANCISCO.

Office Board of City Hall Commissioners, southeast corner of Sacramento and Montgomery streets, San Francisco, June 22, 1870.

The Board of City Hall Commissioners hereby give notice that they will be prepared to receive at their office, on or before the FIRST DAY OF NOVEMBER NEXT, designs and plans for the new City Hall of San Francisco.

The Commissioners, in order to obtain the very best design and plan, invite the fullest competition among architects, and to this end have resolved to offer the following premiums :

First—For the design and plan selected and adopted.....	\$2,500
Second—For the second best design and plan.....	2,000
Third—For the third best design and plan.....	1,500
Fourth—For the fourth best design and plan.....	1,000
Fifth—For the fifth best design and plan.....	500

The premiums payable in City Hall warrants.

As a guide to architects in the preparation of the designs and plans, the Commissioners have prepared a pamphlet containing full instructions and suggestions, as well as the terms and conditions upon which the premiums will be awarded.

Pamphlets can be had on application at the office of the Commissioners.

Any design or plan in which the requirements of the Board, as set forth in the printed instructions, have not been reasonably complied with, will be rejected from the competition.

P. H. CANAVAN, Chairman,
JOS. G. EASTLAND,
CHAS. E. McLANE,
City Hall Commissioners.

26v20-4m

TREATMENT OF REBELLIOUS SILVER ORES,
by Charles H. Aaron—a pamphlet of eight pages of concise reading, of practical value to parties interested in the subject. Printed and sold by Dewey & Co., at this office, for 25 cents, post paid

Reading for the Hour.

A Sudden Strike.

Our printers surprised us on Monday by saying that we should increase their wages, from 60 to 75 cts. per 1000 for piece composition, or from \$24 to \$30 per week, or they would quit work in seven hours. It was a short notice, but more than long enough for us to decide that just after reducing the subscription price of our journal 20 per cent, and adding a large amount of reading matter to its columns, we could not, and would not, accede to such untimely and unfair demands.

Accordingly the Eureka Typographical Union "retreated in good order."

We have been paying type-setters, higher wages in coin than any other city has in currency, and now during extreme business depression their demand has been for the highest rates paid since 1857.

Our printers have enjoyed the reputation of an intelligent and honorable craft, and this strike is no doubt without a precedent and without a parallel. It was not advised or endorsed by some of the best members of the Union, who, however were bound by oath to the action of the majority. The interference practiced with apprentice boys in this instance, is a new feature in printers' strikes, although strictly in keeping with the spirit that has denied the boys (and girls) a fair chance to learn a trade and earn an honorable livelihood. We now have satisfactory help and are not personally hurt by the sudden demands of the printers, but to dailies, and those job printers who were bound to large contracts based on the going rates of composition it works great injustice. Unbiased and liberal thinking men, who fully understand this strike, will condemn it as long as it is remembered.

METALLIC MANGANESE.—M. A. Valenciennes, according to an English paper, of the St. Denis Chemical Works, near Paris, has lately prepared metallic manganese and several of its alloys. The former, obtained by the reduction of pure binoxide of manganese in a magnesia crucible, formed a brittle and very hard button. Immediately after breaking it, the pieces were as white as cast iron, but more rapidly oxidized by the air. Manganese shows great affinity for copper. Valenciennes prepared several alloys of copper and manganese, containing from 3 to 20 per cent. of manganese, all of which resemble very much the copper-tin alloys (bronzes), being like these hard sonorous and easily fusible.

THE THAMES EMBANKMENT.—The grand embankment along the Thames at London was formally opened on the 13th. There was a procession, headed by the Metropolitan Board of Works, with the Prince of Wales, court dignitaries, municipal bodies and others. The buildings along the route of the procession (from Westminster bridge to Charing Cross bridge) were handsomely decorated. There were speeches and a dinner. The embankment is said to have cost, so far, \$8,250,000. A large amount of ground is reclaimed, of which five and a half acres are to be opened to the public as ornamental gardens.

THE OPENING of Bancroft's new store on Market street, last Saturday, was a very pleasant affair. Judging from the number of those who attended in the evening, the Messrs. Bancroft must have a large number of friends. Visitors were shown over the whole of the handsome and well arranged establishment, and ample provisions were made to refresh those exhausted by their exertions in going through the large building. Our agricultural visitors were beamingly present. It truly is a magnificent and creditable establishment for this coast.

Puget Sound.

It is very probable that this section will become very important in view of its being the terminus of the Northern Pacific Railroad. The natural advantages of the place are such that, in connection with the completion of the railroad, we sometimes wonder that we do not hear of a greater eagerness to secure land there. Certainly some one is bound to secure a fortune in this region.

We have been getting some statistics in regard to this region lately, and a correspondent of the *Bulletin* last week gave some interesting items on this subject. The Sound affords many good harbors. The amount of lumber here is immense, statistics in regard to which we lately quoted from the *Overland*, and, according to the *Bulletin's* correspondent, there are eleven steam saw-mills now in constant operation. There is a fair supply of farming, grazing and fruit-growing land. Woolen mills and sawing and planing factories already exist. Coal and iron are said to abound. The Seattle coal mines extend a mile and a half over the company's land, and consist of four distinct veins, varying from four to nine feet in thickness. How far the coal extends on the lands of other parties is not known. A tunnel has been run in 300 feet and a tramway extends three miles westward to Lake Washington, for transportation purposes. This is not yet ready for use, but will be by next August, when the company say they can deliver up to 200 tons daily. Seattle has already 2,000 inhabitants and business is getting very lively.

With all these advantages on the land and the water, not excepting the fisheries which promise well, it will be surprising if this region does not rapidly grow up into an important section of the coast.

CASTING PISTON PACKING.—*Engineering* illustrates a new plan for molding, instead of turning, the helical rings of metal used for packing pistons. We quote:—"Usually these rings are manufactured by first casting a cylinder of metal, and then turning it in a lathe to the helical form required, whereas Messrs. Pollitt and Wiggell's plans consist in casting the springs ready for use, thereby retaining the crust of the cast metal so as to make the ring more durable and elastic, and not so liable to corrosion by the condensed steam and water. The plan employed is as follows: A cylinder or an outer shell and a core are prepared by ordinary loam moulding apparatus, and when dry the core is fixed upon a face plate, or upon a mandril, to which rotary motion is given, and by means of a tool having a slide motion there is cut out of the loam a spiral groove of the size and form necessary."

PHYSICIANS FEES IN PARIS are regulated by law, and are fixed on the most economical basis. For a first visit within the city limits a physician is allowed to charge 50 cents to \$1; for each subsequent visit 25 to 50 cents. If at a distance of from one to five miles from town and suburbs, his first visit may be from 75 cents to \$1.50, and subsequent ones from 50 to 75 cents. For a first visit at night, he gets, if it be in town, from \$1.50 to \$2.25; if more than a mile out of town, from \$2.25 to \$3; following night visits, being in town, from 75 cents to \$1.50; in the country, \$1.12 to \$2.25. He may not charge for more than two visits a day, unless they be by special request, nor must his fees for all attendance on any one patient within twenty-four hours exceed \$2.25.—*Ex.*

FASTENING STEEL RAILWAY TIRES.—The following method is described by a correspondent of the *Railway Times*:—"The tire is put on cold, and well seasoned wood blocks are then driven with great force into their seats; the tire is then turned, and the ends of the blocks are neatly faced off even with the rim of the wheel. The Master Mechanic assures me that, during an extended trial of this method, he has never seen the need of any other fastening to the tire."

We have received, from the Hon. Mr. Julian, a pamphlet containing his very able report with regard to the Hutchings and Lamou grant.

Prussians vs. Frenchmen.

There were ten great battles in 1812, namely: Lutzen, May 2d; Bantzen; May 20th and 21st; Lucknau, June 3d; Gross-Beeren, August 26th and 27th; Kulm, August 30th; Dennewitz, September 6th; Leipzig, October 16th, 18th and 19th; Hanau, October 29th and 30th; besides the engagement of Wartenberg, October 3d, the combat of Moekern, near Magdeburg, April 5th, and innumerable smaller fights, impossible to remember. The only battles in which Prussians alone, without Russians or Austrians, fought the French were Lucknau, Gross-Beeren, Katzbach and Dennewitz, and the engagement of Wartenberg, in all five of which the Prussians were victorious. The battle of Dennewitz is, moreover, the most glorious victory of this century. Forty thousand Prussians under Bulow utterly routed 70,000 Frenchmen under Ney.

In the year 1814 there were six important battles: La Rother, February 1st; Bar-sur-Aube, February 27th; Leon, March 9th and 10th; Montreuil, March 15th, I believe; Arcis-sur-Aube, March 20th, and Paris, March 30th; then the engagement of Craonne, March 8th, if I remember right; the combats of Chempaubert, Vauchamps, Etoges and Montmirail, besides minor fights. Of these the Prussians alone engaged the French at Laon, Etoges and Montmirail, in the first victoriously, in the two latter they were beaten. In 1815 there were two battles, Ligny and Waterloo, and two engagements, at Quatrebras and Wavre, besides the smaller fights. Of these the Prussians fought alone at Ligny and Wavre. In the former they were beaten; the latter was undecided.—*Cincinnati Commercial.*

Greeley vs. Handwriting.

We find the following correspondence which would denote that H. Greeley does not write as plainly as he might.

[From H. Greeley to M. B. Castle.]

DEAR SIR: I am overworked and growing old. I shall be 60 next Feb. 3. On the whole, it seems I must decline to lecture henceforth, except in this immediate vicinity, if I do at all. I cannot promise to visit Illinois on that errand—certainly not now. Yours, HORACE GREELEY.

M. B. CASTLE, Sandwich, Illinois.

[From M. B. Castle to H. Greeley.]

Sandwich, Ill., May 12.—HORACE GREELEY, New York *Tribune*.—Dear Sir: Your acceptance to lecture before our Association next winter came to hand this morning. Your penmanship not being the plainest, it took some time to translate it; but we succeeded, and would say your time—"3d of Feb."—and terms—"50¢"—are entirely satisfactory. As you suggest, we may be able to get you other engagements in this immediate vicinity; if so we will advise you. Yours respectfully,

M. B. CASTLE.

THE DEAR BABES.—We are not responsible for the following statement:

The method of baby farming in England is this: The parents who desire to farm out their children and thus get rid of the care of them, pay the matron of a private infant hospital \$20, or about that, to take charge of their babe. It is undoubtedly understood that the inhuman parents do not care ever to see their offspring again, and the mercenary nurse puts it out of the way by ill treatment or downright violence as soon as possible.

NEW WORK BY KNETEL.—"Roasting of Gold and Silver Ores, and the extraction of their respective metals without quicksilver." Under this title Dewey & Co., of the Scientific Press, San Francisco, will soon publish an excellent work by Guido Knetel. The reputation of the author renders unnecessary any further recommendation of the work, which, it is said, will be a clear and complete treatise on these subjects, which are of so much interest at the present time. Miners and others will find it of great value. The various methods and furnaces employed in roasting, and chlorination and lixiviation with the different manipulations and apparatus, will be fully described, and amply illustrated, together with remarks on the various advantages and disadvantages of each process, and their special application on this coast.

We would be glad to see fifty copies of this work in the hands of those having charge of and interested in mining operations in Alpine. Knetel is on the right track, as time will show.—*Alpine Miner, Silver Mountain, Cal.*

The above work contains 120 pages, and the price is \$2.50 coin or \$3 currency. For sale at this office.

CONTINENTAL Life Insurance Co., 302 Montgomery street, corner of Pine.

PETRIFIED TREES.—C. H. Denison writes to the *Bulletin* that at Calistoga Springs he found twelve petrified trees. The largest is twenty feet long and six feet in diameter, the roots being below the surface of the soil. This tree was broken squarely across in seven places. Besides these, two other gentlemen in one day found forty others within a mile.

It is a great thing for elderly persons to have their fading eyesight restored to its youthful perfection. This can be done by Muller, who is recognized as the offician of the Pacific coast. His Brazilian spectacles, properly fitted and adjusted, are superseding all others in use.

PATENTS ON THE PACIFIC COAST.—To those of our friends who desire to keep posted upon inventions upon the Pacific coast, we say, subscribe for the *SCIENTIFIC PRESS*, published by Dewey & Co., San Francisco, Cal., at \$4 per year. The opening of the railway across the continent has given to all patents a much higher value in that portion of our country known as the Pacific slope, and all interested will find the paper above alluded to a valuable reference.—*Mechanic and Inventor, Detroit, Michigan.*

CO-OPERATIVE UNION STORE.—This is becoming one of the most useful institutions in the city, and the Mechanic and Laboring Man fully appreciate it. They are now enabled to buy their Groceries at Provisions 20 per cent. cheaper than ever before, and the very best articles in the market. The store is located at 115 Sutter street, Lick House Block.

A VALUABLE BOOK FOR INVENTORS AND ARTISANS.—Dewey & Co., publishers of the *SCIENTIFIC PRESS* and Patent Agents, have just issued a most little volume of over five hundred well executed cuts of the principal mechanical movements known. These useful representations of the various appliances of power are printed side by side with explanatory notes, which makes the subject clear to every reader. Such a book should be in the hands of every mechanic, and form part of every public school library. It is a handy book, and cheap enough for every farm, shop and factory. Sent to any address from the *SCIENTIFIC PRESS* office, postpaid, for \$1.—*New Age.*

DR. HARTMANN, Physician, Oculist and Medical Electrician, cures all diseases of the eye, such as Granulated Eye, Inflammation of the Eye, Opacities of the cornea, cures permanently. Also, Paralysis, Rheumatism and all Nervous and Chronic Diseases, and all Female Complaints. 128 Kearny street. 25-520.

JAS. A. SULLIVAN, of Calaveras county, is requested to call at this office, or address us, on business.

HAVING had numerous applications to purchase the right to manufacture CHAMPAGNE MEAD (the great temperance drink), we will state that we are now prepared to sell State and County Rights on reasonable terms. KENYON, GARR & CO. 2721-3m

TO FARMERS.—Stevens & Bro's Egg Boxes, holding 30 dozen, supplied free of charge, by John Gray & Co., No. 210 Clay street, San Francisco, to all customers. The eggs are kept cool and free from moisture and mould, are in no danger of being broken, and require no recommending. 20V20-3m

PHOTOGRAPHY.—For Cabinet Photographs, or Enamelled Cards, of the very best quality, you must go to the NEW YORK GALLERY, Nos. 25 and 27 Third street, San Francisco. Every picture warranted to give satisfaction. 10V18-6m R. F. HOWLAND.

BOILER FELTS.—Saves twenty-five per cent. of fuel. BERRY & PLACER'S MACHINERY DEPOT, No. 114 California street. 1V21-3m

BLOE TIN AND SOLDER WIRE, broom wire, piano covering wire, etc., manufactured by Joshua Gray, 437 Brannan street. 24V19-3m

NEVERMORE.—Can the coarse, gritty tooth powders and the tooth-destroying chemical fluids find a place on the toilets of sensible people? The fragrant and preservative Sozonox has superseded them all.

FALDING'S GLUE mends Furniture, Toys, Crockery, all ornamental work.

Free Information for Inventors and Patentees.



Our Patent Office Circular, relating to U. S. and Foreign Patents, Caveats, Patent Laws, Rights of Inventors, Valuable Hints, Illustrated Mechanical Movements, etc., comprises 48 pamphlet pages, embracing the following

List of Contents:
Advancing Cases; Advantages, Important; Assignments, Forms, Cost, etc.; Caveats of what they consist, Form of Cost, how Filed effectively; Cost of Obtaining Patents; Confidential Advice; Copies of Patents Assignments, etc.; Copyrights; Dangers of Delay; Designs, Patents for; Engravings and Illustrations; Engine, Condensing-Beam—Illustrated; Extension of Patents; Foreign Patents—all Countries; Foreign Inventors; Hints to Inventors; Government Fees; List of; Home Counsel; How to Obtain Patents—Steps Necessary; Hydrostatic Press—Illustrated; Interferences; Influence at Washington; Laws (U. S.) and Decisions Relating to Patents; Lathe, Engine—Illustrated; Letters Patent—of what they consist; Library, Reports, Law Books; Locomotive Engine—Illustrated; Medicines or Compounds, Patent for; Mechanical Movements—Illustrated; Mining and Scientific Processes; Patents for; Record of Pacific Coast Patents; Re-issues; Rejections—Cause and Remedy; Reports of Patent Office; Rights and Privileges of Inventors and Patentees; Saving of Time; Self-evident Facts; Selling Patent Rights; Springs, Various Kinds—Illustrated; Stamp Battery, Quartz—Illustrated; Telegraph, Patent Business by; Unsuccessful Applicants; Who can Obtain Letters Patents; What Claims can be Patented; Worthless Patents, Candid Reasoning.
This pamphlet will be furnished free on receipt of postage stamp. Confidential advice given, and every legitimate branch of Patent Soliciting business promptly and faithfully executed by

DEWEY & CO.

U. S. and Foreign Patent Agents, Scientific Press Office, 414 Clay street, San Francisco.

Pushing Forward.

It is hardly necessary in commencing a new volume, as we do to-day, to remind our readers that we are constantly *pushing forward* in our efforts to improve the **SCIENTIFIC PRESS**. We have never relied upon promises of what we propose to do; but have always been able to point to what we have done in the past, as the best assurance of what is in store for the future.

At the opening of the present year we reduced the price of the paper from \$3 to \$4 per annum, believing that the modified condition of affairs on the Pacific slope, growing out of the opening of the Overland Railroad, and other facilities for more frequent intercourse with other portions of the world, fully warranted such a step. Our anticipations have been more than realized in the increase of subscriptions, so much so as to enable us to give an additional amount of reading matter by the presentation to our readers of a double-sheet the first issue of every month.

Illustrations.

We have also made such arrangements as are now enabling us to greatly increase the number, interest and variety of our illustrations. While this improved feature adds largely to the cost of publication, we feel confident the additional interest and value thereby given to our columns, will be duly appreciated by a discerning public.

The Miner, the Mechanic, the Inventor, the Farmer and the Naturalist, will all find something of constant and practical interest in this direction.

The Miner will always be presented with everything new in the way of reducing ores, whether by mill process or by smelting.

All important improvements in Machinery will be promptly presented to the Mechanic, while the Inventor will be as regularly furnished with hints and stepping stones upon which others have mounted, and from which he in turn will be able to see still further and more clearly into the un-discovered future.

The ideas and instructions that we are here constantly placing before the Farmer will speak for themselves. If the reader will pardon us for a mere hint at the future, we venture the promise that no one thing that is new and of any real importance in the mechanics of Agriculture shall be omitted in that portion of our illustrative department.

The Naturalist too will now and then find something to interest and instruct; while the general reader is never forgotten.

How far we have succeeded in making the **SCIENTIFIC PRESS** acceptable to the public, we can only judge by the words of hearty commendation which we are constantly receiving, not only from our brethren of the press, but from numerous private letters, from the readiness with which our patrons pay up their annual subscription and from the rapid increase in the list of subscribers.

A reference to the index published in our last issue affords the best evidence of the wide field of research and instruction in which we are engaged. The present number affords ample evidence of the truth of what we have written, and to strangers our subscribers can fully attest that the present is but an average of our issues on the first of each month.

The carefully digested mining summary which we give each week; the chronicles of scientific and mechanical progress; the large and varied information on agricultural matters, and the many matters of general and special interest, together with the numerous illustrations, in all the various departments, combines an amount of information which for value, interest and variety, will not suffer in comparison with any periodical of the day.

We trust that those for whom the **Press** is published will exert themselves to enlarge its sphere of usefulness by extending its circulation, and thus strengthening the hands of the publishers for still greater efforts, feeling satisfied that the benefit will be mutual.

July 2d, 1870.

Land Purchasers' Association.

NOTICE.—At a meeting of the Board of Trustees of the Land Purchasers' Association, held August 4, 1870, the following resolution was adopted by unanimous vote:

Resolved, That an assessment of ten dollars per share, gold coin, be, and the same is hereby levied, upon each and every share of the capital stock of the Land Purchasers' Association now held by subscribers therefor, for the monthly installment falling due and payable August 1st, 1870. Said assessment is payable on or before the thirtieth day of August, A. D. 1870, to James F. Crosett, Secretary, at the office of the Association, No. 304 Montgomery street, San Francisco.

Any stock upon which said assessment shall remain unpaid on the thirtieth day of August, A. D. 1870, shall be deemed delinquent, and will be advertised for sale at public auction, and unless payment shall be made before will be sold on the 24th day of September, A. D. 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale.

J. F. CROSETT, Secretary.
Office, 304 Montgomery street, San Francisco. Jy 4

Eagle Quicksilver Mining Co.—Location of Works: Santa Barbara County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 27th day of July, 1870, an assessment of twenty dollars (\$20) per share was levied upon the mines of said Company, payable immediately, in United States gold and silver coin, to the Secretary, at his Office, Room No. 26, Haywood's Building, No. 419 California street, San Francisco, California.

Any share upon which said assessment shall remain unpaid on Monday, the 19th day of September, 1870, shall be deemed delinquent, and will be duly advertised on September 24th, for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 26th day of September, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

T. W. COLBURN, Secretary.
Office, Room No. 26, Haywood's Building, 419 California St., San Francisco, California. Jy 30

Jennie A. Consolidated Mining Company, White Pine District, Nevada.

Notice.—There is delinquent upon the following described Stock, on account of assessment levied on the twentieth day of June, 1870, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificates.	No. Shares.	Amount.
D Cook.....	53	1000	200 00
R Stokes.....	53	1000	100 00
A Deligne.....	4	2000	200 00
A Deligne.....	21	2000	100 00
J H Cook.....	55	1000	100 00
J H Cook.....	55	500	50 00
J H Cook.....	57	500	50 00
J H Cook.....	58	250	25 00
J H Cook.....	59	250	25 00
J H Cook.....	60	125	12 50
J H Cook.....	61	125	12 50
J H Cook.....	62	125	12 50
J H Cook.....	63	100	10 00
J H Cook.....	64	100	10 00
J H Cook.....	65	100	10 00
J H Cook.....	66	100	10 00
J H Cook.....	67	100	10 00
J H Cook.....	68	100	10 00
J H Cook.....	69	100	10 00
J H Cook.....	70	75	7 50
J H Cook.....	71	75	7 50
J H Cook.....	72	50	5 00
J H Cook.....	73	50	5 00
J H Cook.....	74	50	5 00
J H Cook.....	75	50	5 00
J H Cook.....	76	25	2 50
J H Cook.....	78	25	2 50
J K Skinner.....	8	3000	300 00
Herman Todter.....	79	25	2 50

And an order of the Board of Trustees, made on the twelfth day of June, 1870, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the office of the Company, on the fifteenth day of August, 1870, at the hour of twelve o'clock, m., of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

J. M. BUFFINGTON, Secretary.
Office, New Merchants Exchange, California street, San Francisco, California. Jy 30

Latawana Mining Company—Near Hamilton City, White Pine, State of Nevada.

NOTICE.—There is delinquent upon the following described stock, on account of assessment levied on the second day of June, 1870, the several amounts set opposite the names of the respective shareholders, as follows:

Stockholders.	No. of Certif.	Shares.	On Acct.	Ass't Due
D M Hosmer.....	6	20		\$3 00
D M Hosmer.....	6	20		00 00
D M Hosmer.....	9	20		8 00
D M Hosmer.....	10	20		8 00
D M Hosmer.....	12	10		1 50
D M Hosmer, Trustee.....	150	1000		150 00
D M Hosmer, Trustee.....	151	10		1 50
D M Hosmer, Trustee.....	152	10		1 50
D M Hosmer, Trustee.....	153	10		1 50
R Savage.....	20	50	2 50	5 00
R Savage.....	164	300		45 00
R Savage.....	199	100		15 00
S A Post.....	35	10		1 50
P Conklin.....	104	400		60 00
S E Holcomb.....	127	10		1 50
M Baldwin.....	114	10	50	1 00
M Baldwin.....	149	400	24 60	49 00
Richard H Savage.....	115	10		1 50
R Canfield.....	128	40		6 00
D Walker, M.D.....	229	20		3 00
A P Everett.....	134	100		15 00
A P Everett.....	165	50		7 50
William Krug.....	138	50		7 50
William Krug, Trustee.....	197	100		15 00
William Krug, Trustee.....	197	227		34 05
William Krug, Trustee.....	198	400		60 00
John Clement.....	141	90		13 50
A Martinon, Trustee.....	188	4248		637 20
Chas C Bowman.....	156	50		7 50
L D Simpson.....	95	15		2 25
E B Wilder.....	161	1000		150 00
R Cohn.....	179	100		15 00
C H Burton.....	180	328		49 20
Botts & Wlse.....	175	800		120 00
C F McDermott.....	176	100		15 00
S Hovland.....	181	300	15 00	22 50
C Wellington, Trustee.....	182	672		100 80
C Wellington, Trustee.....	184	100		15 00
C Wellington, Trustee.....	189	100		15 00
C Wellington, Trustee.....	191	100		15 00
John G Ayres.....	193	200		30 00
T Arnold Chareard.....	195	100		15 00
R E Doran.....	200	200		30 00
G W Forsyth, Trustee.....	203	500		90 00

And in accordance with law, and an order of the Board of Trustees, made on the second day of June, 1870, so many shares of each parcel of said stock as may be necessary, will be sold at the office of the Company, 514 Merchant street, Room 26, San Francisco, Cal., on Saturday, the sixth day of August, 1870, at the hour of one o'clock p. m. of said day, to pay said delinquent

assessment thereon, together with costs of advertising and expenses of sale.

A. MARTINON, Secretary.
Office, 514 Merchant street, Room 26, San Francisco, California. Jy 16

Kincaid Flat Mining Company, Tuolumne County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the twenty-fourth day of July, 1870, an assessment of two dollars and a half (\$2.50) per share was levied upon the capital stock of said Company, payable immediately in United States gold and silver coin, to the Secretary, 230 Clay street, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on the twenty-fourth day of August, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the twenty-sixth day of September, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

D. H. CROWE, Secretary.
Office, 220 Clay street, San Francisco. Jy 23

Mountain City Mining Company.—Location of Works: Cope District, Elko County, State of Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the fourteenth day of July, 1870, an assessment of twenty-five cents per share was levied upon the capital stock of said Company, payable immediately in United States gold coin, to the Secretary, at the office of the Company, No. 408 California street, San Francisco, Cal.

Any stock upon which said assessment shall remain unpaid on the twenty-ninth day of August, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the twenty-sixth day of September, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

T. B. WINGARD, Secretary.
Office, 408 California street, San Francisco. Jy 23

Noonday Silver Mining Company.—Location of Works: White Pine Mining District, White Pine County, Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the twenty-fourth day of July, 1870, an assessment of twenty (20) cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary, at the office of the Company, Room 21, Hayward's Building, 419 California street, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on the twenty-fourth day of August, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Tuesday, the thirteenth day of September, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

CHAS. E. BUDGET, Secretary.
Office, Room 21, Hayward's Building, 419 California street, San Francisco, California. Jy 23

North America Consolidated Mining Company.—Location of Works: White Pine County, State of Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the sixteenth day of June, 1870, an assessment of five (5) cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary, at the office of the Company, Room 5, No. 302 Montgomery street, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on the seventeenth day of August, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Wednesday, the seventh day of September, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

WM. H. WATSON, Secretary.
Office, Room 5, No. 302 Montgomery street, San Francisco, Cal. Jy 23

Nevada Land and Mining Company.—Location of Works: Steptoe, Johnson & Latham, Antelope and Clifton Districts, Elko County, State of Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the twelfth day of July, 1870, an assessment of one (1) cent per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary, at his office, Room 5, No. 302 Montgomery street, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on Thursday, the eleventh day of August, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the twenty-ninth day of August, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

WM. H. WATSON, Secretary.
Office, Room 5, No. 302 Montgomery street, San Francisco, California. Jy 16

Pinto Mining Company, Location of Works: "Silverado," Pinto District, White Pine County, Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the twenty-second day of July, 1870, an assessment of ten (10) cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, at 426 Montgomery street, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on the twenty-fifth day of August, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Thursday, the fifteenth day of September, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

J. B. BOWSMITH, Secretary.
Office, 426 Montgomery street. Jy 30

Pogonip Flat Silver Mining Company.—Location of Works: White Pine, Nevada.

NOTICE.—There are delinquent upon the following described stock, on account of assessment levied on the 15th day of June, 1870, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
A. B. Wuegar.....	362	750	\$22 50

And in accordance with law, and an order of the Board of Trustees, made on the 15th day of June, 1870, so many shares of each parcel of said stock as may be necessary, will be sold at public auction at the office of the Company, No. 1 Express Building N. E. corner California and Montgomery streets, San Francisco, Cal., on the 18th day of August 1870, at the hour of 12 o'clock M., of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

J. J. OWENS, Secretary.
Office No. 1 Express Building N. E. cor. California and Montgomery street San Francisco, Cal.

New Advertisements.

IMPORTANT BOOK!

JUST ISSUED.—Roasting of Gold and Silver Ores, and the Extraction of their Respective Metals without Quicksilver. By G. Kustel, Mining Engineer and Metallurgist; Author of "Nevada and California Processes of Silver and Gold Extraction," and "Concentration of all Kinds of Oro." Illustrated by numerous engravings. Published and sold by Dewey & Co., proprietors SCIENTIFIC PRESS, San Francisco.

This Book contains 120 pages. Price, \$2.50, gold, or \$3 currency, postage paid.

THE GRAND Horticultural, Agricultural and Pomological EXHIBITION OF THE MECHANICS' INSTITUTE,

Will open on MONDAY, AUGUST 29, 1870, and continue for FIVE DAYS, at the Pavilion Building, On Union Square, San Francisco.

The Exhibition will be of

FRUITS, WINES, FLOWERS, FERNS, PLANTS, SHRUBS, CEREALS, VEGETABLES, And all that relates to the Flora of California.

Every facility will be extended to Exhibitors, and

CASH PREMIUMS

To the amount of Two Thousand Dollars

Will be awarded to Competitors in the Products of the Soil.

THE SOCIETY'S Gold Medal will be awarded for CALIFORNIA WINES.

THE PAVILION will be appropriately decorated, and in the evening, in addition to the Floral and Pomological display, there will be Music by the best attainable FULL BAND, and Instrumental Solos.

The Exhibition will be visited by many of the representatives of the leading Horticultural and Agricultural Journals of the Eastern States, now on a visit to California to inspect its Fruits, Flowers and Agricultural resources.

ADVISORY COMMITTEE:

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S. W. SHAW, President Fruit Growers' Association.
J. S. HITTLE, Author Resources of California.
E. J. WEEKS, President Bay Dist. Ag. Society.
J. L. SANFORD, Napa.
MR. HASKELL, Marysville.
A. J. MOULDER, Sec'y Board of Regents.

It is intended that this Exhibition shall be the feature of the season, and everything will be done to make it an agreeable and attractive entertainment to the visitor.

ADMISSION:

Double Season Tickets, (Gentleman and Lady) \$2 50
Single Season Tickets..... \$1 50
Single Admission..... 50
Children..... Half Price.

Season Tickets can be obtained of any member of the Board of Managers, at the Mechanics' Institute Library, 27 Post Street, or at any of the Book or Drug Stores.

All communications desiring information, or applications for space, must be addressed to H. C. KIBBE, Corresponding Secretary Mechanics' Institute, who will forward Premium List, Rules, etc., or application can be made at the Library of the Mechanics' Institute, 27 Post street.

Per order Board of Managers.
A. S. HALLIDIE, President.
GEORGE PARDEY, Secretary.

Notice to Miners and Others.

Letters Patent No. 53,194, granted March 13th, 1866, secured to me the amalgamation of Metallic Ores in a closed vessel by the action of Mercury, Mercurial fumes, steam and agitation, the heat being applied externally. All persons using, making or selling any Amalgamator in violation of my rights, are hereby requested to settle for the past and arrange for the future, as legal proceedings will be instituted to enforce my rights in the premises.

JOHN T. STAATS, PATENTEE,
5v21-10t No. 323 West 30th Street, New York.

San Francisco Metal Market.

PRICES FOR INVOICES.

Jobbing prices rule from ten to fifteen per cent. higher than the following quotations.

THURSDAY, July 23, 1870.

IRON.—Duty: Pig, \$9 per ton; Railroad, 50c per 100 lbs.; Bar, 1 1/4c per lb; Sheet, polished, 3c per lb; common, 1 1/2c per lb; Plate, 1 1/2c per lb; Pipe, 1 1/2c per lb; Galvanized, 2 1/2c per lb.	
Scotch and Eng. Pig Iron, per ton.....	\$31 00 @ \$32 00
White Pig, per ton.....	28 00 @ 30 00
Refined Bar, had assortment, per lb.....	— 03 @ —
Refined Bar, good assortment, per lb.....	— 04 @ —
Boiler, No. 1 to 4.....	— 04 1/2 @ —
Plate, No. 5 to 9.....	— 04 1/2 @ —
Sheet, No. 10 to 13.....	— 04 1/2 @ —
Sheet, No. 14 to 20.....	— 05 @ —
Sheet, No. 24 to 27.....	— 05 @ —
COPPER.—Duty: Sheathing, 3 1/2c per lb; Pig and Bar, 2 1/2c per lb.	
Sheathing, per lb.....	— 25 @ —
Sheathing, Yellow.....	— 20 @ —
Sheathing, Old Yellow.....	— 10 @ —
Composition Nails.....	— 21 @ —
Composition Bolts.....	— 21 @ —
TR. PLATES.—Duty: 3c per cent. ad valorem.	
Plates, Charcoal, 1x, per box.....	12 00 @ —
Plates, I C Charcoal.....	10 00 @ 10 50
Roofing Plates.....	10 00 @ 10 50
Bancas Tin, Slabs, per lb.....	— 42 @ —
STEEL.—English Cast Steel, per lb.....	— 15 @ —
QUINCY STEEL.—per lb.....	— 15 @ —
Lead.—Pig, per lb.....	— 10 @ —
Pipe.....	— 11 @ —
Bar.....	— 9 @ —
ZINC.—Sheets, per lb.....	— 10 1/2 @ —
BORAX.....	35 @ —

Machinists and Foundries.

FULTON Foundry and Iron Works.

HINCKLEY & CO.,

MANUFACTURERS OF

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Quartz, Flour and Saw Mills, Hayes' Improved Steam Pump, Brodie's Improved Crusher, Mining Pumps, Amalgamators, and all kinds of Machinery.

N. E. corner of Tehama and Fremont streets, above Howard street, San Francisco. 3-47

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Iron and Locomotive Works.

INCORPORATED.....APRIL 30, 1863.

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These Governors are the most sensitive built, running at a high velocity and maintaining a uniform speed.

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— SUCH AS —

Lathes, Planers, Drills, Boring Mills, Milling Machines, Etc.,

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ESTABLISHED 1851.

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Particular attention paid to Jobbing Work and Repairs. N. B.—Sole Agents for sale of HUNTOON'S CELEBRATED PATENT GOVERNOR. 18v20-3m

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Flue or Tubular Boilers, with plain circular or spiral courses. Upright Plus or Tubular Boilers, Locomotive and Marine Boilers, and Wrought Iron Tanks of every description.

Hydraulic Pipe supplied at reasonable rates. In order to give the quantity of water to be supplied, height of the fall, and total length of pipe, so as to enable the firm to determine the diameter of the pipe and thickness of iron to be used.

Repairs.—Boilers, Smoke Stacks, Pipes, etc., put in repair with promptness. To Boiler Makers and Machinists in the Interior.—The firm is prepared to furnish estimates of Boilers, supply new Boilers, drilled and punched, and attend to the selection and forwarding of Iron for Boilers, Pipes and other purposes.

Plans, Drawings and Specifications.—The firm is prepared to make out Plans and Specifications, receive estimates, and superintend the Erection of any Machinery that may be entrusted to their care. To Inventors.—The firm is prepared to assist in developing the plans of those who have the ideas but not the practical experience necessary to put the same in form, by making Drawings of their Inventions, giving them the benefit of their practical knowledge in the construction of Machinery, and attending to the manufacture and introduction of their inventions. 17v16f

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AT EASTERN PRICES.

And better adapted to the wants of the Pacific States. Ascertain our prices before purchasing. 8v20q

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ENCOURAGING REMARKS.—One of our readers writes: "Incorporating an agricultural department into your paper has made it acceptable and really useful all over the country west of the Rocky Mountains, and probably further; and for my part I do not see how an intelligent farmer, miner or mechanic can do without it."

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Manufactory, corner Front and M streets, SACRAMENTO. These Spring Beds, wherever known, are universally acknowledged to be superior to any other in use. They are light, durable and elastic, and present no harborage for bugs or any other kind of vermin, thus being free from the objections so often urged against the ordinary spring beds. Orders received at our manufactory, & at our agencies, as follows:

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South Point Mills, Berry Street, Between Third and Fourth, San Francisco. Orders from the country promptly attended to. All kinds of material furnished to order. Wood and Ivory Turners. Billiard Balls and Ten Pins. Fancy Jewels and Balusters.

DR. ABORN

Has Consented to Remain on the Pacific Coast a while longer.

He can be consulted until the 10th of September, as follows: At the Auzerais House, San Jose, from the 1st to the 31st of July; at 22 Kearny street, San Francisco, from the 1st to the 5th of August; at the Yosemite House, Stockton, from the 5th to the 31st of August; and again at 22 Kearny street, San Francisco, from the 1st to the 10th of September.

Card from Wm. Hoskins, Notary Public, Oakland.

DR. ABORN.—I take pleasure in bearing testimony to your skill and Treatment for Catarrh and Bronchial Affection, having been under your treatment the past ten weeks, and find myself nearly cured. As you are about leaving for San Jose, I cheerfully recommend you to all similarly afflicted. Oakland, June 3, 1870. WM. HOSKINS.

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MARAVILLA COCOA.—For Breakfast.—The *Globe* says: "Various importers and manufacturers have attempted to attain a reputation for their prepared Cocoas, but we doubt whether any thorough success has been achieved until Messrs. Taylor Brothers discovered the extraordinary qualities of 'Maravilla' Cocoa. Adapting their perfect system of preparation to this finest of all species of the Theobroma they have produced an article which supercedes every other Cocoa in the market. Entire solubility, a delicate aroma, and a rare concentration of the purest elements of nutrition, distinguish the Maravilla Cocoa above all others. For lunapaths and invalids we could not recommend a more agreeable or valuable beverage." Sold in packets only by all Grocers, of whom also may be had Taylor Brothers Original Homoeopathic Cocoa and Soluble Chocolate. Steam Mills—Brick Lane, London. 5v20-1y

New York Metal Market.

[CONNECTED WEEKLY FROM THE AMERICAN ARTISAN.]

NEW YORK CITY, Saturday, July 9, 1870.
IRON.

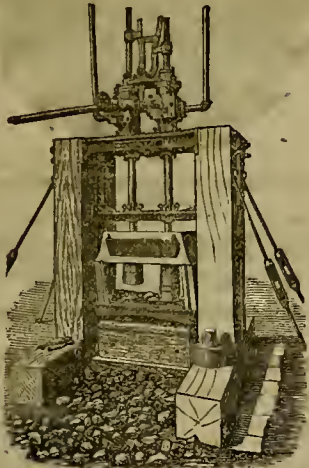
Pig, Scotch, No 1 (cash), per ton..	\$37 50	@	\$42 00
Pig, American, No 1 (cash).....	42 00	@	—
Pig, American, No 2.....	38 00	@	39 00
Swedish, ordinary sizes.....	140 00	@	155 00
Common.....	87 50	@	92 50
Refined.....	95 00	@	—
Rods.....	100 00	@	155 00
Horse-shoe.....	115 00	@	—
Hoop.....	125 00	@	180 00
Scroll.....	110 00	@	145 00
Nail-rods, per lb.....	8 1/2	@	9 1/2
Spring.....	9 1/2	@	—
Tire.....	9 1/2	@	—

STEEL.

Bars, best cast, warranted, per lb..	23	@	23 1/2
Sheet, best cast.....	23	@	—
Sheet, second quality.....	20	@	—
Sheet, third quality.....	18	@	—
Saw-plates, circular.....	27	@	—
Double-shear, warranted.....	23	@	—
Single-shear.....	19	@	—
Montague & Co. (cast bars).....	18	@	—
Machinery, round.....	16	@	—
German, best.....	16	@	—
German, goat.....	13 1/2	@	—
German, eagle.....	12	@	—
Bilster, warranted.....	10	@	—
Bilster, common.....	15	@	—
Joseph & Sons', common.....	17	@	—
Double-refined.....	26 1/2	@	—
Stone or shape.....	26 1/2	@	—

Machinery.

THE WILSON
Patent Steam Stamp Mill.



This extraordinary Mill, now so justly popular in the East, is now offered to the miners of the Pacific Coast. Having been in operation now for about eighteen months, the Company feel confident that the

WILSON STEAM STAMP MILL,

For Durability, Efficiency,

AND ECONOMY OF WORKING,
HAS NO EQUAL.

The Wilson Steam Stamp Mill is the only Steam Mill that has had the severe ordeal of practical working, and proved itself eminently successful. It is now in operation in several of the Eastern States and Territories, and gaining an obvious popularity. The whole machine is so simple as to be readily understood by the most ordinary minds. In fact, its simplicity is its durability. The expense of crushing rock or cement with this Mill is less than one-half the expense of any other Stamp Mill, and less than one-half the cost. For further particulars inquire of

A. BICKNELE, Agent,

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Or of THE WILSON STEAM STAMP MILL CO., 326
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NOTICE.—All persons are hereby warned not to manufacture or use any Steam Stamp Mills that are an infringement on the Wilson Patent, as they will be prosecuted to the utmost rigor of the law.

F. R. WILSON,
20v19-1f Supt. W. P. & C. M. Co., Philadelphia.

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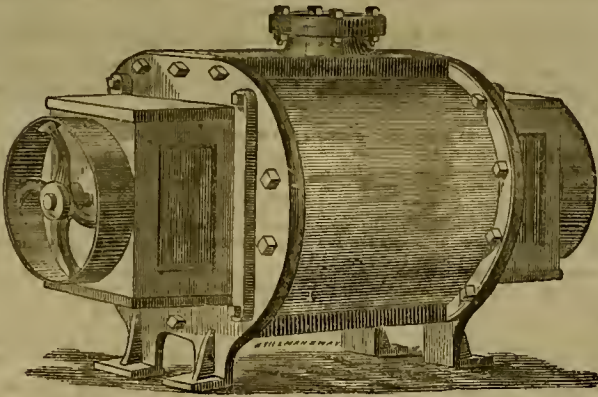
All my Wheels have my name cast on the hub, and are made by my Patent Press Process. By this method the wheel is so compressed in every part that shrinkage or yielding of the part with all its attendant evils is wholly obviated, even in the driest climate. Any one understanding my process will be convinced of this. Send for illustrated circular.
20v20 E. A. ARCHIBALD.

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Patented Nov. 1st, 1864; July
24, 1866; and Oct. 9, 1866.

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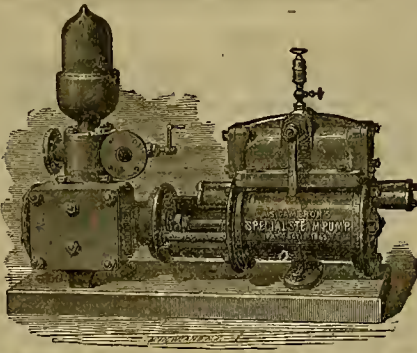
CAUTION.—Purchasers will find it to their advantage to apply direct to the Stockton Agency, as certain parties, not authorized to manufacture the Blower, have put in the market machines of inferior construction, which do not answer all the requirements of the genuine article.

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1v21-3m



VARNEY'S

PATENT AMALGAMATOR

These Machines Stand Unrivaled.

For rapidly pulverizing and amalgamating ores, they have no equal. No effort has been, or will be, spared to have them constructed in the most perfect manner, and of the great number now in operation, not one has ever required repairs. The constant and increasing demand for them is sufficient evidence of their merits.

They are constructed so as to apply steam directly into the pulp, or with steam bottoms, as desired.

This Amalgamator Operates as Follows:

The pan being filled, the motion of the muller forces the pulp to the center, where it is drawn down through the aperture and between the grinding surfaces. Thence it is thrown to the periphery into the quicksilver. The curved plates again draw it to the center, where it passes down, and to the circumference as before. Thus it is constantly passing in a regular flow between the grinding surfaces and into the quicksilver, until the ore is reduced to an impalpable powder, and the metal amalgamated.

Sellers made on the same principle excel all others.— They bring the pulp so constantly and perfectly in contact with quicksilver, that the particles are rapidly and completely absorbed.

Mill men are invited to examine these pans and settlers for themselves, at the office, 229 Fremont street, San Francisco.

Mr. S. H. HERRING, agent for the Scientific Press, has called upon us, and is now in town. He informs us that the Press is rapidly increasing its circulation. We are pleased to hear it, for it is a Journal that all should read. Valuable to farmers as well as miners, mechanics and others.—*Fajeronian*, June 16th.

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AMALGAMATING PLATES

FOR SAVING FINE GOLD.

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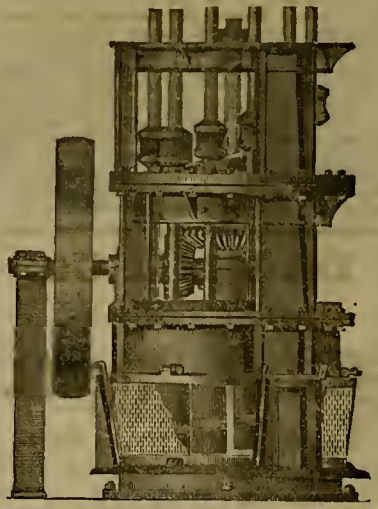
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Manufacturers of all kinds of

Melting Pots, Portable Furnaces,

CRUCIBLES, and other fire-standing Goods,

Battersea Works, London.

THE MOROAN PATENT CRUCIBLES have uniform quality, never crack, withstand the greatest heat without danger; heats more rapidly than any other; change of temperature has no effect on them; stand on the average forty to fifty pourings.

CERTIFICATES:

United States Branch Mint San Francisco, Cal., March 12, 1869—Messrs. A. S. Halliday & Co., Agents Morgan Crucible Co.—I have carefully tested the Morgan Patent Plumbago Crucibles purchased from you for the U. S. B. Mint, and cheerfully certify to their superiority and economy over all other Crucibles used by and under me. They are fully what you represent them, and I shall continue to use them in preference to any other.

J. M. ECKFELDT, Assayer and Refiner, U. S. B. Mint.
Eagle Brass Foundry, 206 Fremont street, San Francisco 12th March, 1869—Messrs. A. S. Halliday & Co., 519 Front street—Gentlemen:—We have used and tested the Morgan Patent Plumbago Crucible, for which you are agents, and pronounce them superior to and cheaper than any Crucible used by us heretofore. GREENBERG & MOORE.
Messrs. A. S. Halliday & Co.—We have thoroughly and severely tested in every way the Morgan Patent Plumbago Crucible obtained by us from you, and find them superior to any we have yet tried, although we have used every not suitable in this market, we have none equal to the above, and concede your claims for them. We think they will average 45 pourings of brass.

GALLAGHER, WEED & CO., Assay Office of H. Harris, Silver City, Nevada, April 24, 1869—Messrs. A. S. Halliday & Co.—Gentlemen:—I received from you three Crucibles of the Morgan make, which I have used since their arrival, and tested by constant use. Since 1847, when in the New Orleans Mint, I have always preferred the Crucible of Dixon's make over Adams, Gautier, and Taitouin, Mass. Yours are 5 to be not alone of more finished make, but to stand double or triple the work of Dixon's Crucibles. The No. 12—the smallest sent—has stood so far 32 meltings, and is as good and sound as when received. Your Crucibles do not scale off like others; and as they are forty per cent. cheaper, I do not see why they should not be preferred by all assayers on account of durability and cheapness. Yours respectfully, H. HARRIS.
On hand and for sale by

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FIRE AND MARINE INSURANCE.

Capital Stock..... \$1,000,000 00
Amount in excess of Capital available to pay Losses and Dividends..... 696,854 80

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Loans on Real Estate and Collaterals worth \$2,420,000..... 1,056,996 21
Cash in Banks..... 132,240 67
United States and other Stocks owned by the Company..... 210,400 00
Real Estate: Company's property, corner California and Leidesdorff streets.... 148,000 00
Other Assets..... 150,217 92

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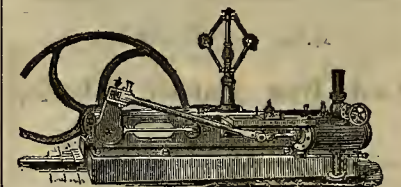
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RIDER'S GOVERNOR CUT-OFF ENGINE,

Manufactured by the DELAMATER IRON WORKS, WEST THIRTIETH ST., NEW YORK. The prominent features of this engine are: Economy equal to any; perfect regulation of speed by cut-off; entire absence of delicate or complicated mechanism; simplicity of design and non-liability of derangement; requiring no more care than common engines. Note.—This improvement can be applied in many cases to existing engines. Pamphlets sent on application. 26v20-3m16p

SCIENTIFIC PRESS.

AN ILLUSTRATED JOURNAL OF SCIENTIFIC AND INDUSTRIAL PROGRESS,
Mining, Farming and Mechanic Arts.

BY DEWEY & CO.,
Patent Solicitors.

San Francisco, Saturday, August 13, 1870.

VOLUME XXI.
Number 7.

A New Steam Ram and Marine Engine.

In the naval combats of the Ancients, the ram was often the decisive weapon.

ing shells, which can be fired by an electric wire in case the enemy should attempt to board. In action the vessel is submerged.

pivoted and working horizontally at opposite ends of the cylinder, C. The opposite arms of the bell-cranks stand at a slight angle to the rod, D, which should be made

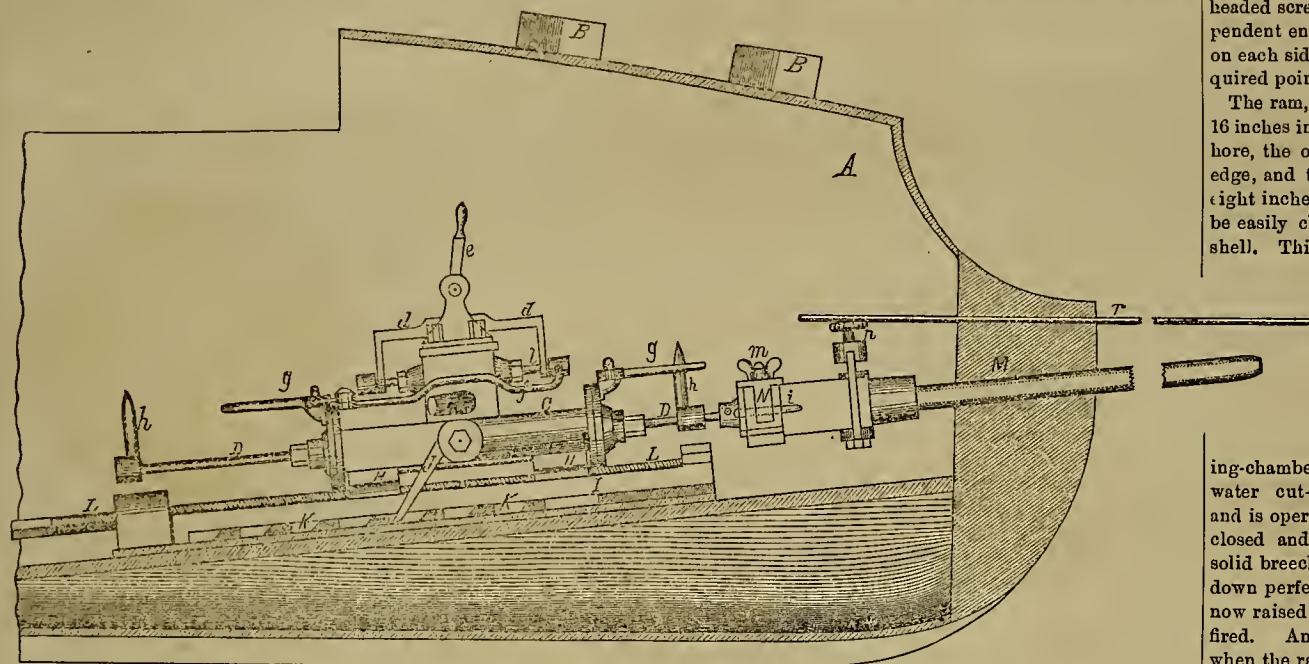
forward on its sliding-frame. To move the cylinder, there is a wedge-shaped tongue, H, fastened beneath it and sliding in the ways, I, being moved by a long triple-headed screw, L, operated by a small independent engine. A pawl, J, and rack, K, on each side hold the cylinder at any required point.

The ram, M, is a steel tube, 24 feet long, 16 inches in diameter, and with an 8-inch bore, the outer end being tapered to an edge, and the bore decreasing for about eight inches from the outer end, so as to be easily cleared of obstructions by the shell. This tube extends out below the line of plating of vessels, being kept water tight by a stuffing-box. To load the apparatus, the movable breech, N, which is hinged, is thrown back, a shell placed in the receiving-chamber and pushed forward to the water cut-off, which closes the bore and is operated by a screw, n. Then N is closed and the key, i, inserted, forming a solid breech, the set-screw, m, bringing it down perfectly solid. The water cut-off is now raised and the shell is ready to be fired. An indicator, r, gives warning when the ram is approaching an opposing object.

The operating cylinder is four feet in diameter with an 8-foot stroke. When the indicator gives warning, the fuse of the shell is lighted and steam let on in the cylinder. This latter drives forward the piston and ram with enormous force, piercing a hole through the side of the opposing vessel, and at the same moment the shell is fired. The piston can make upward of forty strokes per minute, and, if desired, the side of the vessel may be pierced with many holes before separating. Or liquid fire or any other suitable material may be used in the tube.

The Engine.

The engine to be used on the vessel is an improved double-cylinder oscillating engine, which is likewise a new invention by the same gentleman, and which is illustrated in Fig. 2. There are two short cylinders, A, A, of large diameter, placed side by side, and operating together on the same pair of trunnions, which turn in the boxes, B, B'. Steam is admitted to the steam-chest, C, through the pipe, D, passing through the journal, and thence to the steam-chest through the passage, a, on the side of the chest. The exhaust steam is conveyed away by a similar arrangement on the opposite side. The valve-gear is operated by an eccentric, E, the rod of which hooks, in the present case, upon the pin, F, the starting lever, G, extending up from the eccentric arm, H. By introducing a link motion, the engine can be made reversible. A short shaft passes through the box, I, and carries a crank-arm, J, set at right angles with the arm, H. A pin from J enters a box in the frame, K, so that the motion of the eccentric raises and lowers this frame, which is guided in its move-



THOMAS HILL'S PATENT STEAM RAM.

With their means of offense and defense, a stout beam armed with iron and projecting from the forward part of the vessel was found most effective. This simple ram was naturally modified and changed in the course of years, and when gunpowder came into general use, it disappeared for a long time and was almost forgotten by the public. But iron armor and modern constructions have again brought back something of the ancient times, and the ram is once more a recognized weapon of offense. The weapon we illustrate to-day is an improved device, which uses steam power for piercing the sides of iron-clad or other vessels, and is the invention of a Californian. It consists of a ram (attached to a piston-rod operated by a steam cylinder) which projects from the bow of the vessel, and which is provided with a bore, through which a shell or other projectile can be fired, after it has been thrust through the opposing side. In the illustration, M is the ram, A, the bow of an iron-clad or other suitable vessel, and B, B, boxes for hold-

Inside of the vessel and near the bow of the same is a steam cylinder, C, which is provided with an ordinary slide-valve, operated by the rod, l. A yoke, d, has its op-

posite ends secured to the two ends of the rod, and a vertical lever, e, is attached to its center, by which the piston can be set in motion by hand. Secured to opposite ends of the valve stem are bent rods, f, extending to the arms of two bell-cranks, g,

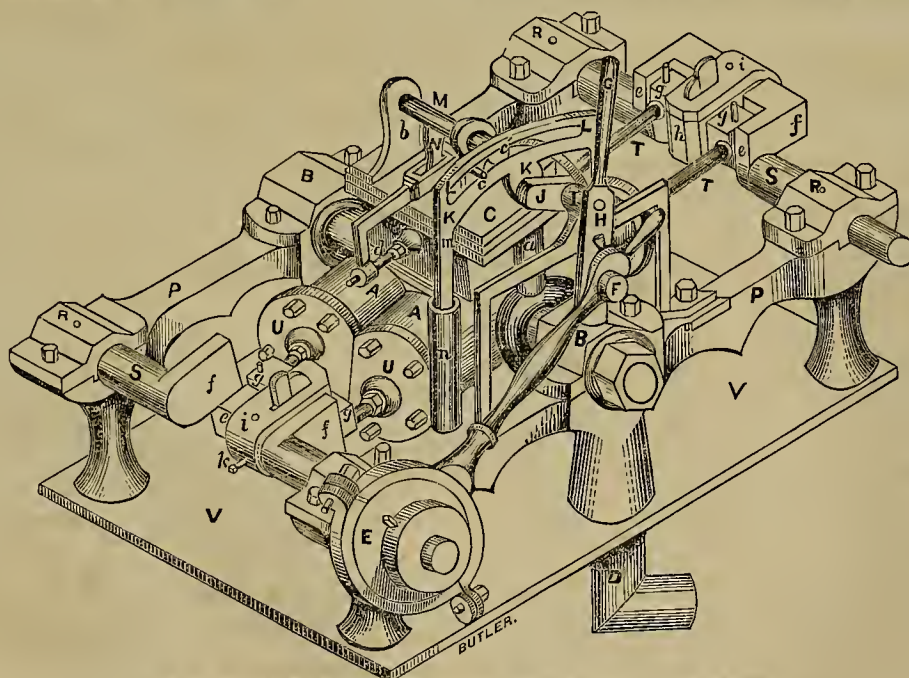


Fig. 2.—HILL'S PATENT DIRECT-ACTING DOUBLE OSCILLATING ENGINE.

directions and operate the valve by alternately striking the arms of the bell-cranks, and by the connecting-levers the engine is reversed. The steam and exhaust pipes are both made to telescope, so that they allow the cylinder to be moved back or

forward on its sliding-frame. To move the cylinder, there is a wedge-shaped tongue, H, fastened beneath it and sliding in the ways, I, being moved by a long triple-headed screw, L, operated by a small independent engine. A pawl, J, and rack, K, on each side hold the cylinder at any required point.

ments by the arms, *m*, moving in the pots, *n*. A curved slot, *L*, extends across the top of the frame, *K*, the use of which will be shown hereafter.

Upon the top of the steam-chest are two standards, *b*, through the upper part of which extends a shaft, *M*. This shaft has a short crank-arm, *c*, whose pin, *e*, enters the curved slot, *L*, before mentioned. An arm, *N*, extends downward and enters a slot in the yoke, *O*. This yoke receives the ends of the valve-stem, *d*, which are keyed to it, so that the combined motion of the eccentric and the oscillations of the cylinders and steam-chest give the valve the proper motion, and, by changing the set of the arms, it may be made to cut off at any point in the stroke.

The pillow-blocks, on which the trunnions rest, are supported by a frame, *P*, at the ends of which are placed the pillow-blocks, *R*, of the two shafts, *S*, and the whole may rest on the bed-plate, *V*, at the bottom of the vessel. The cranks are so bent or cast as to form two parts, *e* and *f*, which stand at right angles to each other, and the two cranks, one on each shaft, stand in such relative positions, when connected to the piston-rods, that they balance and counteract the weight of each other in their revolutions. The two pistons have each a rod, *T*, extending entirely through the cylinder-head, *U*, at each end, and connected with the lugs, *g*, *g*, by keys. These lugs are forged with or fastened to the stub-ends, *h*. The straps, *i*, are provided with set-screws, *k*, by which they are made to work in exact equilibrium. No condensers are shown, but they may be used and air pumps connected.

By this construction the engine is made very compact, cheap, little liable to get out of order and very efficient. This and the ram, placed in a suitable iron-clad vessel and properly handled, would, apparently, make a most formidable adversary. Patents for the engine and ram have been granted, through the SCIENTIFIC PRESS Agency, to Mr. Thomas Hill, of this city, a gentleman who is well known for his mechanical talent. To him parties may apply for purchase of rights or any further information desired.

In addition to the above, Mr. Hill has invented a number of other valuable devices. Thus, he has made improvements in the link motion for steam-engines, and in the arrangement of the blades of screw-propellers. He has devised a projectile, consisting of a series of concentric shells, the compartments of which are filled with missiles and Greek fire, with a vial, containing an explosive, so arranged in the center, that, in striking an object, the vial will be broken, the inflammable liquid ignited, the shell exploded and the missiles hurled in every direction. Patents for the above are now pending.

WATERING PLANTS IN A DRY TIME.—In case of protracted drouth surface watering has a tendency to draw the roots to the surface, where the greatest amount of moisture is; and hence if the watering is neglected a single day, the roots will become dry, and the plant wilt.

To avoid this result, take a crow-bar or a wood stake, sharpened, and make among the plants numerous holes in the ground, six or eight inches deep; and into these pour the water from the nozzle of the watering-pot, the rose being removed. Give a heavy dose, and a half hour afterwards go over the ground with the hoe, stirring and levelling the surface, then attach the rose and sprinkle the plants and the ground very slightly. If this mode of treatment is properly applied once a week, plants will not suffer in any ordinary drouth.

EXPOSITION AND MINING REPORTS.—The six volumes of the Paris Exposition Reports, are printed and are in the binders hands. Prof. Blake is now making a general index to the whole series which will complete the series. . . . Commissioner Raymond's report on mining statistics is in the government press and will be published before long.

Communications.

IN THIS DEPARTMENT WE INVITE THE FREE DISCUSSION OF ALL PROPER SUBJECTS—CORRESPONDENTS ALONE BEING RESPONSIBLE FOR THE IDEAS THEY ADVANCE.

Eureka District, Nevada.

[Written for the Scientific Press.]

Eureka, or Napias, is one of the most prosperous districts which I have visited for some time. Napias, which signifies "silver," is its Post Office designation. The town is situated in a long cañon, and is now importing buildings from Hamilton, Shermantown, Elko, Carlin, etc., besides putting up new ones, at a rate which is decidedly rapid. Wells, Fargo & Co. have an office here, the U. S. Government has a Post Office, and Woodruff and Ennor run daily stages to and fro from various places. The population is increasing daily and I noticed many faces which I have before seen at White Pine. Skillman & Co. formerly of Shermantown, have started a weekly newspaper, the *Sentinel*, which is just what the people want.

The cañon, in which the town is situated, runs north and south, is very long, about half a mile wide, and is well supplied with water. There is enough wood for fuel in the neighborhood, but lumber for building purposes must be brought from the Truckee. There are now in the town some 400 houses, and the population is estimated at about 2000. There are 8 furnaces in full blast, and although the smoke and fumes which issue from them are decidedly disagreeable, yet to see them in action gives one most hopeful ideas with regard to the place. As you enter the town, you first see the three large stacks of the Eureka consolidated smelting works, next the Wallace and Bevan works (a Philadelphia company), next Col. Robbin's, then Carpenter & Co's, and finally, almost half a mile up, the Mercelina Co's works. Near by I see some new works are being built, one by a Chicago firm.

Money appears to be scarce here just now. I am told that the smelting works have much trouble in getting returns for the bullion they have shipped East. The camp has grown up on its own merits, and not a cent of capital has come in until of late.

The Formation.

The geological formation resembles somewhat that of White Pine. The limestone strata stand nearly vertical, and the whole district abounds in hills of nearly pure siliceous acid, or barren quartz, and also a species of gneiss, containing quartz, feldspar and mica. This rock is much used for building purposes, its contiguity to the town making it nearly as cheap as lumber. It is also used for the retaining walls of furnaces. The lining is made of a rock found in abundance at Pancake Mountain, twenty miles east of this place, and which is a sandstone containing a small proportion of alumina. This resists the heat as well as any known material, it is affirmed.

The mines are found chiefly in a mineral belt running about N. W. & S. E. as shown by the Tip Top Richmond Champion and Buckeye series, by the Great Republic, the Marcelina, the Adams, the Jackson, the Fulton, Cambria, Justice, on the north extremity of the belt, and by the Hometicket, Lord Byron, Dunderberg, Couelly, Hoodoo and Bodger, in the center, and again by the Basey, McCann and others, at the south extremity in Secret canon. This mineral belt is about a mile and a half wide, and all the mines of importance thus far discovered, are within its limits, excepting only the Kentuck and the Mountain Boy, which are apparently on another similar and parallel belt, some four miles westward of the great Eureka belt, and which has not yet been fully explored. Of the metals silver predominates; say, at a rough estimate, $\frac{1}{2}$ silver and $\frac{1}{4}$ gold, lead, antimony and zinc.

The Buckeye and Champion Mines.

I paid a visit to the three principal mines of the district:—The Buckeye, Champion and Jackson. The Buckeye was struck a little over a year ago, by six Cornishmen who have sold out their interest to Wm. M. Lent, of your city, for \$100,000, it is affirmed. The mines are situated on the west side of Ruby Hill, about $3\frac{1}{2}$ miles southwest of the town. Here in the limestone is a very large amount of carbonate of lead. The main deposit runs north and south, and in it the old company had sunk a number of shafts. The first one we went down, was 73 feet deep, in a solid mass of ore of the same character below as above. The next shaft was 55 feet down, and they have run a drift, some 55 feet, to connect with another shaft 63 feet distant. At this depth they have a chamber some 16 feet square, and good ore. How wide the body is they cannot tell. Tunnels run in 30 feet have not struck the country rock. There are some 1500 tons of ore on the dump, also, considerable galena. No men are at work at present, but a large force will soon be employed. The Sentinel, on the east slope, a No. 1 mine, is also owned by the Buckeye.

The Champion, is on the same belt, and the owners have consolidated with the Buckeye. There are four men at work who can take out sufficient ore for the present. Mr. W. J. Brown is the foreman.

We went in the large drift where the ore has been taken out during the past year. The room inside was from 20 to 25 feet wide, and braced with heavy timber. A drift was run in some 80 feet in the solid body of ore. The height of the open cut is about 30 feet, its width 16 feet, and its length over 35 feet, all in good ore. The deposit is covered with earth on the surface, about 4 to 6 feet deep. From the 2d, of April to the 11th, of July, six men, I am told, took out 1400 tons of ore.

Ore and Bullion Statistics.

From the Buckeye and Champion mines, there were extracted, between April 25th, and July 1st, 1,167 tons of ore which, in a 25 days run in 1 furnace and 41 days run in 2 furnaces, produced 374 tons of refined bullion. Shipped to Newark these were returned as worth about \$350 per ton. Estimating the cost of mining hauling and smelting, as not over \$25 per ton, while the cost of transporting the bullion from Eureka to Newark, and its separation and refining is a trifle less than \$75, there was a net profit of \$250 per ton, or \$93,500 on the whole amount in a little over two months. The two furnaces yield an average of over 6 tons of bullion per day. Such are the facts as given to me, and as generally stated up here. I will add that to transport ore or bullion to Palisade, costs \$30, and thence to San Francisco about \$16; total, \$46 per ton.

This enterprise, was started by Col. D. E. Buol and J. C. Bateman, in November last, when mining was in its infancy, and the town had no existence. The present condition of affairs speaks loudly enough in praise of them, and of the district. Messrs. B. & B. have interests in the Champion and Buckeye and two smelting furnaces, etc., etc. The same have recently passed into the hands of a San Francisco Company, the Eureka Consolidated, with a capital of \$5,000,000. The Trustees are Wm. M. Lent, J. C. Bateman, L. W. Cor, Gen. G. S. Dodge and W. Thompson Jr. The business of the company here is to be conducted by J. F. Boyd, as Superintendent.

I wish I could give your readers a fair idea of the immensity of the mineral deposits here. A few figures I have given, but these by no means represent the whole dimensions of the deposits, only what has been exposed, while much remains still unexplored. And then, looking at figures is not like looking at the masses themselves. I just advise people to come here and personally investigate. W. H. M. Eureka July 10.

[TO BE CONTINUED.]

THE DENVER PACIFIC RAILROAD was completed, on the 5th, inst. within 38 miles of Denver, and it was thought that the last rail would be laid this week. The Company is said to have sold, up to August 1st, 22,202 acres for \$85,116, or nearly \$4 per acre on the average.

Mineral Wealth of Utah.

[Written for the Scientific Press.]

EDS. PRESS.—It may be well to put on record the history of Utah's mineral resources. In or about 1864, Genl. P. E. Connor, was located here by order of the U. S. Government. He supposed, I presume, that as California, Idaho, Montana, Colorado, Arizona, and Nevada, surrounding us, all contained minerals of various sorts in abundance, Utah, so long neglected, was not "left out in the cold," and set men to work "exploring." Iron, lead, silver, gold, manganese, were then, and have been since, discovered. The policy of the men who had settled on this land, was to "have bold and use." copper, cobalt, etc., etc., for their own special benefit, and exclude all who differed from them in faith; hence, they used their influence to conceal our mineral wealth and discourage the development of this in this territory, assuring their followers that they would make more money raising wheat. So for a time there was no digging for the rich ore. The grasshoppers for a series of years have destroyed the seed and labor of the husbandman, have eaten up the expected crop: the people looking around for something to do, have discovered the vast amount of wealth hid in all the surrounding chains of mountains,—the Wasatch, Oquirrh, indeed, everywhere,—and they 'set have found out that ore can be sold for from \$30 to \$100 per ton, and that when dug and laid out on the side of the shaft or tunnel, the grasshoppers won't eat this result of their labor! These facts are patent now even to the Mormons, and hundreds have started out and are working; and soon their numbers will be thousands,—for they seem assured, if they will not get out the ores, many will come from the surrounding countries because of the abundance and richness of our ores, and they will be dug out, and thrown on the world's market for their value. This is all we desire, viz: That the precious metals so abundantly strown around us in these rich valleys, shall be taken out and made available to busy humanity. I have no objection to any man's creed. Let him worship whom or what he will. But I declare in all soberness, it seems to me folly, that men should starve when these mountains are full of rich mineral ores. T. D. Brown Salt Lake City August 4th, 1870.

CALIFORNIA AND ENGLISH WHEAT.—An interesting and important statement is incidentally made by a correspondent in to day's issue, in respect to the relative values of California and English wheat, in English markets, to the end that the best California wheat ranges in the English market, on an average, fully twenty-five per cent. above the average price of English wheat in the same market. Of course this increased value is due to the necessity for mixing with the moist English wheat a grain from some other region, which shall be sufficiently dry to take up, without serious injury to itself, the excess of moisture in the English grain. This end can be better attained with the California product than with any other. The general fact of the higher price of California wheat in the Liverpool market is well known; but that so great a premium is paid, we believe will be new to many, if not to most of our readers. It may safely be assumed that this important feature in California wheat will always secure for it, at least, a limited market in Liverpool, even when there is an excess in the European crops; because A No. 1 flour cannot be made from unmixed English wheat.

A Railroad from Wilmington to San Bernardino is talked of. The Central Pacific is said to favor the enterprise.

Mr. W. W. Foote, has retired from his position on the Oakland Transcript.

Mechanical Progress.

PURIFICATION OF COAL GAS.—In a paper recently read before the British Association of Gas Managers, Alfred Upward describes a plan devised by Mr. F. C. Hills for the economical purification of gas. We quote: "The plan is to make the ammoniacal liquor produced at gas-works of sufficient purity to become a cheap and effective purifying agent for depriving gas of its sulphuretted hydrogen and carbonic acid. The gas liquor made on the works, when purified, is run through the common scrubber, and the gas allowed to pass up through. The mode Mr. Hills employs to purify the gas liquor is as follows: He uses a series of stills or vessels placed one above another, which vessels are partly filled with the gas liquor to be purified. The gas liquor runs through these vessels by means of connecting pipes from the top to the bottom. In the bottom vessel the gas liquor is caused to boil. By this boiling the carbonic acid and sulphuretted hydrogen, in combination with the gas liquor, are driven off to a great extent, and also a little ammonia; these products are caused to pass into the liquor in the next vessel above, by which the ammonia vapour is mostly absorbed, but not the carbonic acid or sulphuretted hydrogen, and by passing these products in like manner through the whole series of vessels, the ammoniacal vapour driven off from the boiling gas liquor is absorbed by the gas liquor in the higher vessels, and the carbonic acid and sulphuretted hydrogen are left free to pass away wherever desired. The hot purified gas liquor, as it runs out, heats the cold gas liquor which is to be purified by passing in opposite directions through a series of pipes, so that very little heat is required."

ENGINE FOR STEAM YACHT.—*Engineering* illustrates and describes a compact double pair of engines just constructed for a twin-screw steam yacht of 40 feet length and 6 feet beam. These engines "occupy a space of 2 ft. 6 in. by 2 ft. only. The cylinders are $3\frac{1}{2}$ in in diameter by $3\frac{1}{2}$ in stroke, and the engines are intended to run at a speed of 550 revolutions per minute, and indicate 23 horse power. Each pair of engines drives a Griffith's propeller, 20 in in diameter, with 3 ft. 7 in. pitch, and one pair also drives a feed pump. All the working parts of the engine are of steel, and have large wearing surfaces, while each pair of cranks, crank shaft, and eccentrics are turned in a single piece. Each slide valve is driven by a single eccentric, which serves both for forward and backward gear, the eccentric strap having a link formed in one piece with it, and thus, while the throw of the eccentric is merely equal to the lap of the valve plus the lead, the necessary extra opening of the port is given by the oscillation of the link on its centre."

GOOD IRON FROM DOCKYARD REFUSE.—*The Colliery Guardian* says that Sir Antonio Brady has invented a process by which certain dockyard refuse, called "Seeley's pigs," largely contaminated with phosphorus and sulphur, and worth in the market \$11 or \$12 per ton, can, at a cost of \$9, be made into iron worth \$70 per ton. We quote: "The iron bears every test. One of the pieces exhibited had been beaten cold to the thinness of writing paper at one end, drawn to a point at the other, and then twisted by hand eight turns in an inch at a single heating. Massive bars had been beaten cold until the surfaces on each side of the head came into contact, and a plate six inches wide and half an inch thick had been beaten till its edges were in contact. In neither case was there any trace of a flaw either at the convexity of the curve, or at the concavity. Holes in a thick plate had been enlarged by driving cones into them, and, in a word, the iron had been knocked about in every possible way. At a very low estimate, it is worth £14 a ton."

AN UNCHANGEABLE MEASURE OF LENGTH. Beryl is proposed as the material for a standard measure. It is expanded by heat in a direction perpendicular to the principal axis, but contracts in the direction of the axis itself. "From this it follows that in every crystal of beryl, there must be a direction in which the expansion is equal to zero. Consequently a normal scale, cut from a beryl, would not be influenced by heat. The supply of material is abundant."—*Technologist*.

NEW SYSTEM OF LIGHTING.—M. d'Harcourt has received permission to try in Paris, says the *Engineer*, a new system of lighting by means of ordinary gas mixed with atmospheric air in fixed proportions, and projected on platinum. The inventor says: "Pure hydrogen gas, employed with the aid of a platinum cage, gives the same amount of light, volume for volume, as common gas burnt in the ordinary manner; but as coal gas produces by combustion three times the amount of heat as the same volume of hydrogen, it will be admitted that by employing the former simply to produce heat, and using its calorific value to raise the platinum to a white heat, as is done for hydrogen, a light three times, or at least twice, as powerful as that obtained with the common burners will be produced. Burners which consume not more than forty litres may be used, so that the new system allows of distribution of the light without loss, which is not the case with other methods of lighting. Not using the coal gas for lighting, but only to yield calorific, the poorest gas answers my purpose."

IMPROVED STEAM ENGINE.—An engine recently patented by J. C. Hoadley, "has its cylinder so constructed and located that the hot volatile products of combustion will pass in direct contact with the cylinder casting, around and partially jacketing it, in moving from the flue ends to the chimney. The invention also includes a novel arrangement of pipes for heating the feed-water within the smoke-box, between the flue outlets and the smoke jackets of the cylinder. Also, a steam gauge so connected by pipes and means for controlling the flow of steam through the same with the steam in the boiler, and with the steam in the pipe between the automatic regulator valve and the steam cylinder, that with the single gauge can be tested at will the pressure of the steam in either space."—*Artisan*.

RAIL-CARS WITH SIDE GALLERIES.—M. H. Desgranges, late Engineer in-chief of the South Austrian railways, has designed and constructed a carriage which has a passage-way on the outside. The object is to do away with the numerous unsatisfactory devices for communicating with the officers of the train, without the necessity of adopting the plan of a passage through the center of the car. This latter is, as everybody knows, a constant source of annoyance to the occupants, besides being not a little dangerous to invalids, who are thus subjected to frequent and sudden draughts of cold air.

VACUUM CHUCK.—A recently patented English contrivance for holding plates in the lathe while they are being surfaced "consists of a hollow chuck having a perforated face placed on a hollow lathe spindle, the rear end of which communicates, by means of an india-rubber pipe with a chamber in which a vacuum is maintained. The articles to be surfaced are simply placed against the perforated face of the chuck, when they are held by the pressure of the atmosphere on their outer sides. Provision is made for permitting the lathe spindle to revolve without interfering with the connexion with the vacuum chamber, and a cock is fitted for admitting air into the body of the chuck when it is desired to remove the article."

STEAM PAVIOR.—*The Pall Mall Gazette* describes a machine recently introduced in Paris to take the place of the clumsy old hand-maul in street paving. It consists of a small steam engine on wheels, drawn by one horse, to the rear of which is attached the "pavior," which is driven upon the ground with great force by a blow from the piston somewhat on the principle of a Nasmyth's steam-hammer. It slides on a bar some 6 feet long, and can thus be directed by the driver to any stone which requires forcing home.

NEW PLUMBER'S JOINT.—The new joint, invented by Isaac Smith, requires no solder, and is likely to soon supersede the present method of joining. It is made of brass, heavily tinned inside and out, and has conical ends, which fit into the pipe, and a central flange to which the heat is applied with a pair of hot tongs. This causes the tin on the outer surface of the joint to flow and this unites with the inner surface of the pipe, making a "sweated union" that no force can separate or water penetrate.—*Scientific Journal*.

Scientific Progress.

OZONE DEVELOPED BY FLOWERS.—*Nature* extracts from the proceedings of the Institute of Lombardy the result of Prof. Mantegazza's experiments on this subject. We give a portion:—The essences of mint, turpentine, cloves, lavender, bergamot, anise, juniper, lemon, fennel, nutmegs, capnut, thyme, cherry laurel, in contact with atmospheric oxygen in light, develop a very large quantity of ozone, equal if not superior in amount to that produced by phosphorus, by electricity, and by the decomposition of permanganate of potash. The flowers of the narcissus, hyacinth, mignonette, heliotrope, lily of the valley, &c., develop ozone in closed vessels. Flowers destitute of perfume do not develop it, and these which have but slight perfume develop it only in small quantities. As a corollary from these facts the professor recommends the use of flowers in marshy districts and in places infected with animal emanations, as the powerful oxidising influence of ozone may destroy them. The inhabitants of such regions should surround their houses with beds of the most odorous flowers.

CHEMISTRY AND MATTER.—In a notice of Prof. Naumann's work on Thermo Chemistry, by E. J. Mills, in *Nature*, we find the following:—"The existence of bodies having the same per-centage composition, but different reactions, is adduced to prove that the matter in them must be divided into discrete parts in each case. Does it not rather prove that matter has nothing whatever to do with chemical properties?" The progress of biology has repeatedly been opposed by an obstacle which, under the name of "mind," it has scarcely known how to treat, but with respect to which it is just beginning to find its true position. In like manner, physical science, and chemistry particularly, has had to encounter a phenomenon which, under the name of "matter," has continually impressed upon it the heaviest and most severe of theoretical burdens. It will be strange, indeed, if biology should steal a march on physics."

NORTH AMERICA AND EUROPE ONCE CONTINUOUS.—W. Boyd Dawkins, in *Nature*, says: "The forms of life common to Europe and North America imply a continuity of land between those now widely dissociated areas. Mr. Murray believes in the existence of a Miocene Atlantis, which has left the Sargasso sea as a palpable monument of its existence in the mid-ocean. I should, however, be rather inclined to look for the continuity of land in the direction of Siberia, Behring's Straits, and, it may be, Greenland; and when the recent wonderful discoveries of temperate and sub-tropical vegetation in the now Arctic regions is taken into account, it appears to me extremely probable that the animals migrated from one area to the other by that pathway. But whether this be accepted or not, Prof. Heer has shown that during the Miocene times there was a vast extent of land, and a temperate climate in the now extremely high northern latitudes, which would imply conditions of life favourable for the migration of the Miocene animals."

GALVANIZATION OF THE SYMPATHETIC NERVE.—*The Journal of Psychological Medicine* for July contains an interesting article by Doctors Rockwell and Beard upon the physiological effects produced by galvanization of the sympathetic nerve. We quote a single paragraph, which is sufficient to suggest the possibility that valuable results may follow further investigation.

"In order to determine the effect of galvanization of the cervical sympathetic on the cerebral circulation, we have instituted a number of experiments on our own persons. The positive electrode connected with a galvanic battery of twenty Större's cells was placed in the right auriculo-maxillary fossa, and the negative between the sixth and seventh cervical vertebrae. Dr. St. John Roosa examined the retina with the ophthalmoscope, just before, during, and about five minutes succeeding the applications. During the passing of the current, Dr. Roosa observed that the arteries of the retina increased in size, and that more vessels were brought into view. The applications were continued from two to five minutes. On examining the condition of the retina about five minutes after the application had ceased, a marked decrease was observed in the size and number of the arteries. It was evident that the secondary effect of the galvanization was to produce anemia of the retina, since it presented fewer and smaller blood-vessels than before the application."

VARIETIES OF CARBON.—M. Berthelot in a recent paper upon this subject, commences by pointing out the specific heats of five different kinds of carbon, and comparing them with the specific heat of the element as deduced from that of its gaseous compounds, and shows that the relations between specific heat and atomic weight are not the same as those observed in the case of other elements. He then explains his process for distinguishing and separating the varieties of carbon by treatment with nitric acid and potassic chlorate, and describes the products obtained from carbons of different origin, enumerating no less than thirteen different varieties of the element. The next two sections describe the effects of various agents on carbon, and the carbon obtained from different compounds; concluding with the observation that the kinds of carbon differ so widely in their properties, re-action, and specific heats as almost to warrant their being considered as different elements.

LARGE INDUCTION COIL FOR DARTMOUTH.—*The Journal of the Franklin Institute* says: "An induction coil of great power has recently been constructed by Ritchie & Sen, of Boston, for Dartmouth College, the most powerful one at present in the country. It has not yet been tried with a battery sufficient to develop its force, but has given a torrent of sparks of between 19 and 20 inches in length, when excited by the battery of 24 pairs of large zinc and iron plates immersed in dilute sulphuric acid, which is used by Mr. Ritchie in magnetizing compass needles and other similar work. With 9 cups of medium-sized Bunsen elements, arranged 3 x 3, it gives an 18 inch spark; with a single cup it gives 6 inches. The apparatus consists, really, of two independent coils, which are placed on the same base, with their axes horizontal and coincident, and are capable of being used separately or in combination. Either section alone gives, readily, a 12-inch spark. They can be combined for quantity, giving in this case, of course, no greater length of spark than when used singly, but producing luminous effects of remarkable beauty; or for intensity, and in this way the long sparks, spoken of above, are obtained. The length of each section is 15 inches, and its diameter 8; the whole machine being a little over 3 feet long. The cores of fine annealed iron wire weight 11 pounds; the primary coils are of copper wire, $\frac{1}{8}$ of an inch in diameter and 185 feet long; the secondary coil is of wire 9-1000 of an inch in diameter and 183,000 feet long, or very nearly 35 miles."

ELECTRIC QUANTITY AND ELECTRIC INTENSITY.—The following is an extract from a recent lecture by Prof. Tyndall, at the Royal Institution: "Faraday immersed two wires, the one of zinc and the other of platinum, each one one-thirtieth of an inch in diameter, in a cell of acidulated water. The depth of immersion was only five-eighths of an inch, and the time of immersion only three-twentieths of a second. Still he found that the electricity generated by this small apparatus in this brief time produced a distinctly greater effect upon a magnetic needle than twenty-eight turns of the large electric machine of the Royal Institution. A cubic inch of air, if compressed with sufficient power may be able to rupture a very rigid envelope; while a cubic yard of air, if not so compressed, may exert but a feeble pressure upon the surfaces which bound it. Now the electricity of the machine is in a condition analogous to the compressed air. Its density, or, as it is sometimes called, its intensity, or tension, is great. The electricity from the voltaic battery, on the other hand, resembles the uncompressible air. It exceeds enormously in quantity that from the machine; but it falls enormously below it in intensity. The deflection of a magnetic needle and other actions of the voltaic current depend solely upon quantity, hence the vast superiority of the voltaic current in producing such deflection. Faraday found the quantity of electricity discharged by the decomposition of a single grain of water in a voltaic cell to be equal to that liberated in 800,000 discharges of the great Leyden battery of the Royal Institution. This, if concentrated in a single discharge, would be equal to a great flash of lightning. He also estimated the quantity of electricity liberated by the chemical action of a single grain of water on four grains of zinc to be equal in quantity to that of a powerful thunderstorm. Weber and Kohlrausch have found that the quantity of electricity associated with one milligramme of hydrogen in water, if diffused over a cloud 1,000 metres above the earth, would exert upon an equal quantity of the opposite electricity at the earth's surface an attractive force of 2,268,000 kilogrammas."

Mining Summary.

The following information is gleaned mostly from journals published in the interior, in close proximity to the mines mentioned.

California.

ALPINE COUNTY.

TARSHISH.—*Miner*, July 30: Ore is now found in the face of the work in both claims on the Tarshish lode south of the Schenectady, the Monitor No. 3 and Silver Glance.

AMADOR COUNTY.

ONEIDA.—*Ledger*, Aug. 6th: A new Supt. has been appointed. Everything is in order; the mill is in perfect condition; the shafts are down eight hundred feet and timbered in a substantial manner, and are producing a large amount of quartz.

BUTTE COUNTY.

FORESTOWN.—*Oroville Record*, 6th: Roberts & Co., on Ohio Flat, have cleaned up \$3,000. Bowers & Gaskill have been at work for three years running a bed rock tunnel, and a small space of their claim having yielded some two hundred ounces, they are confident of realizing \$20,000 on the first clean up.

CALAVERAS COUNTY.

NEW MILL.—*Chronicle*, 6th: The Lewis Bros. are erecting a mill upon their mine near Railroad Flat. The battery will be of five stamps. Only the inferior rock will be crushed, the higher grade ore being conveyed to Thoss mill, at West Point. The Co. intend to have the stamps in operation within a couple of weeks. We have it from the best authority that rock of unexampled richness is being taken out.

INYO COUNTY.

CERRO GORDO.—A Los Angeles telegram of Aug. 8th, says: Upwards of 40 tons of bullion from the Belshaw mine goes up by steamer to-morrow.

LOS ANGELES COUNTY.

TELEGRAM, July 31st: Small lots of fine gold received from San Francisco Cañon. More men are working than at any time since the first gold was taken from there, long before the discovery of 1848.

PLUMAS COUNTY.

BIG STRIKE.—The Marysville *Appeal*, of Aug. 4th, says, The Union mine has discovered the Mother lode or extension of the Kettle and Crescent. Great excitement prevails in the vicinity. The ledges opened vary from 10 to 25 feet in thickness.

PLACER COUNTY.

NINETEEN THOUSAND DOLLAR CHUNK.—The Rattlesnake Bar correspondent of the *Star & Stripes*, Aug. 4th, says a piece of quartz and gold has been found in Baltimore Ravine by some Austrians who kept it secret, and have now sent it to the city. The piece weighed 106 pounds: quartz, nine pounds, leaving gold ninety-seven pounds.

The journal aforesaid remarks upon this:—The monster nugget was found upon or near the surface, in a ravine which "has been worked over and over, from mouth to head, dozens and dozens of times, and has as often been considered exhausted."

ST. PATRICK.—We saw on Thursday the finest specimens we have met in our 20 years California life, taken from the drift in the St. Patrick, ten feet from the shaft, now down 128 feet. It was 10 or 12 inches square, 4 to 6 inches thick, and was uniformly covered with fine gold. No doubt can be entertained of the permanence of the St. Patrick. The Mallet mine gives equally favorable indications.

GOLD RUN.—Correspondent of same: The Golden Gate and Church combined, and the Karney claim, have had a clean-up, resulting in an increase of thirty-three per cent. over the previous one. They are now cutting down the top of their tunnel, using 24-inch nozzles with a pressure of 3 feet. The main supply pipe of each is 3,000 feet long, varying from 80 inches at the head to 16 inches at distributor. The Dutch Flat claim, are still pushing their big tunnel ahead and expect to be ready against next season. Brogan & Hoskin, of the Cedar, are about to start their tunnel again. U. S. Wolcott, at the head of the miners' ditch running an extension to the South Yuba, will be through in three or four months. The Buckeye Company, T. Hoos, and some other companies, have done exceedingly well this season. The Oak and Cedar Co. have again commenced prospecting. Last week they were taking out cement in which gold was plentiful. Kelsey & Co. are prospecting a quartz ledge in Squires Canon, and got rock on the top worth nearly a dollar per pound, but as quartz gets more plentiful gold gets scarcer. Mr. Palmatag, is about to open the old Pete Sheeler claim. Philipps & Co., of the Central, are to run a tunnel to get forty feet deeper.

THAT NUGGET.—The Grass Valley *Union* of the 6th, says the report of the discovery of a \$19,000 nugget by an Austrian in Baltimore ravine arose from the fact that two Turks found some good quartz; and so far as it can ascertain the truth, it amounts to nothing more.

The same says the St. Patrick mine, near Ophir, has been sold to George D. Roberts and J. W. Gashwiler of San Francisco.

The Auburn *Herald* of Aug. 6th, says the St. Patrick has been sold to the same parties who bargained for it in June, viz: Capt. Lee, Melville Atwood, Cornise & Co. The claim has passed into the hands of the new owners.

The same says that Simons & Co. had 21 tons of quartz crushed at Empire mill, which yielded \$26 per ton.

PLUMAS COUNTY.

UNION.—This name has been given to the lode recently discovered near Greenville, Indian Valley. It has been sought for by two different parties, of these the latter was H. C. Bidwell, who spent some \$200 in sinking a 290 feet shaft. One year ago, he contracted with J. R. Drury to continue prospecting for the lode, had Mr. D. progressed six hundred feet into the hill without striking anything. Coming back three hundred feet, he started a cross tunnel; when in 50 feet, he struck the vein, which is 14 feet wide, well defined, and shows free gold all through it.

JAMISON AND VICINITY.—An old friend writing from the 76 Mine says:—“The Mammoth have let a contract for running their main tunnel one hundred feet further to open the Eureka chimney, the largest body of ore in the mountain. There are men engaged at Eureka in putting up Chlorination Works, to work the sulphurets.

NEVADA COUNTY.

EUREKA MINE.—Grass Valley *Union*, Aug. 3d. The Eureka yesterday had another melting. The returns from the mill, for 12 days run, were \$28,000 worth of gold bars. The next run will not be so large, since water has become so scarce that ten stamps will have to be hung up. Underground appearances are better than ever.

MEADOW LAKE.—The revival has not yet commenced. So the Assessor says. S. E. Squire & Co. however, are about to work the Grant mine, near Carlisle, and think of putting up a ten stamp mill.

BRANCH MINT.—Same of Aug. 4th: This company have let a third contract, for 100 feet of tunnel, which will make 425 feet into their claims, with 125 feet "backs."

GREEN MOUNTAIN.—Same of 9th: Yesterday a crushing of thirty-four loads was completed and the yield was \$6,512, at \$16 per ounce. The rock was taken out by thirteen men in eleven days.

PERRIN'S MINE.—The four weeks run concluded Saturday, gives a good return. The total yield for the four weeks is \$9,600. Expenses at the mine for the time, \$4,402, and at the mill \$1,203, total \$5,605, leaving a profit of \$3,995. The rock crushed amounted to 410 tons, averaging \$23 40 to the ton.

LARGE CHUNKS.—*Gazette*, 6th: A nugget was picked up yesterday in Fuller & Bowman's claims, Omega, worth \$117. Several other pieces worth from \$10 to \$15 were found.

IN MOTION.—Same of 8th: Stile's new hoisting works were put in motion on Saturday. The pumping and hoisting is done by water power. The incline is down sixty feet. The vein fills the entire face of the incline. Over a thousand tons of rock has already been taken from the ledge at a profit.

KANSAS.—We are informed that rich gravel was reached in the mine last week.

PITTSBURG.—*Transcript*, 9th: In the last two runs of the mill, one of seven days and the other of six, the aggregate yield was over \$12,000—very nearly a thousand dollars a day. The mill has only ten stamps.

NORTH SAN JUAN.—A half interest in the Amokeg Co's claims, was sold by J. Downey to Bowen & Davis, on the 8th, for, \$1,200. There are now four companies at work on the hill, all doing well.

ITEMS.—*Transcript*, Aug. 2d: Rich strike in Mulberry ledge, on Gold Flat. . . . The Lindley is fast gaining the reputation of a first class mine. The ore does not pay largely, but the yield is regular, and the ledge is of great size, being from eight to twelve feet in width. They talk of a 40 stamp mill. . . . The U. S. Grant mine has been leased to Squire & Co. for three years. . . . The Star Co. are running their 8 stamp mill night and day, on work from Orleans ledge.

SEVEN-THIRTY MINE.—Grass Valley *Union*, 10th: We saw yesterday a candle box of specimens just arrived from the

Seven-thirty. Three of these, not one of which was larger than a hen's egg, were valued in the aggregate at \$180. The box of specimens was considered worth \$2,000.

SAN DIEGO COUNTY.

A Los Angeles telegram of July 31st, says: The recent survey of the Cuyamaca

Grant was made in the interest of the miners of Julian District. It is claimed that they show the District to be five miles north, beyond the extreme limit of the grant. The mines are reported showing well, and new quartz mills are going up.

MILLS.—*Union*, July 28th: Martin & Bett, and also Shepherd & Flagg, will put up mills at once. The Skidmore Co. will have a 5-stamp mill running in three weeks.

SHASTA COUNTY.

STRUCK IR.—*Courier*, Aug. 6th: Horace Green, who recently opened a claim on the Banghart lead, Mad Mule creek, has struck the pay streak and taken out \$12 to the pan. We understand that Banghart, who owns the first claim located on the land, has been taking out gold at the rate of an ounce per day.

SISKIYOU COUNTY.

COTTONWOOD.—*Yreka Union*, Aug. 3d: The Sam Richardson and Bill Smith claim, for the six weeks preceding the 16th of July, took out \$5,000, four men working. The quartz mill at Cottonwood has made a short run, crushing 48 tons from the Norfolk ledge, which averaged between \$22 and \$23 to the ton.

PITT RIVER REGION.—From Mr. Sharp, who returned from surveying a road in Big Valley, we learn that mines have been struck in the mountains, eight miles south of Adin, and that thirty persons are at work.

TULARE COUNTY.

NEW DISCOVERY.—*Visalia Delta*, Aug. 3: We have been shown specimens of silver ore discovered on the divide between the waters of Tule and Kern rivers. Several assays have been made, running from \$75 to \$150. The specimens are from a depth of 12 feet, and the ledge is well defined. The district has been laid off and a code of laws adopted.

TUOLUMNE COUNTY.

OMEGA TUNNEL.—*Sonora Democrat*, August 6th. The tunnel is nearly through the rim rock, the work having been going on 18 months. In "51" a shaft sunk from the top of the mountain prospecting \$2.50 per ton. Hughes claim and the Humbug just above are paying well.

A PROMISING VEIN.—On the west side of Table Mountain, Mr. Newton and another have developed a quartz vein twelve feet in width; of this, three feet is first-class paying ore; and prospects at the rate of one thousand dollars a ton.

ITEMS.—On the Blue Gulch lead near Chinese Camp a tunnel being run from the bottom of the ravine, will tap the vein many feet lower than heretofore and will cost \$30,000.

B. F. Heslep has purchased the Quartz Mill on Bald Mountain, to put on his lead at Quartz Mountain.

Totten and Griffin are sinking three hundred feet deep on the App vein.

Arizona.

BIG BUG.—*Prescott Miner*, July 23d: The latest news is good. The mill was running and the lode showed better than ever.

RICH ROCK.—Mr. Frink, of the Vulture, last week showed us some very rich pieces of ore from the bottom of the deep shaft. The mill was running satisfactorily.

LYNN CREEK.—C. Y. Shelton has indeed struck it rich in the Vernon. Out of a little more than two and a half tons of rock, crushed in his arrastra, he obtained two pounds and three ounces of clear gold, worth \$17 per ounce! And he has plenty of the same kind of rock left. Uncle Billy Pointer is getting out rock very rich in ree gold.

Colorado.

ITEMS.—*Central City Register*, Aug. 3d: West level in the Seaton is 74 feet from the whim shaft. The crevice is ten feet between walls, and carries rich mineral. . . . Sam. Allen brought to mill at Montezuma 1,500 pounds ore from the Register o'e. After crushing and sampling, it yielded by assay 78.5 ounces of silver. . . . About 18 cords of ore per week are sent to the stamp mill from the Consolidated Bobtail mine. . . . Seven to ten tons are weekly shipped from Grand Island District, mostly from the C. ribbo mine. . . . Alex. Cameron retorted 57 ounces of gold from his mines on North Clear Creek last week. . . . A specimen from "No Name" ledge, Grand Island, assayed 318 ozs. silver per ton. Joseph Shaw is the owner. The crevice is three

feet wide. . . . The Grass Valley Mining Co. are running 77 stamps on Rhoderick Dhu and prize ore. . . . The Western Smelting Co.'s works at North Clear Creek will soon be in operation.

WARD DISTRICT.—*Boulder News*, 3d: The Niwot mill is running on old wall rock that had been thrown away, taking out more money than it has done for the last two years. . . . Williams & Co. are running the Long Peak mill, and doing well. . . . Hoover, Carson and Hodges are sluicing the Columbia on Niwot Hill, and taking out \$6 a day to the man.

JIM CREEK.—John Keen and Charley Stewart are running four arrastras, on ore from the Blue Jay. . . . Jack Virdin is running two arrastras. . . . Charley Davis is working the Blue Jay.

GRAND ISLAND.—Carter & Co., on the east extension of the Boulder County lode, are sinking two shafts, 500 feet apart, and have 15 to 18 inches of good ore.

TERRIBLE.—*Georgetown Miner*, July 28: The Supt.'s report for April, May and June shows that the second-class ore has more than paid all expense of work done at the mine. The value of the first-class ore shipped to England, and now ready for shipment, is \$24,375. The average yield of the first lot shipped was 500 ozs. per ton. Value of third-class ore on hand, less the cost of treatment, \$8,625. Total profit for the first quarter, \$33,000, or \$11,000 per month.

CASHIER.—At the bottom of the shaft, 60 feet deep, the vein is 8 feet wide between easings. Thirteen tons average ore gave a yield of \$135 per ton. The first-class ore yields \$450.

SUMMIT.—There are 75 men placer mining in Union District. . . . Hiff, Pollock & Co. have struck bed rock in French Gulch, and it pans out rich. . . . Mr. Martin was the finder of an unget weighing ten ounces, near Lincoln.

ITEMS.—Snow Drift ore specimen gave by assay \$1,950 per ton. . . . First-class Quaker ore, Sherman Mountain, milled \$210 per ton. . . . The Brown & Coin are producing very rich ore. The Brown Co. have men at work.

Idaho.

YUBA DISTRICT.—*Statesman*, Aug. 2d: We learn from Dr. Bishop, who has just arrived from England, that a wealthy company has been organized in London for developing the Atlanta Ledge. It is the intention to erect a twenty stamp mill at once.

Mining on the Boise river is nearly suspended for the season. A few claims are still being worked at good wages.

ITEMS.—*Avalanche*, July 30th: The McMahon Bros. are taking ore out of their 30-foot shaft at Red Mountain, which shows free gold largely. . . . Thirty-five tons Empire ore recently worked at the Cosmo mill. . . . Pete Nick takes ten tons daily out of the Mahogany. . . . Golden Chariot vein is still as large and rich as ever. . . . Rich ore still coming out of the Morning Star. . . . Capt. Myrich has purchased the Ainsworth quartz mill, and intends to work surplus Oro Fino ore with it. . . . Same of Aug. 6th: W. F. & Co., ship \$14,000 Owyhee bullion to San Francisco this morning. . . . W. R. McDaniel has bonded the Long Gulch

SNAKE RIVER.—Wm. R. Usher returned from the mines on Sunday. He reports good diggings, but not enough for half the people. He says there are 600 men in and around the mines.

Montana.

PILGRIM'S BAR.—*Helena Gazette*, August 1st, Blair's first clean up after a run of five weeks, was \$5,500, Holcombe, Berry & Co. made a clean-up of \$6,700 for seven days run.

PIKES PEAK.—Capt. Eastin, Maj. Irvin and Mr. Fly sold their grounds on Dry Gulch for \$2,800. Steel, Ketchum & Co. cleaned up \$5,000 last week. Holcomb, Roe & Berry \$6,080; Rodgers & Co. \$3,000. Col. Blakeley & Co. will soon be on bed-rock I W. Morrison & Co. \$3,000. The camp turns out \$25,000 every week.

PHILLIPSBURG.—Cor. of same: Merrill and Ulery are one hundred and six feet down—have cut the vein five feet thick. The quartz, averaged \$40 per ton. The Saunders Co. have placed their furnace under the supervision of two White Pine men. On Monday the trial run will be commenced.

The Cameron mill is still running, with plenty of rich ore.

At Georgetown, Jimerson has struck bedrock and is taking out from fifty to sixty dollars a day to the man. Coleman and Fishbee four mills east have completed three arrastras. Mr. C. thinks from tests made of the ore it will average fifteen or twenty dollars.

RADERSBERG.—Cor. of same Quinn & Keating, on Crow Creek, cleaned up \$1,604 for six day's run, four men shoveling. Quinn & Howe cleaned up \$800, or one week's ground shoveling, for four men. Several claims are paying \$5 to \$8 per day to the man.

HIGHLAND.—New North-West, July 10th The Only Chance Co., have purchased the Ledoux saw mill and will attach two arastra beds to the wheel—making ten beds running. They are now 275 feet below the surface in their main shaft.

Harvey, Day and Co., Moose Creek, will have their arastra running in two weeks.

CIDAR CREEK.—From 1,000 to 1,200 men are mining. 100 sluices now running. The gulch is yielding from \$3 to \$40 per day to the hand. The claims opened will average wages. The ground is principally the shallow cañons. The deep ground is the reliance of the camp.

ITEMS—Independent, July 30th: Johnson & Prior, at Snowshoe Gulch, have discovered a bar that pays \$50 a day to the man.

DIAMOND.—The water is low and miners are just getting into the gulch. Stafford & Co., of Cañon Ferry, have 27 men at work on their ditch extension, and will have a supply of water into the foot-hills of Cave gulch by the middle of August.

New Mexico.

ITEMS—Press and Telegraph, July 23d: The Atzee mill on Ute is paying large dividends.

GROUSE GULCH.—Bowers & Pollock cleaned up from a six day's run, 95 ounces of gold.

Eight companies are at work taking out 300 ounces per week. Since the ditch has been running there have been three clean ups on the claim of Calhoun Deane and Sullivan, netting 187 ounces. Five days and two nights run the present week realized 79 ounces and 9 pwt.

Same of July 30th, The Chester Quartz Mill has been running 20 stamps during the week. Spanish Bar for weeks has been running over its range of \$6 per man.

THE MAXWELL GRANT.—The deed of sale has been recorded. The sum named is \$1,350,000.

PETROLEUM IN INDIA.—Mr. B. S. Lyman, of Philadelphia, who was sent for by the British Government to explore the petroleum deposits of India, has written home several private letters, which are conlensed in the "Mining Register." The rocks in the Punjab, whence Mr. L. wrote, are cretaceous and tertiary, and the oil seems to be in the same formation as that of the petroleum belt of Italy along the north and east foot of the Apennines, from Pavia in the Po valley to Bari and Brindisi on the Adriatic. The Italian wells have never yielded more than a few gallons per day. Mr. Lyman says that, in the Punjab, the oil places are all quite separate from each other and often many miles apart. The deposits are very limited, from a few feet to a few score yards, at most. The dips are steep, seldom less than 45°. The oil, or rather the tar, oozes from bituminous spots in a sand rock some 50 feet thick; also from similar spots in a very coarse conglomerate, nearly as thick, above it; dip only about 25°. Several wells are being sunk. The best yield yet is 5 or 6 gallons per day, at Gunda.

THE UNION COPPER MINE SUIT has been decided by the Supreme Court of the State in favor of the plaintiff, who recovers two-thirteenths of the mine, and judgment for \$125,598. This names of the wife and daughter of one of the discoverers of the mine were put in the list of owners posted on the claim. These names were afterwards omitted, and the persons thereafter treated as having no interest in the mine. The daughter, then a minor, with no knowledge of the use of her name, brought suit to recover. The court held that when a title to a claim has been vested in a person under the mining customs, it cannot be taken away except by due process of law, the same as if a deed were recorded, giving real estate to a child, in which case the deed cannot be afterwards taken back.

IRON.—The Folsom Telegraph has been informed that an iron mine has been discovered in El Dorado county, in the hills between Jayhawk and Green Valley.

San Francisco Stock Market Review.

MISCELLANEOUS STOCKS.

During the past week, sales of Spring Valley Water Co. stock were made at \$68 25 per share. —The Union Pacific Salt Co. disbursed a dividend of $\frac{3}{4}$ per cent. on the 10th inst. —A dividend of $1\frac{1}{2}$ per cent. is announced by the California Trust Co. for the current month. From the usual monthly statement of the Company, for the month of July, 1870, we take the following:

Capital Stock paid in.....	\$300,000 00
Surplus earnings.....	61,040 88
Cash on hand.....	117,057 29
Loans outstanding.....	512,343 77
Deposits with Company.....	572,453 83
Sales, Furniture, etc.....	5,041 63
Dividends uncollected.....	958 00
Dividends declared since January, 1870.....	21,875 00

From the annual report of the Secretary of the California Insurance Co. we obtain the following totals: Receipts, \$231,928; disbursements, \$138,950. Assets July 30, 1870: \$374,777; liabilities, including reinsurance, \$46,904—surplus, \$327,873. Dividends, \$30,000; profits, \$71,213. A dividend of 1 per cent. per month is now payable. The following officers have been elected for the ensuing year: Directors, Alpheus Bull, Jerome Lincoln, W. C. Talbot, Judah Baker, Jr., Thomas R. Hayes, Wm. Scholle, Samuel Merritt; President, C. T. Hopkins; Vice-President, H. B. Tichear; Secretary, Zenas Crowell.—The People's Insurance Co. disbursed their customary 1 per cent. dividend on the 10th inst.

The following quotations have been carefully revised by F. H. Woods, Broker:

Federal, State, County and City Bonds.			
Name.	Bid.	Asked.	
U. S. Bonds, 5-20s—1865, '67, '68.....	94	96	
U. S. Bonds, 5-20s—1864.....	94	96	
U. S. Bonds, 5-20s—1862.....	94	96	
Legal Tender Notes.....	99	99	
California State Bonds, 10s, 1857.....	98	100	par & int.
San Francisco Bonds, 10s, 1851.....	95	95	par & int.
San Francisco City Bonds, 6s, 1855.....	94	96	
San Francisco City and County Bonds, 6s, 1858.....	94	96	
San Francisco School Bonds, 10s, 1861.....	92	94	par & int.
San Francisco City and County Bonds, 10s.....	92	94	
Sacramento City Bonds.....	92	94	
Sacramento County Bonds, 6s.....	77	80	
North Beach and Mission Bonds, 10s.....	85	90	
Stockton City Bonds.....	85	90	
Yuba County Bonds, 8s.....	85	90	
San Clara County Bonds, 10s.....	85	90	
Butte County Bonds, 10s, 1860.....	85	90	
San Mateo County Bonds, 10s.....	80	—	

San Francisco and Miscellaneous Stocks.			
Name.	Bid.	Asked.	
California Steam Navigation Co.....	45	47	
San Francisco Gas Co.....	68	70	
Sacramento Gas Co.....	68	70	
Spring Valley Water Co.....	68	68 1/2	
Omaha Railroad Co.....	70	75	
Central Railroad Co.....	70	75	
North Beach and Mission Bonds, 10s.....	70	71	
Do do preferred.....	—	15	
Fireman's Fund Insurance Co.....	107	108	
Marine Insurance Co.....	107	108	
Merchants' Mutual Marine Insurance Co.....	580	580	
California Insurance Co.....	100	105	
Union Insurance Co.....	94	99	
Occidental Insurance Co.....	95	97 1/2	
People's Insurance Co.....	88	96	
The Bank of California.....	127	130	
Pacific Bank.....	97 1/2	100	

MINING SHARE MARKET.

A marked activity manifested itself during the past week in a number of prominent stocks on the list of the Board, resulting in largely augmented aggregate sales as compared with a like period for some time past. The leading stocks have been Savage, Ophir, Yellow Jacket, and Original Hidden Treasure, most of them showing a slight recession at the close. There is an improved disposition upon the part of outsiders to enter the market, mostly brought about by a more than usual speculative movement in which all dealers wish to participate. White Pine looks more hopeful, and reports are more promising. The quarterly reports to the Assessor of two leading mines are as follows: South Aurora—reduced 2,833 tons of ore, showing a hullion return of \$133,982, equal to \$47 29 per ton; and Original Hidden Treasure—reduced 2,472 tons, yielding \$119,425 in hullion, or \$48 31 per ton. For the week ending August 6th, hullion amounting to \$39,139 was sent to San Francisco from White Pine, and \$12,358 to New York.

CHOLLAR-POTOSI—has been in the market at a good figure. During the week closing August 6th, 1,700 tons of ore were mined, showing an average assay value of \$68 10 per ton; previous week 1,580 tons were produced. This affords great encouragement to stock dealers, as all the ore-producing sections give promising results for the future. At present the track floor of the Potosi Tunnel, going south in the Belvidere section, is reported to exhibit excellent ore. A dividend of \$2 per share is payable since the 10th inst. The hullion product for the month of July aggregates \$261,227, against \$215,548 in June.

Commercial Herald.

The French Ministry has been obliged to resign. A new one has been appointed. Paris is greatly excited. Parisians will please keep quiet for two days.

Salt Works in Alameda County.

The amount of common salt used yearly is increasing as the developments of chemical science advance the demands of civilization. Salt is not only indispensable as a condiment, and in the curing and preserving of meats, butter, etc., but is also largely employed in roasting ores and for fertilizing purposes. For preserving articles of food purity is also indispensable.

The great abundance of salt existing in nature is indicative of its importance. Without it, the ocean would be one vast sea of corruption, intolerable to human life. In many places in the world immense beds or strata of salt are found and extensively mined. The largest one known is in Poland, which underlies quite a large tract of country and is over a thousand feet deep.

The manufacture of sea salt is quite an extensive business in some parts of the world. On the Atlantic States coast, where it once flourished, but little attention is now given it. The numerous brine springs in Michigan, Ohio, Kentucky, Virginia and New York yield an immense quantity of good salt, which is appropriated by manufacturers. On the Pacific coast there are also many salt, alkaline and mineral springs, some of which will eventually prove of value to the manufacturer.

In New Mexico, Arizona, Nevada and Utah some very extensive fields of salt, soda, &c., the accumulated product of springs, await the demands of man. Several of these deposits are now worked for the use of miners, etc.

The interior alkaline deserts of this country contain untold wealth in fertilizing materials, could it but be placed within reach of the Eastern agriculturists. Salt enters largely into the composition of the alkalis on these desert plains. But we designed more especially to notice, in this connection,

The Salt Interests in Alameda County.

Between the towns of San Leandro and Harrisburg there are immense fields of marsh land, mostly grown over with grass, with many natural, shallow ponds or basins of considerable extent, and which are under water at high tide. These flats are divided by several streams which are navigable for small vessels at high tide. The clayey, compact nature of the adobe soil is admirably adapted to the clean deposit and easy gathering of the salt.

In preparing these basins for the manufacturing of salt, it is only necessary to throw up small dykes from one to three feet high. Several flats are so inclosed, of such size as may appear convenient, and communicating with each other. The water is first let into one of these, where it is allowed to settle and evaporate for several days, when it is conducted into a second basin and evaporated by the sun and wind until it is a strong brine and commences to deposit salt, then it is turned into a third pond, where it remains until the water is all dried out and the salt is ready to be gathered up. The salt is then scraped together into convenient piles with wooden implements and shoveled into cars that are run upon movable plank tramways to some convenient point where it is put into gunny-sacks and carted to the warehouses to await shipment to San Francisco. This business of collecting salt has been followed here for some years, and it is increasing in importance every year. There were shipped to San Francisco something in the neighborhood of 6,000 tons from these salt fields last season, and there will probably be one-third more produced this year.

Mr. John Quigly, of Alameda, who owns quite extensive salt basins, informs us that this year, during the month of June, the drying weather was unusually advantageous to salt-making, and that the month of July was not so good as it gen-

erally is, owing to excess of moisture in the air.

The best months for evaporating are generally August and September. We would here suggest the propriety of some measures being taken by our Agricultural Institute to keep a record of the daily evaporation in these salt basins, to be noted in connection with effects on vegetable growth, &c.

The best crude sea salt is far from being pure. Pure salt is composed of sodium 39.3 and chlorine 60.7 to one hundred parts; while unrefined sea salt contains in addition, bromides, sulphates, silicates and carbonates of the bases—limes, potassa, magnesia, etc. The salt produced in Alameda County is remarkably free from sand, as the shores are marshy and the winds favorable. The price of salt by the ton averaged the producers about \$9.00 last year, ranging from \$7.50 to \$13.00. It is \$8.00 to \$9.00 this season at the landings.

Mining Shareholders' Directory—Meetings, Assessments and Dividends.

[Compiled weekly from advertisements in the SCIENTIFIC PRESS and other San Francisco journals.]

ASSESSMENTS.			
NAME, LOCATION, AMOUNT AND DATE OF ASSESSMENT.	DAY	DELINQUENT.	DAY OF SALE.
American, G. H., June 13, \$3.....	July 18	Aug. 6	
Aurora Cons., W. P., July 7, \$5.....	Aug. 10	Sept. 1	
Alpha Cons., G. H., July 13, \$1.....	Aug. 22	Sept. 20	
Brush Creek, No. 1, W. P., June 1, \$5.....	Aug. 4	Aug. 24	
Crown Point, G. H., Aug. 5, \$2.50.....	Sept. 8	Sept. 29	
Cosala, July 30, \$1.....	Sept. 6	Sept. 27	
Cherokee Flat, B. G., June 17, \$5.....	July 10	Aug. 9	
Cons. Virginia, Storey, July 6, \$1.....	Aug. 10	Sept. 1	
Daney, Lyon co., July 8, \$1 50.....	Aug. 11	Aug. 30	
Excelsior, Argentina, June 22, 20c.....	July 30	Aug. 20	
Land Purchaser's Assn., No. 1, W. P., June 1, \$5.....	Aug. 4	Aug. 24	
Peckham, W. P., June 14, 20c.....	July 20	Aug. 11	
Empress, G. H., Aug. 4, \$6.....	Sept. 8	Sept. 26	
Gould & Curry, July 14, \$12.50.....	Aug. 18	Sept. 12	
Hall & Van Dyke Cons., June 7, 50c.....	July 23	Aug. 20	
Julia, July 22, 75c.....	Aug. 25	Sept. 12	
Jennie A. Cons., W. P., June 20, 10c.....	July 25	Aug. 16	
Lafayette, W. P., June 2, 15c.....	July 14	Aug. 6	
Land Purchaser's Assn., No. 2, W. P., June 1, \$5.....	Aug. 4	Aug. 24	
Mountain City, Elko co., July 14, 25c.....	Aug. 29	Sept. 26	
Nouday, W. P., July 20, 20c.....	Aug. 24	Sept. 30	
Nevada L. & M. W. P., July 12, 1c.....	Aug. 11	Aug. 29	
N. Bloomfield Gravel, June 20, \$5.....	July 23	Aug. 9	
North America Cons., June 16, 50c.....	July 17	Sept. 7	
Onion, Sierra co., July 7, 25c.....	Aug. 2	Aug. 30	
P. P., July 7, 10c.....	Aug. 25	Sept. 15	
Pogonip Flat, W. P., June 15, 3c.....	Aug. 2	Aug. 15	
Placer G. & C., Placer co., June 11, \$2 July 26.....	Aug. 16	Aug. 16	
Silver Vault T. & M., W. P., July 20, 5c.....	Aug. 25	Sept. 15	
Sophia Cons., 50c.....	July 27	Aug. 16	
Wheeler, Pine Grove, June 23, 50c.....	July 30	Aug. 22	

MEETINGS TO BE HELD.

Meadow Valley.....Annual Meeting, Aug. 18

.....Annual Meeting, Aug. 8

LATEST DIVIDENDS.—(Within Three Months.)

Eureka, div., \$7.50.....Payable Aug. 6, 1870

Hale & Norcross, div., \$5.....Payable August, 9 1870

North Star, div., \$5.....Payable May 5

San Marcial, div., 50c.....Payable June 10, 1870

Union, div., \$1.....Payable Aug. 5, 1870

—Advertised in this journal

NEW WORK BY KUSTEL.—"Roasting of Gold and Silver Ores, and the extraction of their respective metals without quicksilver." Under this title Dewey & Co., of the Scientific Press, San Francisco, will soon publish an excellent work by Guido Kustel. The reputation of the author renders unnecessary any further recommendation of the work, which, it is said, will be a clear and complete treatise on these subjects, which are of so much interest at the present time. Miners and others will find it of great value. The various methods and furnaces employed in roasting, and chlorination and lixiviation with the different manipulations and apparatus, will be fully described, and amply illustrated, together with remarks on the various advantages and disadvantages of each process, and their special application on this coast.

We would be glad to see fifty copies of this work in the hands of those having charge of and interested in mining operations in Alpine. Kustel is on the right track, as time will show.—*Alpine Miner, Silver Mountain, Cal.*

The above work contains 120 pages, and the price is \$2.50 coin or \$3 currency. For sale at his office.

It is a great thing for elderly persons to have their fading eyesight restored to its youthful perfection. This can be done by Muller, who is recognized as the optician of the Pacific coast. His Brazilian spectacles, properly fitted and adjusted, are superseding all others in use.

TO MINERS, MILLMEN AND METALLURGISTS. Kustel's new work on the Concentration of all kinds of Ores, and the Chlorination Process, for Gold-bearing Sulphurates, Arseniurates, and Gold and Silver Ores generally, is the best and most complete work issued. It contains 120 diagrams, illustrating machinery, etc., which alone are of the greatest value. Price, \$7.50, postage paid. Published by Dewey & Co., publishers of the Scientific Press, San Francisco.

A VALUABLE BOOK FOR INVENTORS AND ARTISANS.—Dewey & Co., publishers of the Scientific Press and Patent Agents, have just issued a neat little volume of over five hundred well executed cuts of the principal mechanical movements known. These useful reproductions of the various appliances of power are printed side by side with explanatory notes, which makes the subject clear to every reader. Such a book should be in the hands of every mechanic, and form part of every public school library. It is a handy book, and cheap enough for every farm, shop and factory. Sent to any address from the SCIENTIFIC PRESS office, postpaid, for \$1.—*New Age.*

Farming and Gardening.

COMMUNICATIONS for this department are solicited from all parts of the Pacific States and Territories.

How Roots Grow and Feed.

The growth of roots occurs chiefly from a process of lengthening. Their increase in thickness is very slow, and the lengthening process is confined chiefly toward the outer extremity of the root. Take a young root of any annual, and mark it off into four equal lengths, and almost the entire increase will be made in the last or outermost division—and chiefly on the last inch from the tip.

But little or no nourishment is taken up by the main roots or even rootlets of plants; their sustenance being obtained, almost entirely, through the little hair-like appendages attached to the main roots, and which are known as root-hairs. The tips of roots, do not, as is generally supposed, collect food for the plant. The true service of this portion of the root is to push forward through the soil, and thus make room upon its constantly increasing surface, for the further outgrowth of these hair-like appendages, through which the plant is fed. In fact the extreme tips of the main roots cannot take up liquid at all. Their use, growth, and mode of work will be illustrated and explained in a future article. All other parts of the root, so long as they continue to present a delicate surface, are constantly throwing out these little feeders in search of food. These in deciduous trees, drop off every season about the time the leaves fall; and, like the leaves, are renewed the next spring. They are the mouths, as the leaves are the lungs of the plant. When roots



FIG. 2.

are grown in a rich soil they are usually short, thick and matted. In a barren soil they are long and attenuated—the feeders are usually more numerous, but at the same time more scattered, so as to be prepared to gather up nourishment from a larger area. If the nourishment is to be found near the surface, the roots go there after it; if at a considerable depth, the roots go down to where it is, if the nature of the soil is such as to allow them to penetrate. Thus the root system accommodates itself to its circumstances, by what seems to be almost a natural instinct. Indeed, this propensity in plant roots to always go directly to where their food chances to be has sometimes, and not inappropriately, been called vegetable instinct. We have already shown in past numbers that even such frail plants as our serials will sometimes go down to the depth of from five to seven feet. Of course perennials, which continue to increase year after year, grow to a much greater distance and depth. The total aggregate length of the roots of a plant is generally but little understood. Careful measurements have shown that, under some conditions, a vigorous barley plant will have an aggregate of 128 feet in length of roots, while oats have been known to reach an aggregate of 150 feet. The aggregate-length of roots depends very much upon the nature of the soil. In rich and porous ground a barley plant will generally produce about 130 feet in length of roots; but in a coarse, poor, or very compact soil a sim-

ilar plant will develop, even under otherwise favorable circumstances, not more than 80 feet of roots.

In drawing a plant from the earth, a small portion only of the roots is brought up, as the root-hairs are very frail. Fig. 1, represents a mustard plant just starting, which has been carefully taken up from the earth, and the dirt as carefully removed by the aid of water. It will be noticed that the entire root is thickly covered with hairs, except the tip, which was at the time rapidly pushing its way into the soil.

The root hairs are exceedingly delicate in their construction. They are not, as their name would import, a substance different from the surface out of which they grow, like hair upon animal bodies, but they are simply tubular and outgrowing elongations of the outer cells of the roots, through the walls of which the nourishment of the plant is taken up. Fig. 2 is a portion of a barley root highly magnified, showing the cells of the root and the manner in which the root-hairs grow out from them. As already stated, the nourishment of the plant is received through the walls of these little hairs or tubes, and it is then conveyed to the interior of the cells, whence it passes on and up to the leaves of the plant, where it is properly elaborated by contact with the atmosphere and distributed throughout the leaves, stems, trunks and fruit, to add to and build up all those parts of the plant.

There are a few plants which are destitute of root-hairs, among which may be mentioned, among the larger plants, the silver fir—*Abies pectinata*—and, among the smaller, the common onion. The rootlets or small roots (not the root-hairs) of all such plants are of an exceedingly delicate structure, soft and spongy—not corky—nearly or quite white, with a cuticle highly favorable to absorption. It is by reason of this peculiar and delicate structure that such roots are enabled to obtain their nourishment direct, without the intervention of root-hairs. We might almost as soon think of absorbing moisture from the ground through the walls of india rubber hose, as through the thick, hard walls of ordinary root growth.

We are indebted to Johnson's "How Crops Grow" for the original of the engravings and for most of the ideas given above.

DROUGHT AND MOISTURE.—We are told of a somewhat singular effect on certain vegetable growths produced by the hot weather of June, followed by the cooler days of July. Potatoes that were planted in Alameda County for an early crop were so checked by the dry, hot weather of June that the more favorable weather of July caused them to take a second growth, by which the crop is nearly ruined. In some cases beans were so blighted by the excessive dryness and heat of June that but little yield will be derived from them; in others the propitious weather of July has brought out a new bloom which promises a fair harvest.

GOOD FARMING.—A writer says: "Crops can be harvested at a time when they take little fertility from the soil. It is the ripening of grass which injures the hay and soil." This remark is true as applied to grasses. The formation and growth of seed abstract from the richness of the soil.

The formation and ripening of the seed is mainly at the expense of other portions of the plant, not the soil. The material for that formation has already been taken from the soil when the plant is in flower, so that it makes but little difference in the exhaustion of the land, whether the hay be cut in bloom or when fully ripened.

BUTTON ONIONS.—Mr. J. Ralph, of Alameda, on a strip of soil twenty-seven rods long by one rod wide, from 500 lbs. of onions set for seed, produced this year 1,000 lbs. of button or top sets. This is a very extraordinary yield.

Grain Markets, as affected by Seasons.

BY PROFESSOR ROWLANDSON.

It being now a pretty well accepted axiom, by the mercantile interest that the equilibrium of grain values, throughout the world, is mainly guided by the prices ruling in British Markets, and as the latter depends in a large measure on the climatic influences which may prevail in the British Isles at various seasons in each succeeding year, it becomes an interesting subject to Californians to be well acquainted with the character and times at which certain atmospheric influences are calculated to affect the cereal harvest of the British European Dominions. By being well posted on the respective influences of the climatic phenomena alluded to, the thinking California farmer will be enabled to judge, equally with the great grain operator, of the effect which may reasonably be anticipated upon permanent prices, on the occurrence of any great climatic change at certain critical seasons of the year. By knowing these facts, farmers would be less liable, in the sale of their wheat crop, to be misled by "canards" or what has sometimes in this State been equally injurious to their pecuniary interests, by being induced by well meaning, but mistaken friends, to hold their grain for high prices at times when the markets of San Francisco presented fair ones as compared with others throughout the world, and when no reasonable argument could be adduced to show that higher terms would be speedily attainable. The money lost by California farmers by unwisely holding, probably exceeds tenfold that which they have lost by hastily selling.

Extreme Prices during the past fifty-one years.

Greater variations have taken place in grain values in Great Britain during the past century than in any equal period of its history, and within that time the most remarkable changes have occurred within the last fifty four years, the most remarkable occurring in the years 1816 and 1835, in order that this may be more easily understood I have subjoined a short table.

Year	per quarter	per bushel	per cental	or per 100 lbs
1816	50 shillings	22s-6d	36s	\$9.00
1835	35 do	4s-4d	7s	1.50

Last year the average price of wheat in England was forty five shillings and three pence per quarter; on the 28th June the price was forty five shillings and two pence per quarter—the lowest for the season. *The latest telegraphic quotation of California wheat is 10s. and 10d. per cental or 6s. 10d per bushel, or 54 shillings and eight pence per quarter. It should be borne in mind always that the best California wheat on an average ranges twenty per cent above the average price of English wheat in English Markets. It may be here mentioned that the character of the year 1816 is vividly impressed on the writers memory on other accounts, from the mere fact that a sound wheaten loaf was not obtained oftener than once out of three purchases from the flour dealer; it is probable that such another dearth as respects wheat will never again take place in the British Isles. To explain however the external circumstances that would render such an event improbable though of considerable interest, would occupy too much space. In the celebrated potato famine year of Ireland, the best wheat obtained one hundred and thirty shillings a quarter or about seven cents per pound; this too was an extraordinarily exceptional year but can scarcely occur again in such an aggravated form; as free trade renders such a circumstance almost impossible.

Seed-time may be too wet or too dry.—Frost.

Some of the incidents which will be touched upon, at one period possessed a much greater influence on prices than they are now or are ever likely to do again, free trade and improved modes of culture having greatly ameliorated their mischievous tendency—These remarks specially apply to seed time, which during the protective system was watched almost as anxiously by speculators as the harvest. Seed time may be dry too or too wet, material injury from the former rarely occurs, unless it is very prolonged; and thus throw the seedling so late as to be affected by heavy rains; such a circumstance is however very rare, and usually only productive

of partial injury. Cases however have occurred where forward farmers who have sown their wheat at a dry period in September have had to re-sow, but such very early sowers are sparse indeed, in fact agricultural curiosities. If seedling can be accomplished during the two mid weeks of October the future crop will probably never be injured at seed time by a too prolonged drouth; at all events, I have never known an instance of such taking place—At a critical condition of stocks of grain, speculators may sometimes be induced to purchase in the expectation of a rise on account of an unfavorable seeding period; but it would be hardly prudent for a California farmer to place any great dependence for enhanced prices on a too dry British seed time; and unless markedly by severe, or followed by a too wet one, it will be much better for him in the majority of cases to sell on the first rumor of a rise on either account; in the latter case rumors of an adverse character usually become current from November to January; that is immediately after the season has so far progressed that all danger from over aridity has disappeared. A wet season may however continue with intervals of frost from November to March in which the latter sometimes plays an injurious part on light and black soil, owing to the freezing of the moisture raising the friable soil in consequence of ice expansion, which contracts on melting from the solar influence. In this way the plants become partially or wholly drawn out of the ground; as until May they are retained in place chiefly by their superficial roots. A succeeding night's frost will probably destroy them. Drainage and "the presser" the latter especially on light sands are sufficient preventives, this instrument might be found advantageous on the light soil of California.

—*Written within a few days after the preceding date.
[CONCLUDED NEXT WEEK.]

Flax Culture.

There are about 450 acres of flax now under cultivation in Alameda County, the most of which is grown in Amador Valley, not over ten acres of which will be utilized for fiber. The yield of seed, however, will undoubtedly be good. Mr. F. Malten, near Alvarado, has thirteen acres that will yield finely. He cultivates the Russian variety. It stands thirty inches high in the field. He will rot a part of his straw for the Oakland factory to experiment with.

Several farmers in Santa Mateo and Santa Cruz and one or two other counties are also cultivating flax to some extent. The seed, a market for which can always be had in this city, pays for the culture. Hitherto the Oakland factory has not been able to substitute flax fibre for jute in their bag manufacture, owing to the disinclination of farmers to properly prepare it. But, as stated above, Mr. Malten will this year so prepare a portion of his straw as to enable the factory to give the hemp fiber a proper trial with their machinery. Should the experiment succeed, a large market for the straw, as well as the seed, will be opened up, which will, no doubt, give a new impetus to the business. The demand for bagging, twine, etc., for this coast alone, if fully supplied here, would give employment to a dozen such mills as the one now in operation at Oakland and greatly enlarge the area of flax culture in the State. Flax culture in California is a settled fact, and the utilizing of the fiber is only a question of time.

A MODEL FARM.—Thos. G. Price, of Cottonwood, says the Marysville Appeal, has one of the best farms in the whole of Northern California. He has about 640 acres of land, about 500 of which are under cultivation, and his grain will turn out from 35 to 40 bushels to the acre. He has just finished heading. His barn has no superior north of Marysville, and is 64 by 80 feet, two stories high, and arranged in the most convenient manner, and all the improvements on the place are in keeping with it. Mr. Price is one of those farmers who follow farming as a business and not as a speculative enterprise, and his place reminds us of those that are to be seen in the older States.

OLD HAY.—Peter Shurtz, a farmer living in Clifton, N. Y., has in his barn hay that was cut fifty-four years ago. It is said to be as bright and sweet as any cut this summer.

Agricultural Editors' Meeting.

At the meeting last week of the Agricultural party at the Mechanics' Institute, to hear something concerning the resources of California, quite a large number of persons were present. General remarks were made by Mr. Hallidie, of the Mechanics' Institute, and Mr. Reade, of the excursionists. Ira P. Rankin gave a sketch of the iron interest. Prof. Carr made some interesting remarks on our agriculture and gave some reasons for the great fertility of the soil. The lumber interest was represented by Mr. S. Wetherbee, who said the number of mills on the Coast was forty; the number of men for each mill was averaged at 100; 40 ships, 30 brigs and 60 schooners are engaged in transporting this lumber and employ about 1,000 men, while some 2,000 men are employed in this city in handling the timber; the annual production is about 150,000,000 feet, worth some \$8,000,000. Mr. Shaw and Mr. Haskell spoke of our fruits. Mr. Harszthy said there were some 30,000,000 grape vines in the State; that Sonoma vineyards average 350 to 400 gallons of wine per acre, worth at the vineyard 25 to 35 cents. The average cost of getting land, setting out vines etc., he put at \$150 per acre, and the average yield at \$50 to \$90 net. The estimated production this year will be five to six million gallons. Mr. D. McLoon thinks the next wool clip will amount to some 20,000,000 pounds, worth \$4,000,000. Of this amount, about 4,000,000 lbs. would be worked in the California and Oregon mills, which employ 80 sets of machinery, worth \$660,000. Messrs. Phelps, Rowell, Dunn, and Clapp then had the floor, after which the guests were represented by Messrs. Lyman, Curtis, Quinn and Smith, who made interesting remarks. The company then adjourned to test samples of California wine and cake, which were provided in a neighboring room. Most of the party left for the East on Friday of last week.

CALIFORNIA FARMERS AND THE ENGLISH GRAIN MARKET.—In another column of to-day's issue, some observations by Prof. Rowlandson will be found, on the influences exercised by climatic agencies on the wheat markets of Great Britain; a careful study of which will enable the California farmer to judge, as well as the shipper, speculator or newspaper writer, as to the probable consequences which may result from any unusual climatic changes on the prices of wheat. The London and Liverpool markets are daily reported here by telegraph, and placed within the reach of all, accompanied with comments, when required, of the hearing which the weather may have upon present or future prices. Our wheat growers should read and study, in connection with the market reports, these observations, which will be continued through two or three numbers, to the end that they may become their own judges of when to sell, and not subject themselves to losses, occasioned by *canards*, set afloat by interested parties. Holding out flattering hopes of high prices to our grain producers on false ideas or baseless premises, has worked immense pecuniary injury to our farmers. There are also other matters than those pertaining to the weather, which have a greater or less bearing upon the British wheat market, which our correspondent will probably elucidate in future issues. With such information before them, there would seem to be but little need that our California wheat growers should be made the victims of false rumors, set up in the interest of unscrupulous speculators.

SICK HORSES.—When a horse refuses to eat, he should not be made to do any more service that day, for it may be known that he is tired or sick. It is barbarous to compel a horse to perform labor when in such a condition that he refuses grain; yet it is often done, and by men who think they are merciful.

Root Culture in Alameda County.

The town of Alvarado is situated near the mouth of the Alameda Creek, within reach of navigation from the Bay, and about six miles from the nearest station of the Western Pacific Railroad. The land in the immediate vicinity, and the soil is composed of a fine, rich alluvium, deposited by the overflows of Alameda Creek, upon the salt marshes. Below the town the marshes extend a long distance to the right and left. These marshes are used as pastures, and are also partly occupied for salt making.

Pelaloes.

The low, rich alluvial soils in this region are unsurpassed for productiveness, especially in dry seasons. On the ranch of Wm. Whidden, near the town, 20,000 bushels of potatoes have been produced on 100 acres.

Onions.

Mr. W. has also produced 600 bushels of onions upon one acre of land, at one crop, and has now, in one body, 20 acres of onions, which he will guarantee to average 500 bushels to the acre.

I have seen excellent onions growing on the low bottom lands, along rivers in the Sacramento Valley, where the soil has a fine deposit of alluvium. Also on the Rio Grande, in New Mexico, where irrigation by flooding is practiced. There the little level places are dyked with low embankments, and the water is run in, several inches deep at a time, and allowed to settle through the porous soil. The onions of the Rio Grande were the largest, on an average, that I ever saw. But those of Mr. Whidden's, will turn out a bigger yield, of a firmer and better keeping quality. Mr. Whidden's onion land keeps moist to the very surface through the driest weather.

Big Yields.

From one piece of land, a few acres in extent near his house, he last year cut three tons of hay to the acre, then plowed and planted to potatoes; which yielded him 200 bushels to the acre, the same season. This year he has harvested 90 bushels of barley to the acre, from the same land, and some laborers have found it profitable to dig the ground over for volunteer potatoes, that grew among the barley.—100 bushels of shelled corn to the acre is an average crop on this soil; of Carrots 30 tons and of sugar Beets 40 tons to the acre. Mr. Harvey, owning an adjoining ranch, assured me that he had grown fully 100 tons of mangel wurtel Beets on an acre.

Chicory.

It is close to town, that Mr. F. B. Granger has produced such immense crops of Chicory. On 40 acres of land, so planted, he has produced not less than 1,600 tons of Chicory in one season! so I am credibly informed.—This season he has about 20 acres cultivated to this plant. There is a two story building erected in Alvarado for cutting and drying the root for market. A machine much like a hay cutter, slices the roots, and large iron drying pans, with perforated bottoms, are filled with the sliced roots and exposed to a draft of heat from a huge furnace until dried. In this condition it is shipped in sacks to manufacturers of "puro ground coffee" to be finally paid for and drank by the million.

FRUIT TREES growing in this vicinity are literally loaded with fruit of great size and beauty.—Of course only the highest swells of land in this low region, are suited to all sorts of fruits. On the ranch of Mr. Whipple, a little above the low lands, there is a fine young orchard, and even grapes, that show a very prolific tendency, and some trees on quite low ground look finely.

The Beet Sugar Factory.

It is at Alvarado that the new Beet Sugar Factory is established.—This I have not overlooked, but shall devote a special article to it.—As beets delight in a fine, rich, moist, yet light soil, and also grow to a great degree of perfection where it is a little alkaline or salty, it may be readily inferred that the selection of this locality for the erection of such works, is a wise stroke of policy, alike creditable to the foresight of the energetic projectors, and in accordance with the best judgment of practical men.

Fine Stock.

At the risk of making this article long, I will here mention that on the well kept ranch of Wm. Whidden I saw some superior, choice bred milk stock. Also a fine and beautiful Stallion—Black prince—sired by "Young Belmont" a perfect pet, yet full of fire and spirit.

At Hall's Ranch there are also some fine horses. One well known and beautiful bay of light weight, yet powerful and fleet as the wind, is called Woodbury, sired by "Lexington" of Kentucky.

The Bay counties can boast of no fine imported stock as there is in the world, so impartial judges say, and surely it is beyond my power to conceive of anything that can exceed in fine points of beauty and excellence what I have seen in this section of the state.

S. H. HERNING.

What I Know of Farming—No. 30.

Roots—Turnips—Beets Carrots.

If there be any who still hold that this country must ultimately rival that magnificent Turnip culture which has so largely transformed the agricultural industry of England and Scotland, while signally and beneficently increasing its annual product, I judge that time will prove them mistaken. The striking diversity of climate between the opposite coast of the Atlantic forbids the realization of their hopes. The British Isles, with a considerable portion of the adjacent coast of Continental Europe, have a climate so modified by the Gulf stream and the ocean that their summers are usually moist and cool, their Autumns still more so, and their winters rarely so cold as to freeze the earth considerably; while our Summers and Autumns are comparatively hot and dry; our Winters in part intensely cold, so as to freeze the earth solid for a foot or more. Hence, every variety of turnip is exposed here in its tender stage to the ravages of every devouring insect; while the 1st of December often finds the soil of all but our Southern and Pacific States so frozen that cannon-wheels would hardly track it, and roots not previously dug must remain fast in the earth for weeks and often for months. Hence, the turnip can never grow so luxuriantly, nor be counted on with such certainty, here, as in Great Britain; nor can animals be fed on it in Winter, except at the heavy cost of pulling or digging, cutting off the tops and carefully housing in Autumn, and then eliciting and feeding out in Winter. It is manifest that turnips thus handled, however economically, cannot compete with hay and corn fodder in our Eastern and Middle States; nor with these and the cheaper species of grain in the West, as the daily winter food of cattle.

Still, I hold that our stock-growing farmers profitably may, and ultimately will, grow some turnips to be fed out to their growing and working animals. A good meal of turnips given twice a week, if not oftener, to these, will agreeably and usefully break the monotony of living exclusively on dry fodder, and will give a relish to their hay or oat stalks and straw, which cannot fail to tell upon their appetite, growth and thrift. Let our cattle-breeders begin with growing an acre or two each of Swedes per annum, so as to give their stock a good feed of them, sliced thin in an effective machine, at least once in each week, and I feel confident that they will continue to grow turnips, and will grow more and more of them throughout our future years.

The Beet seems to me better adapted to our climate, especially south of the fortieth degree of north latitude, than any variety of the Turnip with which I am acquainted, and destined, in the good time coming, when we shall have at least doubled the average depth of our soil, to very extensive cultivation among us. I am not regarding either of these roots with reference to use as human food, since our farmers generally understand that use at least as well as I do; nor will I here consider at length the use of the Beet in the production of Sugar. I value that use highly, believing that millions of the poorer classes throughout Europe have been enabled to enjoy Sugar through its manufacture from the Beet who would rarely or never have tasted that luxury in the absence of this manufacture. The people of Europe thus made familiar with sugar can hardly be fewer than 100,000,000 and the number is annually increasing. The cost of Sugar to these is considerably less in money, while immeasurably less in labor than it would or could have been had the tropical Cane been still regarded as the only plant available for the production of Sugar. But the West Indies, wherein the Cane

flourishes luxuriantly and renews itself perennially, lie at our doors. They look to us for most of their daily bread, and for many other necessities of life; while several, if not all of them, are manifestly destined, in the natural progress of events, to invoke the protection of our flag. I do not, therefore, feel confident that Beet Sugar now promises to become an important staple destined to take a high rank among the product of our national industry. With cheap labor, I believe it might to-day be manufactured with profit in the rich, deep valleys of California, and perhaps in those of Utah and Colorado as well. On the whole, however, I cannot deem the prospect encouraging for the American promoters of the manufacture of Beet Sugar.

But when we shall have deepened essentially the soil of our arable acres, fertilized it abundantly, and cured it by faithful cultivation of its vicious addiction to weed-growing, I believe we shall devote millions of those acres to the growth of Beets for cattle-food, and, having learned how to harvest as well as till them mainly by machinery, with little help from hand labor, we shall produce them with eminent profit and satisfaction to the grower. On soil fully two feet deep, thoroughly underdrained and amply fertilized, I believe we shall often produce one thousand bushels of Beets to the acre; and so much acceptable and valuable food for cattle can hardly be obtained from an acre in any other form.

So with regard to Carrots. I have never achieved eminent success in growing these nor Beet, mainly because the soil on which I attempted to grow them was not adapted to, or rather not yet in condition for, such culture. But should I live a few years longer, until my reclaimed swamp shall have become thoroughly sweetened and civilized, I mean to grow on some part thereof 1,000 bushels of carrots per acre, and a still larger product of Beets; and the Carrot, in my judgement, ought now to be extensively grown in the South and West, as well as in this section, for feeding to horses. I hold that 60 bushels of Carrots and 50 of Oats, fed in alternate meals, are of at least equal value as horse-feed with 100 bushels of Oats alone, while more easily grown in this climate. The Oat-crop makes heavy drafts upon the soil, while our hot Summers are not congenial to its thrift or perfection. Since we must grow Oats we must be content to import new seed every 10 or 15 years from Scotland, Norway, and other countries which have cooler, moister Summers than our own; for the Oat will inevitably degenerate under such suns as blazed through the latter half of our recent June. Believing that the Carrot may profitably replace at least half the Oats now grown in this country, I look forward with confidence to its more and more extensive cultivation.—Horace Greely.

San Francisco Market Rates.

Wholesale Prices.

THURSDAY EVENING, AUG. 11th, 1870.	
Flour, Extra, per bbl.	\$5 00
Do, Superfine, " "	4 50
Corn Meal, per 100 lbs.	2 25
Wheat, per 100 lbs.	1 65
Oats, per 100 lbs.	1 15
Barley, per 100 lbs.	1 40
Beans, per 100 lbs.	2 00
Potatoes, per 100 lbs.	1 00
Do Green, " "	1 00
Live Oak Wood, per cord	9 00
Beef, extra, dressed, per lb.	7 1/2
Sheep, dressed, " "	6 00
Hams on foot, per lb.	7 1/2
Hogs, dressed, per lb.	9 10

GROCERIES, ETC.

Sugar, crushed, per lb.	14 1/2
Do, Hawaiian, " "	12 1/2
Coffee, Cuban Rica, per lb.	2 1/2
Do, Rio, " "	2 1/2
Tea, Japan, per lb.	60
Do, Oolong, " "	60
Hawaiian Rice, per lb.	7 1/2
China Rice, per lb.	4 1/2
Do, Galion, " "	4 1/2
Candies, per lb.	14
Overland Butter, per lb.	20
Ranch Butter, per lb.	20
Island Butter, per lb.	20
Cheese, California, per lb.	10
Eggs, per dozen	40
Lard, per lb.	16
Ham and Bacon, per lb.	16 1/2
Shoulders, per lb.	9

Retail Prices.

Butter, California, fresh, per lb.	40
Do, pickled, " "	—
Do, Oregon, " "	—
Cheese, per lb.	20
Ham, per lb.	25
Eggs, per dozen	30
Lard, per lb.	18
Hams and Bacon, per lb.	22
Granberries, per gallon	1 00
Potatoes, per lb.	2
Potatoes, sweet, per lb.	2
Tomatoes, per lb.	2
Onions, per lb.	4
Apples, per lb.	4
Pears, Table, per lb.	5
Fruit, dried, per lb.	10
Peaches, dried, per lb.	10
Oranges, per dozen	—
Lemons, per dozen	75
Chickens, aptee, " "	—
Turkeys, per lb.	10
Soap, Pale and G. O., " "	15
Soap, Castile, per lb.	15

The artesian well at Stockton, for the water-works, reached a bed of gravel and an ample supply of water at a depth of 215 feet.

Scientific Press.

W. B. EWER.....SENIOR EDITOR.

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San Francisco:

Saturday Morning, August 13, 1870.

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Notices to Correspondents.

A. B. E. Walla Walla, W. T. There is a number of pans made in this city for the purpose of prospectors, and for assay sweepings and refuse. Thus, Hanscom & Co., make a Varney pan, 40 lb. charges, for \$100; the Miners' Foundry makes 12-inch, 18-inch and 32-inch pans of the Wheeler or Stewart pattern, for \$75, \$125 and \$300 respectively; Booth & Co. make 16 and 18-inch pans, for \$100 and \$125; the Golden State works make the Eureka pan, 25-inch, for \$110 etc. These will work charges of from 30 to 150 lbs.

W. F. A. San Jose. There have been electro-magnetic machines, innumerable patented and invented, but hitherto none have been economical successes. The latest and most promising is the electro-magnetic sewing machine, in which the power is applied directly to the needle arm, and which is, perhaps, the one you have in mind. The inventor of this is very sanguine as to the result. Should this be the one you refer to, you can undoubtedly get what information you desire by applying directly to Joshua Hendy, Union Foundry, corner of First and Mission Streets, S. F.

RECEIVED. Notes on Placer county, and a Trip over the Central Pacific Railroad.

The New York Silk Convention.

This convention of which mention has already been made, was held pursuant to announcement, on the 28th, ult. Twelve silk manufacturing firms were represented. Representations of the progress and present condition of the silk interest on this coast, were made by Mr. J. Neuman, of this city and Mr. J. Q. A. Warren. Specimens of California manufactured and reeled silk were exhibited; also California cocoons of different varieties, all of which were pronounced very superior by those present. The meeting was declared merely a preliminary one, though one of the utmost importance as involving the encouragement and opening up of a new trade which had fair to form a most important national industry.

The question to be considered was "What could be done by the manufacturers of the Atlantic states to encourage and further this new source of industry and national profit. Our people are paying millions of dollars to foreign countries for silk goods, which we might and ought to produce at home. Mr. Neuman said, that Lyons had become successful and opulent through her silk manufactures; because

she has monopolised the best cocoons. But no part of the world can produce better cocoons than California, from which our own manufacturers ought to derive their supply. California might herself become a successful rival of Lyons.

Mr. Skinner remarked, that there was no question about the quality of the silk which California produces; the only question was: "How much could she produce, and how fast could her production of raw silk be increased?"

Much interest was manifested by those present, in the object of the meeting, and before the meeting dispersed, a vote was formed requesting the chairman Mr. G. B. Skinner, to appoint a committee to arrange for a future meeting.

Since the above was put in type the telegraph has announced that the Convention will meet again in September; and that Mr. Neuman is now on his way to this State with orders, at fair prices for all the raw silk California can produce, which shall be equal to the samples that were shown at the late meeting of manufacturers.

The Approaching Horticultural and Agricultural Fairs.

THE FOMOLOGICAL AND HORTICULTURAL EXHIBITION, to be held in this city on the 29th inst, at the Pavilion of the Mechanics' Institute, promises to be a most successful affair. The list of premiums comprises a total of \$1,500—\$650 for fruit; \$500 for flowers and ornamental plants; \$150 for vegetables; \$150 cereals and \$50 for miscellaneous articles, including wool, silk, flax, etc. It is required that the cereals should be put up in bottles holding not less than three ounces of clean grain, or in little sheaves of not less than twenty heads each. Farmers having grain fit for seed may find the Fair an excellent place for drawing attention to it. Exhibits of large sheaves and of grain in sacks will be welcome. Besides the \$1,500, distributed into five funds as above stated, there is an additional sum of \$500 set apart for special premiums. Many farmers and orchardists have promised to contribute to the Fair, which it is expected will be a fine success. It will continue for five days, and it is hoped that the entire State will be represented at this exhibition.

THE STATE FAIR, will commence at Sacramento on the 12th of September and continue six days.

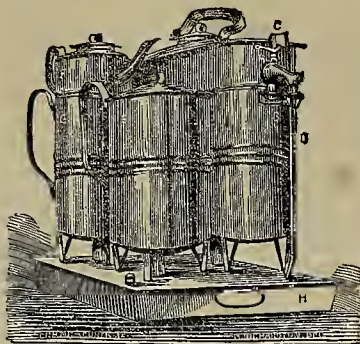
THE SAN JOAQUIN VALLEY FAIR, will commence at Stockton on the 4th, of October and continue five days. The managers of this fair have appointed a Committee, for the purpose of visiting the grain fields, to witness and report upon the operations of the various threshing machines, which may be entered for competition at the fair. An interesting and intelligent report may be expected from this Committee.

THE OTHER LOCAL FAIRS, in the State will be held as follows: The Stanislaus County Fair will commence on the 6th of September and continue four days; the San Mateo County Fair will commence on the 3d of October and hold six days. The Northern District Fair is to be held in Marysville; the Sonoma County Fair in Petaluma; the Butte County Fair in Chico and the Alameda County Fair in Hayward. We are not, at this present moment, advised of the days set for holding the four last mentioned Fairs.

IRON FROM THE ORE.—The iron for the Northern Pacific Railroad will be made from the ore and rolled for use, near its Eastern terminus, somewhere in the vicinity of the south western shore of Lake Superior. Competent parties are now looking around for the most convenient and economical location for the necessary furnaces and mills. The charter requires that the track should be laid exclusively with American iron.

The Clay Steam Cooker.

It may be of value to many of our readers to know of the ingenious contrivance for cooking by steam, a general view of which is given below. It is the invention of a Wisconsin man who has studied the subject carefully and presents this as the result of his labors.



A shallow sheet-metal box, H, the steam generator, is provided on top with any desired number of short tubes, for conducting the steam into the cooking-vessels, and a pipe, D, for introducing water into it. On top of this generator are placed the vessels, B, which contain the articles to be cooked. The bottoms of these vessels are provided with tubes which fit tightly upon the corresponding ones on the generator. Within the vessels, on a grating, are placed the utensils for holding the food, which are of different kinds adapted for the different varieties of food, and the several methods of cooking. They may be of wire gauze or perforated metal, to admit steam from all sides, or of the form of an ordinary pan or pail, open only at the top, or closed vessels for heating articles without subjecting them to the direct action of the steam, etc. Tea pots may be made to fit the tops of the vessels, B, as shown in the cut, thus allowing the tea to be thoroughly steeped, but not boiled, to attain which object many expensive devices have been invented.

In using the apparatus, the generator is partially filled with water, put on the stove and the required vessels placed on it so as to connect with the tubes spoken of above. Any tubes remaining are closed with the proper covers. The steam generated in H passes into the vessels, B, and there coming in contact with the food or the dishes containing it, quickly and thoroughly cooks it. As the steam condenses, it runs back into the generator. As the water boils away, it may be replenished from the hot water can, C, on top of one of the vessels, B.

By using the apparatus and placing the different articles in separate and isolated vessels, the cooking can be done and the flavor of each article retained without impregnating others, which too commonly happens, as when the various articles are placed in a common vessel or in communicating vessels. A patent has been granted for the device to J. O. Clay of Hudson, Wisconsin, whose agents on this coast are Wiester & Co. 314 Bush Street, San Francisco, to whom apply for further information.

AUGUSTUS MILLER, an old hunter, found a portion of the remains of some huge animal in the bank of Dry Creek, Stanislaus county, last June. These he is now exhibiting at Platt's Hall in this city. The fossils are said to come from a stratum of hard cement and lava, 37 feet below the surface.

NINETEENTH ANNUAL COMMENCEMENT AT SANTA CLARA COLLEGE.—The account of the commencement exercises, sent us by our representative on this occasion, comes too late for this week's issue. We shall notice it in our next.

LATEST telegraphic dispatch, good for any date. A battle momentarily expected!

Agricultural Notes.

THE CALIFORNIA PACIFIC RAILROAD is doing an immense business in freighting wheat. All along the line of the road immense piles may be seen waiting for transportation. Thousands of tons, quantities far exceeding the capacity of the road to move in a day or a week, are constantly in readiness. Notwithstanding some 600 tons of grain, principally wheat, arrive daily at Vallejo, there is no diminution, but rather an increase, in the constantly accumulating piles. Several months must elapse, before the last sacks will find their way to shipping.

Large quantities of grain are now being brought down from the regions of Stockton and beyond by the Central Pacific Railroad. The wheat which is transported over this route is shipped direct from the railroad terminus at Oakland. Conveniences for weighing and loading have been provided by the company. Last year the expenses of transporting wheat from Paradise Valley to this city were \$9 per ton. This year all goes to Oakland at a cost of only \$4.95, or a clear saving of over \$4 per ton! The loss from handling, etc., has also been reduced from a very considerable figure to a mere item.

CHAMPION WHEAT.—A stool of wheat, raised at Sherman Island, has been on exhibition at the Mercantile Library the last week, where 250 separate stems and heads are shown to have grown from a single seed of the Sonoma Club wheat. Can any other country in the world show the like?

RESULTS OF IMPROVED CULTIVATION.—Mr. Mothershed, near Salinas, has 100 acres of wheat, which will yield 60 bushels to the acre. He attributes this large yield to deep plowing. Almost everywhere throughout the State, where deep plowing and thorough cultivation, and especially fallowing, have been resorted to, greatly improved results have been realized—much more than to merely meet the increased expense.

GOOD WORK.—Messrs. Shurtz & Simpson, on Money's ranch, near Tehama, recently threshed 2,679 bushels of wheat in one day; 3,000 bushels would have been threshed, if there had been a full set of hands.

COTSWOLDS.—W. F. Wilson of Ohio, has gone to England to purchase Cotswold sheep for Oregon.

NEW OIL MILL.—John Briggs, who has harvested 125 acres of castor beans, near Marysville, is about to erect an oil mill to work his product, rather than sell the same at 4½ cents per pound. It is said that 800 acres have been planted with castor beans in Yuba and Sutter counties this season.

A FRENCH COLONY has recently located on some government land near San Antonio, Monterey County, with the intention of cultivating grapes.

BAMBOO PLANTS.—Japanese bamboo plants are growing finely on Twitchell Island and at Calistoga. The Alta says there are now 4,000 of these plants in the State, all doing finely.

HOPS.—Seventeen acres of hops are growing and doing well upon the Blanchard farm, on the Honeycut creek, for which the proprietor expects to realize from \$7,000 to \$8,000.

DOES FARMING PAY?—An Irishman, name not given, according to the Sutter County Banner, has raised, this year, wheat to double the amount which he paid two years ago for his ranch, situated in Bear Valley. The crops, generally, in that locality have done well this season.

THE TEXAS CATTLE TRADE.—Two hundred thousand head of cattle will go from the counties of Northern Texas this year. Northern Texas has exported, during the season, produce to the value of \$40,000,000.

Patents and Inventions.

A Full List of Patents Issued to Pacific Coast Inventors.

[FROM OFFICIAL REPORTS TO DEWEY & CO., U. S. AND FOREIGN PATENT AGENTS, AND PUBLISHERS OF THE SCIENTIFIC PRESS.]

FOR THE WEEK ENDING AUGUST 2d.

STOCKING—Ferdinand Woodward, Sacramento, Cal.

POTATO-DIGGER—Uriah R. Harlow, Farmersville, Cal.

SPRING FOR BEDS, SOFAS, &c.—William Lord, San Francisco, Cal.

BALLING-PRESS—George W. Nutter, Santa Cruz, Cal., assignor to himself and Charles Keeton.

WATER-CLOSET RECEIVER—William Smith, San Francisco Cal.

NOTE.—Copies of U. S. and Foreign Patents furnished by DEWEY & CO., in the shortest time possible (by telegraph or otherwise), at the lowest rates. All patent business for Pacific coast inventors transacted with greater security and in much less time than by any other agency.

Notices of Recent Patents.

SPADES AND SHOVELS.—J. W. Pearce, Suisun, Cal. In constructing shovels, it has been customary to form the blade and one strap of the same piece of metal, and to rivet the other strap on the blade, the handle being inserted between the two straps and there secured by rivets. Ordinarily the angle, or corner, where the straps join the blade, is made in the shape of a right angle, and the straps are apt to break off at this point. To remedy this defect and to secure the handle more firmly in place, the straps, in the improved method, have rounded corners at their junction with the blade, and instead of rivets, ferrules or bands are employed. At the upper end of the straps an ordinary metallic band may be used, but at the lower end, owing to the form of the straps and handle, such a band cannot be used. Here stout wire is wound tightly and soldered together and to the straps, forming a very strong and durable fastening.

GANG PLOW.—E. W. Walton, San Leandro, Cal. The novelty of this invention consists principally in the device for raising and lowering the plow-frame. This is very neat and ingenious, and obviates several difficulties which have been found hitherto. The plow-frame rests with its front end on a bar, which has its end bent upward and adjustable, by an appropriate arrangement, in vertical standards attached to the axles of the wheels. On each side of the pole, directly in front of the bar, are fixed two metal plates, each with an angular slot, into which fits the projecting pin of a metal plate secured to each of the timbers of the plow-frame. Underneath these timbers, and secured to the bar, are two cams whose two arms pass up on each side of the pole, inside of the timbers mentioned. On the upper end of these arms are attached rods, extending forward between the plates on the pole, and loosely attached to the arm of the shaft, which turns in the upper end of the plates, and is operated by the hand-lever or sweep. These and the other arrangements render it easy to plow deep or shallow, on even or uneven ground, etc., as desired, and the whole seems to be a most desirable machine.

WEED CUTTER.—E. W. Walton, San Leandro, Cal. This is an improved machine for cultivating the surface of the ground by cutting down the weeds and leaving them exposed to the sun, so that they cannot sprout again and grow. A horizontal beam, similar to the ordinary plow beam, has at one end two handles (pivoted and arranged with a rod and clasp so that they can be shifted from side to side as desired), and a hollow vertical standard. To the lower end of this standard is attached a shovel by means of a rod passing through the shovel, standard, and beam, and secured above by a nut. The shovel or cutter is a triangular plate of metal, its front corner having a pointed piece of metal attached, and the two side corners being bent up. This plate slopes towards the front, so that the projecting point serves as a share to break the ground in front of the cutter, and the side corners throw up a narrow line of earth. This shovel is intended to cut but a slight depth below the ground, and thus cut and root up the weeds, which will be destroyed on being exposed to the sun. The clevis secured to the front end of the plow-beam in the usual manner,

consists of a vertical rack-bar provided with a number of teeth, between any two of which the link is placed. A long screw or bolt, passing down through a hole in the upper arm of the rack bar and secured below, stands directly in front of the teeth, and thus keeps the link securely in place.

FAUCET.—J. H. Lord, S. F. The rear end of a common faucet is provided with screw threads, on which work a nut, a metallic and an elastic washer. On the extremity of the faucet is screwed a short conical, hollow anger, whose greatest diameter is somewhat larger than that of the rear of the faucet, and which has small holes made through it between the threads, so as to allow the liquid to pass into it and

the period for which they shall hold their appointments, to acquire or take, directly or indirectly, except by inheritance or bequest, any right or interest in any patent issued by said office.

SEC. 17. And be it further enacted, That for gross misconduct the Commissioner may refuse to recognize any person as a patent agent, either generally, or in any particular case; but the reasons for such refusal shall be duly recorded, and be subject to the approval of the Secretary of the Interior.

SEC. 18. And be it further enacted, That the Commissioner may require all papers filed in the Patent Office, if not correctly, legibly, and clearly written, to be printed, at the cost of the party filing them.

SEC. 19. And be it further enacted, That the Commissioner, subject to the approval of the Secretary of the Interior, may from time to time establish rules and regulations, not inconsistent with law, for the conduct of proceedings in the Patent Office.

SEC. 20. And be it further enacted, That the Commissioner may print or cause to be printed, copies of the specifications of all letters-patent, and of the drawings of the same, and copies of the claims of current issues and copies of such laws, decisions, rules, regulations, and cir-



Louis Napoleon's Famous Mitrailleuse.

thence into the faucet. Now to use this, one needs only to bore into a can until the auger is through, then to turn this back a little until the face or ends of the threads bear against the metal between the slits made by them on entering, and then to force the washers up close to the metal on the outside. The device is most simple effective and convenient.

CANDLESTICK.—H. Zahn, S. F. This is an improvement on a former device for holding securely a candle in a candlestick. It consists in constructing the nut, through which the holding screw passes, so that it can be removed from one candlestick and attached to another as desired, and it renders easy the application of the device to porcelain, glass and other fragile candlesticks. It is a simple invention with regard to one of the most common of household utensils.

The New Patent Act.

AN ACT TO REVISE, CONSOLIDATE AND AMEND THE STATUTES RELATING TO PATENTS AND COPYRIGHTS.

[CONTINUED FROM PAGE 97.]

SEC. 12. And be it further enacted, That the Commissioner shall cause a seal to be provided for said office, with such device as the President may approve, with which all records or papers issued from said office, to be used in evidences, shall be authorized.

SEC. 13. And be it further enacted, That the Commissioner shall cause to be classified and arranged in suitable cases, in the rooms and galleries provided for that purpose, the models, specimens of composition, fabrics manufactures, work of art, and designs, which have been, or shall be deposited in said office; and said rooms and galleries shall be kept open during suitable hours for public inspection.

SEC. 14. And be it further enacted, That the Commissioner may restore to the respective applicants, such of the models belonging to rejected applications as he shall not think necessary to be preserved, or he may sell or otherwise dispose of them, after the application has been finally rejected for one year, paying the proceeds into the treasury as other patent moneys are directed to be paid.

SEC. 15. And be it further enacted, That there shall be purchased for the use of said office, a library of such scientific works and periodicals, both foreign and American, as may aid the officers in the discharge of their duties, not exceeding the amount annually appropriated by Congress for the purpose.

SEC. 16. And be it further enacted, That all officers and employees of the Patent Office shall be incapable, during

the period for which they shall hold their appointments, to acquire or take, directly or indirectly, except by inheritance or bequest, any right or interest in any patent issued by said office.

SEC. 21. And be it further enacted, That all patents shall be issued in the name of the United States of America, under the seal of the Patent Office, and shall be signed by the Secretary of the Interior, and countersigned by the Commissioner, and they shall be recorded, together with the specifications, in said office, in books to be kept for that purpose.

SEC. 22. And be it further enacted, That every patent shall contain a short title or description of the invention or discovery, correctly indicating its nature and design, and a grant to the patentee, his heirs or assigns, for the term of seventeen years, or the exclusive right to make, use, and vend the said invention or discovery throughout the United States, and the Territories thereof, referring to the specifications for the particulars thereof; and a copy of said specifications and of the drawings shall be annexed to the patent, and be a part thereof.

SEC. 23. And be it further enacted, That every patent shall date as of a day not later than six months from the time at which it was passed and allowed, and notice thereof was sent to the applicant or his agent, and if the final fee shall not be paid within that period, the patent shall be withheld.

SEC. 24. And be it further enacted, That any person who has invented or discovered any new and useful art, machine, manufacture, or composition of matter, or any new or useful improvement thereof, not known or used by others in this country, and not patented, or described in any printed publication in this or any foreign country before his invention or discovery thereof, and not in public use, or on sale, for more than two years prior to his application, unless the same is proved to have been abandoned, may, upon payment of the fee required by law, and other proceedings had, obtain a patent therefor.

[TO BE CONTINUED.]

THE BORAX COMPANY.—The Lower Lake Bulletin learns that the California Borax Company are about resuming operations after an inactivity of two years or more. The Borax Lake is quite low owing to the evaporation induced by the extreme heat this summer.

EARTHQUAKE AGAIN.—We are glad to learn that on Tuesday evening we had an earthquake shock in this city. We thought we were losing our good reputation in this respect. We shouldn't have found out this shock, however, of ourselves.

EARTHQUAKE.—At Santa Cruz, early on the morning of the 4th inst., there was a slight earthquake shock.

The Mitrailleuse.

The mention of this weapon being very frequently made in the war dispatches of the day, we think it will be of interest to our readers to know what sort of a thing it is. We accordingly give a cut and a short description of the gun, taken from *La Propagation Industrielle*.

The standard is shown clearly enough in the cut, it being remembered that, as this is a section, only two of the four legs are given. In a socket, at the upward-curved rear end of this frame, fits the stem of a revolving atel cylinder. This has four sets of chambers for the cartridges. Each set consists of five chambers, corresponding to the five barrels of the gun. These chambers when brought in succession to the lower part of the bores of the barrel, and when at the top, are in line with the surface of a loading table, which has grooves in it, so that the cartridge may be easily pushed into the chambers. One of the figures in the cut is represented as loading an upper chamber in this manner.

The barrels, situated in a horizontal plane, are five in number, and are not parallel but a little further apart at the muzzle than at the breech. The object of this is to give a scattering fire. There is a system of mechanism, indicated in the cut, but which we have not the space to explain in detail, by which the barrels may be adjusted in any desired plane, or placed at different angles with each other, within certain limits. The change of angle is for the purpose of enabling the gunners to sweep a wider or narrower area. When the chambers are brought into line with the barrels, a series of needles or strikers are driven into the rear of the chambers and against the fulminate of the cartridges, thus discharging the piece, by means of a bar (shown below the rear of the barrel,) which works automatically.

When it is desired to transport the gun from one place to another, the four legs of the support are brought into a horizontal position, parallel with the barrels, and two men can then carry the apparatus with ease. Hence it can be transported whither would be impossible to take a wheeled carriage.

The special advantages claimed for the mitrailleuse are its ease of loading and firing and transportation, its power of throwing continuous volleys in divergent directions, and the facility of varying the direction of the line of fire. In the method of loading, however, other devices seem to be its superior if in no other respect.

PULVERIZING FUEL.—The principle of pulverization of fuel for making steam has been introduced into a manufactory at Lewiston, Maine. The coal is placed in a hopper, from whence it comes through a mill in which it is ground to a fine dust, which is carried by a blower into the furnace. The latter is regulated to carry air enough to produce full and perfect combustion. The coal dust, thus introduced into the furnace, leaps into flame like grains of powder. It is claimed that this device saves thirty-three per cent of the cost, while steam can be generated in one-half the time required by the ordinary use of fuel. It is somewhat singular that, in the face of the unanimous and cumulative testimony in favor of the economy of the pulverization of coal for steam fuel, so little progress has been made toward its introduction into general use.

We are finally to have an Australian steamship line, with ample subsidy. William Webb will get the subsidy and run the line. Good!

Admiral Winslow, the hero in the Karsarge Alabama fight, has arrived in this city.

Professional Cards.

JOHN GORMAN,
NOTARY PUBLIC.
COMMISSIONER FOR
Nevada, New York, Etc.
No. 612 MERCHANT STREET. 5v20-3m

JAMES M. TAYLOR,
Attorney and Counsellor at Law,
Court Block, 636 Clay Street
SAN FRANCISCO

JOHN ROACH, Optician,
Has removed from 522 Montgomery street to
510 Washington street,
East of Montgomery.
Surveying Instruments made, repaired and adjusted
2v17-3m

GILES H. GRAY, JAMES H. HAVEN,
GRAY & HAVEN,
ATTORNEYS AND COUNSELLORS AT LAW,
In Building of Pacific Insurance Co., N. E. corner Cal-
ifornia and Leidesdorf streets,
SAN FRANCISCO. 2v16

REMOVAL.

DR. BEERS, Dentist,
Has removed from Tucker's Building to
No. 109 Montgomery street, three doors
north, opposite the Occidental. 2v20-3m

Dr. J. H. PAINE, Dentist,
Wadsworth House, No. 225 Bush street,
between Cosmopolitan and Occidental
Hotels, San Francisco.

Business Cards.

A. H. JORDAN,
Architect, Designer and Draughtsman,
No. 430 Montgomery Street,
SAN FRANCISCO. 16v19-24

Farmers and Mechanics
BANK OF SAVINGS,
No. 225 Sansome Street.
Interest paid on Deposits. Money Loaned on Real Estate.
H. DUTTON, President.
GEO. M. CONOEE Cashier. 19v16-3m

J. HOOVER,
PUBLISHER,
And Wholesale Dealer in
Fine Chromos and Lithographs.

The Largest Assortment in Philadelphia.
WHOLESALE DEPOT:
No. 804 Market Street, Philadelphia, Penn.
9v20-6m

C. B. FETY,
SEAL ENGRAVER
AND LETTER CUTTER.
Seals, Brass Stamps, Steel Punches, etc. Orders by
express promptly attended to. No. 622 CLAY STREET,
bet. Kearny and Montgomery, San Francisco. 23v20-3m

PIERRE A. FORTIER,
Practical Optician
105 1/2 Montgomery Street, up stairs.
The only manufacturer in the United States who can
make Glasses adapted to any imperfection of sight
Pr ces very moderate. 24v20-3m

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WM. BARTLING, HENRY KIMBALL,
BARTLING & KIMBALL,
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Paper Rulers and Blank Book Manufacturers.
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16v12-3m SAN FRANCISCO.

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SEAL ENGRAVER,
AND LETTER CUTTER.
Brass and Steel Stamps and Dies, 608 Sacramento street,
San Francisco. Orders by express promptly attended to.

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CORDAGE COMPANY.
Manila Rope of all sizes. Also, Bale Rope and Whale
Line constantly on hand. Miso Ropes of any size
and length manufactured to order.
TUBBS & CO., Agents,
611 and 613 Front street.
26

SAN FRANCISCO MILL.
HOBBS, GILMORE & CO.,
Manufacturers of Boxes,
Market Street, bet. Beale and Main.
For sale—Mahogany, Spanish Cedar, and other Woods.

J. M. STOCKMAN,
Manufacturer of
PATTERNS AND MODELS,
(Over W. T. Garratt's Brass Foundry,
S. E. Corner of Mission and Fremont sts.,
6v14 SAN FRANCISCO.

L. SCHUMANN,
PIONEER
Meerscham Pipe Manufacturer,



No. 341 KEARNY STREET,
Between Bush and Pine streets, San Francisco.

The first and only Manufactory on the Pacific Coast.
MEERSCHAUM MOUNTAIN WITH SILVER. Meerscham
Pipes Boiled and Repaired. Amber Mouth-pieces Fitted.

AMERICAN MILLS,
M. BURKE, PROPRIETOR,
Nos. 30 and 32 California Street.
Job work of all kinds in the Drug and Spice Line
promptly attended to.
SECOND DEPARTMENT.—Feed Ground. Corn Meal, Oat
Meal, Graham Flour, etc., constantly on hand. 7v20-6m

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Room No. 16, up stairs, San Francisco.
GOLD PENS REPAIRED. Watches, Clocks and Jewelry
repaired and warranted. 8v20-6m

SAN FRANCISCO
PIONEER SCREEN WORKS,
JOHN W. QUICK,
No. 203 Fremont Street, near Howard.
Screen Punching of all kinds and qualities for Quartz,
Cement, Flour and Rice Mills, at Eastern prices. 10v20

THE GIANT
POWDER COMPANY.
BANDMANN, NIELSEN & CO.,
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THEODORE KALLENBERG,
Machinist, and Maker of Models
for Inventors.
All kinds of Dies, Stamps and Punches made. Also,
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LAVERY'S SNOW-FLAKE
YEAST POWDER.
Corner Eighth and Brannan Streets.
Office, 302 California street, up stairs.
22v2-3m **W. J. LAVERY & CO.**

LEA & PERRINS'
CELEBRATED
Worcestershire Sauce.



Declared by Connois-
surs to be the only good
SAUCE. The success of
this most delicious and
unrivalled Condiment
having caused certain
dealers to apply the
name "Worcestershire Sauce" to their
own inferior compounds, the public is
hereby informed that the only way to
secure the genuine is to ask for LEA &
PERRINS' SAUCE, and see that their names
are upon the wrapper, labels, stopper and
bottle.

Some of the foreign markets having
been supplied with a spurious Worcester-
shire Sauce, upon the wrapper and labels
of which the names of Lea and Perrins have
been forged, L. and P. give notice that they have
furnished their correspondents with power of attorney to take
instant proceedings against manufacturers and vendors of
such, or any other imitations by which their right may
be infringed.

Ask for LEA & PERRINS' Sauce and see name on
wrapper, label, bottle and stopper.
Wholesale and for export by the Proprietors, Worces-
ter; Crose and Blackwell, London, &c. &c., and by
Grocers and Oilmen universally. Agents, CROSS &
CO., San Francisco. 1v20-3yew



A PROVIDENTIAL REMEDY. The Mongoose, bitten by
a poisonous serpent, seeks a certain plant, eats of it,
and recovers. In like manner thousands of European
dyspeptics, and victims of liver complaint, disorders of
the bowels, debility, dropsy, rheumatism, &c., flock to
the Seltzer Springs in Germany and are cured by its sa-
lubrious waters. We have this Spring, in all its sani-
tary perfection, multiplied ad infinitum, in this country,
in the form of TARRANT'S EFFERVESCENT SELTZER AP-
ERIENT. It is the Spa made portable and available for
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great household medicine of the land, and at once de-
licious, refreshing, and unexcelled as a corrective and
alterative.

SOLD BY ALL DRUGGISTS.

ENCOURAGING REMARKS.—One of our readers writes:
"Incorporating an agricultural department into your
paper has made it acceptable and really useful all over
the country west of the Rocky Mountains, and prob-
ably further; and for my part I do not see how an intel-
ligent farmer, miner or mechanic can do without it."

Railroads and Steamers.

Central Pacific Railroad.

Time Schedule, August 9, 1870.

EASTWARD.		Express Train Daily.	Passenger Sunday excepted	Mixed *
San Francisco	Leave	8:00 A.M.	4:30 P.M.	7:00 P.M.
Stockton	Arrive	8:40 A.M.	4:30 P.M.	7:00 P.M.
San Jose	Leave	7:45 A.M.	4:35 P.M.	
Stockton	Arrive	2:05 P.M.	7:35 P.M.	
Sacramento	Leave	1:50 P.M.	9:35 P.M.	
Sacramento	Arrive	2:10 P.M.		7:40 A.M.
Marysville	Leave	4:00 P.M.		9:00 A.M.
Chico	Arrive	6:45 P.M.		1:15 P.M.
				5:20 P.M.
WESTWARD.		Express Train Daily.	Passenger Sunday excepted	Mixed *
Ogden	Leave	6:00 P.M.		5:00 P.M.
Kelton	Arrive	10:25 P.M.		1:30 A.M.
Eiko	Leave	8:45 A.M.		7:15 P.M.
Carlin	Arrive	12:15 A.M.		9:45 P.M.
Battle Mountain	Leave	1:25 P.M.		3:15 A.M.
Whiteneucca	Arrive	4:05 P.M.		9:00 A.M.
Kelton	Leave	5:30 A.M.		1:30 P.M.
Ogden	Arrive	6:00 A.M.		2:30 A.M.
Chico	Leave	6:30 A.M.		9:30 A.M.
Marysville	Arrive	9:10 A.M.		2:30 P.M.
Sacramento	Leave	11:25 A.M.	7:00 A.M.	5:30 P.M.
Stockton	Arrive	1:45 P.M.	8:45 A.M.	7:20 P.M.
San Jose	Leave	5:35 P.M.	12:01 P.M.	
Stockton	Arrive	6:00 P.M.	12:40 P.M.	9:30 P.M.

P. M.		A. M.		LOCAL TRAINS.		P. M.		A. M.	
3:00	9:00	leave.....		SAN FRANCISCO.....		arrive.....		10:40	7:30
3:20	9:20			OAKLAND.....				10:12	7:00
4:40	11:40			SAN JOSE.....				8:40	6:30
5:30	12:00			ARRIVE.....		SAN JOSE.....		7:45	4:30
FROM				TO				FROM	
SAN FRANCISCO.				OAKLAND.				BROOKLYN.	
B 6:50 A. M.				B 5:40 A. M.				B 5:30 A. M.	
D 8:00				B 6:55				B 6:45	
D 9:00				B 8:00				B 7:50	
D 10:00				B 9:00					
D 11:00				B 10:10				9:50	
D 12:00 M.				B 11:10					
2:00 P. M.				12:00 M.				11:50	
D 3:00				2:00 P. M.					
4:00				3:00				2:50 P. M.	
5:15				4:00					
6:45				5:20				5:10	
B 11:20				6:55				6:45	
FROM				TO				FROM	
SAN FRANCISCO.				MAYFELD.				DAYTONS.	
B 7:50 A. M.				B 5:5 A. M.				B 4:33 A. M.	
E 9:50				B 7:50				B 7:00	
B C 9:50				E 9:50				E 8:30	
E C 11:30				B 6:10				B 9:00	
1:30 P. M.				E 11:30				E 11:00	
4:50				1:35 P. M.					
5:00				2:30				3:55 P M	
				E 6:10					
B Sundays excepted.				F Sundays only.					
D To Oakland only.				D To Fruit Vale only.					
A. N. T. MEN, Gen'l Sup't C. P. & R.									
T. H. GOODMAN, Gen'l Pass'ng Agent, Sacramento									

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OUR FRIENDS can do much in aid of our paper and the cause of practical knowledge and science, by assisting Agents in their labors of canvassing, by lending their influence and encouraging favors. We intend to send none but worthy men.

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CHRYSTENK, D. T.—Robert Beers.
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Manufacturers and have constantly on hand

SPORTING,
MINING,
And BLASTING
POWDER,

70% SUPERIOR QUALITY, FRESH FROM THE MILLS. It being constantly received and transported into the interior, is delivered to the consumer within a few days of the time of its manufacture, and is in every way superior to any other Powder in Market. We have been awarded successively

Three Gold Medals

By the MECHANICS' INSTITUTE and the STATE AGRICULTURAL SOCIETY for the superiority of our products over all others.

We also call attention to our

HERCULES POWDER,

Which combines all the force of other strong explosives now in use, and the lifting force of the best BLASTING powder, thus making it vastly superior to any other compound now in use.

A circular containing a full description of this Powder can be obtained on application to our Office.

16v20-3m JOHN F. LOHSE, Secretary.

HAYWARD & COLEMAN

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—OF—

Illuminating, Lubricating,

—AND—

PAINT OILS,

CONSISTING OF

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—ALSO—

Spirits of Turpentine and Alcohol.

Lamps and Lamp Stock!

An elegant and complete assortment.

SOLE IMPORTERS OF

Devoe's Illuminating Oil,

PATENT CANS.

5v17-1f 414 Front street, San Francisco.

California Bonzest,

A CALIFORNIA PATENT, manufactured in San Francisco. A Condiment

Rare, Rich and Spicy.

Very palatable, productive of digestion and health. An ANTI-SCORBUTIC, and sure preventive

Against Diseases incident to Sea Life.

A SPLENDID APPETISER.

TRY IT ONCE, and you will never be without it.

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And by authorized Local Agents. 3v21-3m

ENGRAVING ON WOOD

DESIGNING AND ENGRAVING on wood and for electrotype cut of every description, done by superior artists at the office of the SCIENTIFIC PRESS. Fine Cuts made for Book and Newspaper Illustrations, and for Fancy Labels for printing in various colors; Monograms, Seals, &c., etc. Prompt execution and reasonable prices.

DEWEY & CO.,
No. 414 Clay street, S. F.

JOHN WRIGHT & CO.,
DEALERS IN PICKS AND PICK HANDLES.



Sole Agents for Washoe Tool Company.

Nos. 13 and 15 Fremont Street. at Nelson & Doble's, San Francisco.

LIST OF PRICES OF PICKS:

No. 1 Round Eye Surface, 4 lbs.	16	No. 16 Drifting, 4 lbs.	16
" 2 " " 4 1/2 "	16	" 17 " " 4 1/2 "	18
" 3 " " 5 "	16	" 18 " " 5 "	18
" 4 " " 5 1/2 "	16	" 19 " " 5 1/2 "	18
" 5 " " 6 "	20	" 20 " " 6 "	22
" 6 " " 6 1/2 "	22	" 21 Poll, 4 "	18
" 7 " " 7 "	24	" 22 " " 4 1/2 "	18
" 8 Flat Eye Surface, 4 "	16	" 23 " " 5 "	20
" 9 " " 4 1/2 "	16	" 24 " " 5 1/2 "	20
" 10 " " 5 "	16	" 25 " " 6 "	22
" 11 " " 5 1/2 "	18	" 26 " " 6 1/2 "	24
" 12 " " 6 "	20	" 27 " " 7 "	30
" 13 " " 6 1/2 "	22	" 28 Coal, 3 "	15
" 14 " " 7 "	24	" 29 " " 2 1/2 "	15
" 15 Drifting, 3 1/2 "	16	" 30 " " 3 "	16
No. 31 Coal, 3 1/2 lbs.	16		

Also, PICK EYES, ready for the steel, for the Blacksmiths, which will be sold cheap.

I wish to call especial attention to

MY NEW ADZE EYE PICK,

Which was made under my own supervision while in New York.

For Beauty, Strength and Durability they are unequalled.

JOHN WRIGHT.

WE HAVE A LARGE STOCK OF

Extra Number One White Hickory Drifting Pick Handles,

WHICH WE OFFER CHEAP.

CALL AND EXAMINE FOR YOURSELVES.

8v20-q1am3w

A NEW REMEDY.

As this Preparation of these plants, lately made public (Patented June 20, 1870), but long proven in Siskiyou county, Cal., owes its efficiency entirely to its remarkable power of INCREASING THE INSENSIBLE PER- SPIRATION, or, in other words, the VAPORY EXHALATIONS from the millions of minute pores of the EXTERNAL SKIN, from the crown of the head to the sole of the foot, it is all important that the direction to pass a sponge, or towel, dampened with saleratus water, under the clothing, twice a week, or oftener, be attended to.

Also, that when taken by LADIES, for IMPROVING THE COMPLEXION, for which it is very successful, that it should be in half doses, often repeated; and that one of the Pills of Citrate of Iron and Gum Myrrh, which are beneath the bottom label of each bottle, be taken at night, much aiding in restoring Color in the Cheeks and Lips. To CHILDREN also, give it "little and often." It is agreeable to them any way, but especially if sweet- ened a bit; and it is admirably suited to their Diseases, which generally are those of the MUCOUS MEMBRANES.

FOR the irritated throats of PUBLIC SPEAKERS, Lawyers, Ministers, Teachers, and FOR driving off threatened CONSUMPTION and Asthma, all Colds and Coughs; FOR irritated Stomachs, from Bad Liquor, Alkali Water, Strong Coffee, Saleratus Bread; FOR humors on the Skin, or MUDDY COMPLEXIONS, or, in a single sentence, FOR all Diseases of the MUCOUS MEMBRANES, the Surest, and by far the MOST PLEASANT MEDICINE yet found, in its TASTE and EFFECT, is

DR. FURBER'S CORDIAL
OF
MOUNTAIN BALM
—AND—
OREGON GRAPE,
Two Plants, abounding on the base of, and on the
Mountains surrounding
MOUNT SHASTA, CALIFORNIA,

For all of the purposes of the various PREPA-
RATIONS OF SARSAPARILLA, richer in
quality and more efficient as a RESTORER OF
GOOD BLOOD, and acting equally as surely,

ECCLESIA
CHAPTER.
—Verse.
The Lord hath
created medicines
out of the Earth

STICUS.
XXXVIII.
—Fourth—
And he that is
wise, will not
abhor them.

TRADE MARK.

and as well on the LUNGS as on the STOMACH,
is superior to other COUGH MEDICINES, by
bringing BOTH to bear with the stimulated action
of the WHOLE SKIN in throwing off Disease of either.


FOR SALE AT SAN FRANCISCO BY
R. H. McDONALD & CO., Druggists.

INVALIDS of any of the classes named above will find this worthy of TRIAL. Its virtues, as above
asserted, not being visionary, but improved from the SHASTA INDIANS' knowledge and use of these PLANTS
for centuries back, made known by them to us.

Such an Invalid, residing at a distance, wishing to try it, had better procure a package of one-fourth of a
dozen, which can be done by sending in letter to the above a \$5 greenback, and directing that the package should
be sent by Wells, Fargo & Co's Express to that office which is nearest to the invalid's residence, and that person
will be sure to get it.

3v21-12w

THE FIREMAN'S



FUND
INSURANCE COMPANY.
OFFICE,
S. W. Corner California and Sansome Streets
SAN FRANCISCO, CAL.

Fire and Marine Insurance.

CAPITAL.....\$500,000 00
SURPLUS.....\$67,115 03
TOTAL ASSETS.....\$567,115 03

D. J. STAPLES, President.
G. T. LAWTON, Vice President.
CHAS. R. BOND, Secretary.

13v20-3m

OCCIDENTAL
Insurance Company
OF SAN FRANCISCO.

Cash Capital, - - - - - \$300,000
GOLD COIN.

OFFICE, 436 CALIFORNIA STREET.

Fire and Marine Insurance.

All Losses paid in U. S. Gold Coin.

A. G. STILES, President.
B. ROTHSCHILD, Secretary. 5v17

R. A. SWAIN & CO.,

IMPORTERS AND DEALERS IN

Earthenware, French Porcelain,
GLASSWARE,
Lamps, Lanterns,
CUTLERY!

—AND—

FANCY GOODS,

N. E. Corner Sansome and Pine Streets.
24v20-3m

DESIGNS AND PLANS
—FOR THE—
NEW CITY HALL
—OF—
SAN FRANCISCO.

Office Board of City Hall Commissioners, southeast
corner of Sacramento and Montgomery streets, San
Francisco, June 22, 1870.

The Board of City Hall Commissioners hereby give
notice that they will be prepared to receive at their
office, on or before the FIRST DAY OF NOVEMBER
NEXT, designs and plans for the new City Hall of San
Francisco.

The Commissioners, in order to obtain the very best
design and plan, invite the fullest competition among
architects, and to this end have resolved to offer the fol-
lowing premiums:

First—For the design and plan selected and
adopted.....\$2,500
Second—For the second best design and plan..... 2,000
Third—For the third best design and plan..... 1,500
Fourth—For the fourth best design and plan..... 1,000
Fifth—For the fifth best design and plan..... 500

The premiums payable in City Hall warrants.

As a guide to architects in the preparation of the de-
signs and plans, the Commissioners have prepared a
pamphlet containing full instructions and suggestions,
as well as the terms and conditions upon which the pre-
miums will be awarded.

Pamphlets can be had on application at the office of
the Commissioners.

Any design or plan in which the requirements of the
Board, as set forth in the printed instructions, have not
been reasonably complied with, will be rejected from
the competition.

P. H. CANAVAN, Chairman,
JOS. G. EASTLAND,
CHAS. E. McLANE,
City Hall Commissioners.

26v20-4m

One Per Cent. per Month

Allowed on Six Months' Deposits by the CALIFORNIA
BUILDING, LOAN AND SAVINGS BANK, California
street, one door from Sansome.

THOMAS MOONEY, President.
August 4, 1870. 6v19-1m

Reading for the Hour.

The War.

If we have spoken but little on this subject, it is because we have been thinking so deeply, without being able to get out a plan for the campaign, which would satisfy ourselves as well as is desirable for such a paper as ours. Moreover, to get out a good plan, it was necessary to have one party whip, and we have held the powers to be so nearly equal, that we could not decide which one we should select as the victorious party, without danger of having our choice disproved before our paper reached the subscribers.

It is definitely ascertained, however, that the Prussians have gained decided advantage in this first encounter. They are the victors of the first battle, and the result is most dangerous for Napoleon. Should he suffer another defeat, the likelihood that France would obtain another ruler would be very great. But he is not entirely overcome as yet, and the fate of France depends not on a single battle.

The Prussians have done well so far and may do better yet. The French have been out-generaled and whipped, but may retrieve their losses. If we know which of the two cases are to occur, we shall keep it to ourselves until the next issue. Meanwhile we present our readers with some facts and descriptions of the arms used on both sides.

AN HONORABLE RECORD.—The New York *Tribune* says that A. A. Sargent, of California, representative at Washington, is without question the most industrious man in Congress. He has been absent only four days during the last session, and has introduced thirty-four bills, only two of which were of a private character. This is certainly a most honorable as well as deserved tribute, and one of which any man may well be proud. Mr. Sargent more especially than any other man, represents the Mining interests of the Pacific Coast, and aside from his untiring industry has also labored most "effectively" for his constituents; no one has done more to secure needed legislation for this Pacific States, nor less to farther personal or local schemes. His efforts will be appreciated by his constituents. The record which Mr. Sargent has made in Congress is none other than might have been expected from the habits of industry and devotion to principle manifested in his youth and early manhood. A California acquaintance of 20 years standing enables us to speak understandingly in this connection.

SAVE THE BONES.—Every farmer should provide a barrel or box for receiving chicken bones, fish bones, and bits of beef bones which accumulate in the kitchen. A hundred pounds may be saved in a few weeks. Such bones are more valuable for burying around all kinds of fruit trees and grape vines, than Peruvian guano, which is worth from three to five cents per pound.

SOFT WATER FOR HORSES.—Youatt, in his book entitled "The Horse," says this animal will never drink hard water if soft water is in reach; that he will leave transparent hard water for a pool of soft, even though the latter be discolored with mud. Very cold water from the well will make the hair rise up and not unfrequently cause an attack of the gripes. Give soft water, if practicable, especially if the animal is ailing.

A BIG NUOGET was found a couple of months ago at Berlin, in Victoria, Australia. According to the *Alta's* correspondent, its weight was 93 lb. 5 oz. 15 dwts.; length, 12 inches; height at highest solid part, 6 inches; at lowest, 4 inches; circumference of center, 16 1/4 inches; circumference of small end, 13 inches; or large end, 19 inches; circumference lengthwise, taken by the sides, 32 3/4 inches; by the top and bottom, 28 inches.

The World of the Ancients.

The ancient Hebrews seem to have had but little if any theory as to the shape of the globe, and the idea common to un-instructed people, that the earth is a flat surface, seems to prevail through the Bible. Among the Greeks, Homer was the first who has given us a written trace of a theory. According to this writer, the world was a flat disk, the River Ocean sur-



- A.—Elysian Fields.
B. B.—Entrances to the Infernal Regions.
C.—Source of the Ocean.
D.—Athens.
E.—Troy.
F.—The Amazons.
G.—Sidon.
H.—Thebes.
I.—Ethiopians.
K.—Pygmies.

FIG. 1.—THE WORLD ACCORDING TO HOMER.

rounding the land on all sides. Beneath the earth were the regions of Elysium and Tartarus, above was the arch of the heavens, resting on the tops of the highest mountains. Fig. 2 will give a general idea



FIG. 2.—THE WORLD OF ANAXIMANDER.

of his geography. The Cimmerians dwelt in perpetual darkness and near the entrances to the infernal regions. Colchos, on the Black sea, was an ocean city whence the sun arose in the morning. Beyond the Rhiphaean mountains, on the north, dwelt a people who were exempt from all troubles and ills. The Ethiopians and the Pygmies, who fought pitched battles with the cranes, dwelt on the southern border of the earth. Towards the centre of Africa were the high peaks of the Atlas mountains on which rested the heavens. Many peoples and nations were given locations and fabulous characteristics which they long continued to hold in ancient geography.

Anaximander, four hundred years after Homer, held that the earth was of the form of a cylinder with the upper surface convex, and with its diameter three times as great as its height. The center of the system was Delphi, where was the noted oracle of Apollo. Fig. 1 gives the idea of the earth of this author.

Somewhat later, the idea that the earth was spherical, was propounded by Thales, one of the seven sages, who declared moreover that it was suspended in mid-air. The theory was not popular. Herodotus, who traveled extensively, added much to the geographical knowledge of the world, although he ridiculed the theory of its being a sphere. Socrates, four hundred years before Christ, asserted the globe-form of the earth, sustained in the middle of the heavens. Eratosthenes, a Cyrene Greek, reduced geography to a system. The spherical form of the earth was now generally considered to be the correct theory. Eratosthenes, proceeding on this principle, adjusted to it the known features of the globe. The great ocean still surrounded the land, but the known part of the world,

he became convinced, was only about a third of the whole. He supposed the rest to be a huge mass of water which he called the Atlantic, from Mount Atlas, which was fancifully believed to support the globe. This theory may be dated at about the year 230 B. C.

New Books.

MATERNITY. A Popular Treatise for Young Wives and Mothers. By T. S. Verdi, A. M., M. D., of Washington, D. C. New York: J. B. Ford & Co., Publishers. 8vo; pp. 451. Sold by A. Roman & Co., S. F.

The author of this work is a physician of the Homeopathic School, in Washington, where he has this reputation, we are told, of being an unusually successful practitioner. Judging from his preface, he appears to be one of the liberal class—one who, holding firmly to his own principles of homeopathy, is still willing to learn from those of diverse opinion. His book deals with delicate subjects, but such as are of great importance, such as young wives and mothers are or ought to be consulting their physicians about. There is a growing desire on the part of the public to know more concerning such subjects, and as the desire is healthy and the topic most important, we are glad to see such books as this, which appears to be very good. The subjects here considered are, in brief: Pregnancy, its symptoms, its disorders and their relief; Labor, and its necessities and helps; Infants, and the daily care of them from the very moment of birth; Children's diseases, their prevention and detailed medical treatment; Accidents; Poisons and their antidotes; Medicines, their preparation and administration; the Physical and Moral Training of Boys and Girls; Marriage; General Suggestions to Parents.

THE MEN WHO ADVERTISE. AMERICAN NEWSPAPER RATE BOOK AND DIRECTORY. New York: G. P. Rowell & Co., Publishers. 1870. 8vo; pp. 872.

No better proof is needed of the fact that advertising has become an art than this book, which contains a complete list of all the newspapers and periodicals published in the United States, Canada and the British Colonies of North America; the cost of advertising in most of the principal papers of the country; and a large amount of agreeable matter concerning those who are prominent as advertisers. In the way of advertising, this is the biggest and most original thing which we have seen.

THE PIUTE COMPANY OF CALIFORNIA AND NEVADA. San Francisco. 1870.

This is a handsome pamphlet, containing a large number of maps and engravings, and giving information with regard to the mining company whose name it bears. The original drawings were made by Mr. F. Wymper. It makes a very neat looking book.

THE AMERICAN COLLEGES AND THE AMERICAN PUBLIC. By Noah Porter, D. D., Professor in Yale College. New Haven, Conn.: Charles C. Chatfield & Co. 1870. 12mo; pp. 285. For sale by A. Roman & Co., S. F.

The question of what ought to be taught and what not taught in our American colleges has occupied of late a considerable share of public attention. The system which has hitherto prevailed of giving prominence to the classical studies, has been called in question, and "practical" courses have been demanded. Some of the colleges have made changes in their curricula to agree with these ideas. Similar changes have been made before, as at Amherst in 1826; at Harvard in 1825 and again in 1841; at the University of Vermont in 1829; at Brown in 1850; but after various trials, the several colleges have returned to their former systems. A new trial is now being made and its results are being awaited with interest. The present volume appears very opportunely and is of importance for our State with its young university. It is an able discussion of the matter, and argues in favor of retaining the classical studies—the ancient languages—with modifications of the common methods; and it also treats of topics akin to the direct subject. It deserves a large circle of readers.

CONTINENTAL Life Insurance Co., 302 Montgomery street, corner of Pine.

MARAVILLA COCOA. For Breakfast.—The *Globe* says: "Various importers and manufacturers have attempted to attain a reputation for their prepared Cocoa, but we doubt whether any thorough success has been achieved until Messrs. Taylor Brothers discovered the extraordinary qualities of 'Maravilla' Cocoa. Adapting their perfect system of preparation to this finest of all species of the Theobroma they have produced an article which surpasses every other Cocoa in the market. Entire solubility, a delicate aroma, and a rare concentration of the purest elements of nutrition, distinguish the Maravilla Cocoa above all others. For homeopaths and invalids we could not recommend a more agreeable or valuable beverage." Sold in packets only by all Grocers, of whom also may be had Taylor Brothers Original Homeopathic Cocoa and Soluble Chocolate. Steam Mills—Brick Lane, London. 5720-17

DR. HARTMANN, Physician, Oculist and Medical Electrician, cures all diseases of the eye, such as Granulated Eye Lids, Inflammation of the Eye, Opacities of the cornea cured permanently. Also, Paralysis, Rheumatism and all Nervous and Chronic Diseases, and all Female Complaints. 128 Kearny street. 25-250.

JAS. A. SULLIVAN, of Calaveras county, is requested to call at this office, or address us, on business. *

HAVING had numerous applications to purchase the right to manufacture CHAMPAGNE MEAD (the great temperance drink), we will state that we are now prepared to sell State and County Rights on reasonable terms. KENTON, GARR & CO. 2721-3m

CO-OPERATIVE UNION STORE.—This is becoming one of the most useful institutions in the city, and the Mechanic and Laboring Man fully appreciate it. They are now enabled to buy their Groceries at 10 to 20 per cent. cheaper than ever before, and the very best articles in the market. The store is located at 115 Sutter street, Lick House Block.

PHOTOGRAPHY.—For Cabinet Photographs, or Enamelled Cards, of the very best quality, you must go to the NEW YORK GALLERY, Nos. 25 and 27 Third street, San Francisco. Every picture warranted to give satisfaction. 10118 6m B. F. HOWLAND.

BOILER FELTING saves twenty-five per cent. of fuel. BERRY & PLACE'S MACHINERY DEPOT, No. 114 California street. 1v21-3m

BLOK TIN AND SOLDER WIRE, broom wire, piano covering wire, etc., manufactured by Joshua Gray, 437 Brannan street. 4v14-3m

NEVERMORE.—Can the coarse, gritty tooth powders and the tooth-destroying chemical fluids find a place on the toilets of sensible people? The fragrant and preservative Sozonox has superseded them all.

"SPALDING'S GLEK" mends Furniture, Toys, Crockery, all ornamental work.

THOMAS O'NEIL, Ornamental Glass Cutter, No. 10 Stevenson street, up stairs. Stained, Ground and Ornamental Cut Glass to order on reasonable terms. 14v20

Card

From the National (Elgin) Watch Co.

The attention of Watch-buyers is called to the following improvements in the American Watches, manufactured by the National (Elgin) Watch Company of Elgin, Ill.:

The ELGIN WATCHES are furnished with Burt's patent pinion, to prevent damage to the train in case of the breaking of the main spring.

The ELGIN WATCHES are furnished with a patent hair spring stud, to prevent the changing the adjustment of the hair spring after the watch has been regulated.

The ELGIN WATCHES are furnished with a patented contrivance for the letting down of the main spring without removing the dial or hands.

The ELGIN WATCHES are so constructed that the barrel can be removed and the main spring changed without taking the watch down.

The ELGIN WATCHES are furnished with the only complete protection against dust yet introduced upon American-made movements. The dust-excluder used upon the Elgin movements effectually encloses the works, and renders the entrance of dust an impossibility.

These improvements are peculiar to the ELGIN WATCHES, and are found on none others. The dust-excluder will especially commend itself to miners, railroad men, and others engaged in out-of-door employment.

The ELGIN WATCH branded "B. W. Raymond" is constructed with especial reference to its use upon engines and moving trains, and the Company claim for it that it is the best railroad watch in the world. The following prominent railroad officials have given it their hearty endorsement and commendation: E. B. Phillips, Esq., President Lake Shore and Michigan Southern R. R.; Col. C. G. Hammond, Superintendent Union Pacific R. R.; Edward H. Williams, General Superintendent Pennsylvania R. R. Co.; L. D. Rucker, General Superintendent Erie R. R.; J. M. Toucey, General Superintendent Hudson River R. R.; G. L. Dunlap, General Superintendent Chicago and North-Western R'y, and many others.

Ladies desirous of purchasing a handsome, strong, and correct time piece will find the elegant Watch bearing the trade mark of "LADY ELGIN" to be all that they desire. Inquire of your jeweler for the LADY ELGIN.

The real ELGIN WATCHES, elegant accurate, durable in many styles and at various prices, each accompanied by the special warranty certificate of this Company, and usually also guaranteed by the local dealer or watchmaker, can be had of most jewelers in all towns throughout the United States. Call and ask to see them. As an additional protection, look for "National Watch Co." on the dial, and one of the following TRADE MARKS, viz., "B. W. Raymond," "H. Z. Culver," "H. H. Taylor," "G. M. Wheeler," "W. H. Ferry," "Matt. Laflin," "J. T. Ryerson," "Lady Elgin," or "Frances Ruby," together with the words "ELGIN, ILL." engraved upon the gilt plate inside. These are the trade marks to denote the various grades and styles, but as even these have been pirated, require also the special warranty certificate, duly signed by T. M. Avery, the President of the Company, and numbered to correspond with the watch.

The trade on the Pacific Coast supplied at factory prices by Levison Bros., 629 Washington Street, San Francisco, who have on hand at all times a full supply of all grades of movements, and material for repairing the same.

An illustrated pamphlet, entitled "Making Watches by Machinery," by the late Albert D. Richardson, will be forwarded free of charge by sending address to

NATIONAL WATCH COMPANY,
159 and 161 Lake Street, Chicago;
No. 1 Maiden Lane, New York;
Or LEVISON BROS.,
629 Washington Street, San Francisco, Cal.

Pushing Forward.

It is hardly necessary in commencing a new volume, as we do to-day, to remind our readers that we are constantly pushing forward in our efforts to improve the SCIENTIFIC PRESS. We have never relied upon promises of what we propose to do; but have always been able to point to what we have done in the past, as the best assurance of what is in store for the future.

At the opening of the present year we reduced the price of the paper from \$5 to \$4 per annum, believing that the modified condition of affairs on the Pacific slope, growing out of the opening of the Overland Railroad, and other facilities for more frequent intercourse with other portion of the world, fully warranted such a step. Our anticipations have been more than realized in the increase of subscriptions, so much so as to enable us to give an additional amount of reading matter by the presentation to our readers of a double-sheet the first issue of every month.

Illustrations.

We have also made such arrangements as are now enabling us to greatly increase the number, interest and variety of our illustrations. While this improved feature adds largely to the cost of publication, we feel confident the additional interest and value thereby given to our columns, will be duly appreciated by a discerning public.

The Miner, the Mechanic, the Inventor, the Farmer and the Naturalist, will all find something of constant and practical interest in this direction.

The Miner will always be presented with everything new in the way of reducing ores, whether by mill process or by smelting.

All important improvements in Machinery will be promptly presented to the Mechanic, while the Inventor will be as regularly furnished with hints and stepping stones upon which others have mounted, and from which he in turn will be able to see still further and more clearly into the undiscovered future.

The ideas and instructions that we are here, constantly placing before the Farmer will speak for themselves. If the reader will pardon us for a mere hint at the future, we venture the promise that no one thing that is new and of any real practical importance in the mechanics of Agriculture shall be omitted in that portion of our illustrative department.

The Naturalist too will now add their find something to interest and instruct; while the general reader is never forgotten.

How far we have succeeded in making the SCIENTIFIC PRESS acceptable to the public, we can only judge by the words of hearty commendation which we are constantly receiving, not only from our brethren of the press, but from numerous private letters, from the readiness with which our patrons pay up their annual subscription and from the rapid increase in the list of subscribers.

A reference to the index published in our last issue affords the best evidence of the wide field of research and instruction in which we are engaged. The present number affords ample evidence of the truth of what we have written, and to strangers our subscribers can fully attest that the present is but an overage of our issues on the first of each month.

The carefully digested mining summary which we give each week; the chronicles of scientific and mechanical progress; the large and varied information on agricultural matters, and the many matters of general and special interest, together with the numerous illustrations, in all the various departments, combines an amount of information which for value, interest and variety, will not suffer in comparison with any periodical of the day. We trust that those for whom the Press is published will exert themselves to enlarge its sphere of usefulness by extending its circulation, and thus strengthening the hands of the publishers for still greater efforts, feeling satisfied that the benefit will be mutual.

July 2d, 1870.

IMPORTANT BOOK!

JUST ISSUED.—Roasting of Gold and Silver Ores, and the Extraction of their Respective Metals without Quicksilver. By G. Kustel, Mining Engineer and Metallurgist; Author of "Nevada and California Processes of Silver and Gold Extraction," and "Concentration of all Kinds of Ore." Illustrated by numerous engravings. Published and sold by Dewey & Co., proprietors SCIENTIFIC PRESS, San Francisco.

This Book contains 120 pages. Price, \$2.50, gold, or \$3 currency. postage paid.

Corporation Notices.

Land Purchasers' Association.

NOTICE.—At a meeting of the Board of Trustees of the Land Purchasers' Association, held August 4, 1870, the following resolution was adopted by unanimous vote: Resolved, That an assessment of ten dollars per share, gold coin, be, and the same is hereby levied, upon each and every share of the capital stock of the Land Purchasers' Association now held by subscribers thereto; being for the monthly installment falling due and payable August 1st, 1870. Said assessment is payable on or before the thirtieth day of August, A. D. 1870, to JAMES F. CROSETT, Secretary, at the office of the Association, No. 304 Montgomery street, San Francisco. Any stock upon which said assessment shall remain unpaid on the thirtieth day of August, A. D. 1870, shall be deemed delinquent, and will be advertised for sale at public auction, and unless payment shall be made before will be sold on the 24th day of September, A. D. 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. J. F. CROSETT, Secretary. Office, 304 Montgomery street, San Francisco. jy4

Eagle Quicksilver Mining Co.—Location of Works: Santa Barbara County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 27th day of July, 1870, an assessment of twenty dollars (\$20) per share was levied upon the mines of said Company, payable immediately, in United States gold and silver coin, to the Secretary, at his office, room No. 26, Hayward's Building, No. 419 California street, San Francisco, California. Any share upon which said assessment shall remain unpaid on Monday, the 19th day of September, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Wednesday, the seventh day of September, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees. T. W. COLBURN Secretary. Office, Room No. 26, Hayward's Building, 419 California St., San Francisco, California. jy30

Jennie A. Consolidated Mining Company, White Pine District, Nevada.

NOTICE.—There is delinquent upon the following described Stock, on account of assessment levied on the twentieth day of June, 1870, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificates.	No. Shares.	Amount.
D. Corson.....	2	2000	200 00
A. Stokes.....	53	1000	100 00
A. Deligno.....	4	2000	200 00
A. Deligno.....	21	2000	100 00
J. H. Cook.....	55	1000	100 00
J. H. Cook.....	56	500	50 00
J. H. Cook.....	57	500	50 00
J. H. Cook.....	58	250	25 00
J. H. Cook.....	59	250	25 00
J. H. Cook.....	60	125	12 50
J. H. Cook.....	61	125	12 50
J. H. Cook.....	62	125	12 50
J. H. Cook.....	63	100	10 00
J. H. Cook.....	64	100	10 00
J. H. Cook.....	65	100	10 00
J. H. Cook.....	66	100	10 00
J. H. Cook.....	67	100	10 00
J. H. Cook.....	68	100	10 00
J. H. Cook.....	69	100	10 00
J. H. Cook.....	70	75	7 50
J. H. Cook.....	71	75	7 50
J. H. Cook.....	72	50	5 00
J. H. Cook.....	73	50	5 00
J. H. Cook.....	74	50	5 00
J. H. Cook.....	75	50	5 00
J. H. Cook.....	76	25	2 50
J. H. Cook.....	78	25	2 50
J. K. Skinner.....	8	3000	300 00
Herman Todter.....	79	25	2 50

And in accordance with law and an order of the Board of Trustees, made on the twentieth day of June, 1870, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the office of the Company, on the fifteenth day of August, 1870, at the hour of twelve o'clock, m., of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale. J. M. BUELLINGTON, Secretary. Office, New Merchants Exchange, California street, San Francisco, California. jy30

Kincaid Fiat Mining Company, Tuolumne County, California.

NOTICE is hereby given, that at a meeting of the Board of Trustees of said Company, held on the twentieth day of July, 1870, an assessment of two dollars and a half (\$2.50) per share was levied upon the capital stock of said Company, payable immediately in United States gold and silver coin, to the Secretary, 220 Clay street, San Francisco, California. Any stock upon which said assessment shall remain unpaid on the twenty-fourth day of August, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the fourteenth day of September, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees. D. H. CROWE, Secretary. Office, 220 Clay street, San Francisco. jy23

Mountain City Mining Company.—Location of Works: Cope District, Elko County, State of Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the fourteenth day of July, 1870, an assessment of twenty-five cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary, at the office of the Company, No. 408 California street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on the twenty-ninth day of August, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the twenty-sixth day of September, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees. T. B. WINGARD, Secretary. Office, 408 California street, San Francisco. jy23

Nevada Land and Mining Company.—Location of Works: Steptoe, Johnson & Lathara, Antelope and Chilton Districts, Elko County, State of Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the eleventh day of August, 1870, an assessment of two (2) cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary, at his office, Room 5, No. 302 Montgomery street, San Francisco, California. Any stock upon which said assessment shall remain unpaid on Tuesday, the thirteenth day of September, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the third day of October, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees. WM. H. WATSON, Secretary. Office, Room 5, No. 302 Montgomery street, San Francisco, California. jy23

Noonday Silver Mining Company.—Location of Works: White Pine Mining District, White Pine County, Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the twentieth day of July, 1870, an assessment of twenty (20) cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary, at the office of the Company, Room 21, Hayward's Building, 419 California street, San Francisco, California. Any stock upon which said assessment shall remain unpaid on the twenty-fourth day of August, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Tuesday, the thirteenth day of September, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees. CHAS. E. LILLIOT, Secretary. Office, Room 21, Hayward's Building, 419 California street, San Francisco, California. jy23

North America Consolidated Mining Company.—Location of Works: White Pine County, State of Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the sixteenth day of June, 1870, an assessment of five (5) cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary, at the office of the Company, Room 5, No. 302 Montgomery street, San Francisco, California. Any stock upon which said assessment shall remain unpaid on the seventeenth day of August, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Wednesday, the seventh day of September, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees. WM. H. WATSON, Secretary. Office, Room 5 No. 302 Montgomery street, San Francisco, Cal. jy23

Pinto Mining Company, Location of Works: "Silverado," Pinto District, White Pine County, Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the twenty-second day of July, 1870, an assessment of ten (10) cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, at 426 Montgomery street, San Francisco, California. Any stock upon which said assessment shall remain unpaid on the twenty-fifth day of August, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Thursday, the fifteenth day of September, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees. D. B. ARROWSMITH, Secretary. Office, 426 Montgomery street. jy30

New Advertisements.

LEOPOLD KUH, (Formerly of the U. S. Branch Mint, S. F.) Assayer and Metallurgical CHEMIST, No. 611 Commercial Street, (Opposite the U. S. Branch Mint,) SAN FRANCISCO, CAL. 7v21-3m



BRIGHAM & HAWES, Foot of Third Street, San Francisco.

DEALERS IN Fine Granite, Building and Street Paving Stone. The trade supplied at WHOLESALE or RETAIL.

ALSO CONTRACTORS. Work done to order at short notice. 7v21-3m FOR SALE.

Two choice fine Breed Bulls, 12 and 16 months old. Blood, 3/4 Devon, 1/4 Durham.—Produced from very extra superior selected Dairy Stock. Price \$60 and \$70. Ranch of Wm. Whidden, Alvarado, Alameda Co. 7v21-2t

THE GRAND Horticultural, Agricultural and Pomological EXHIBITION

OF THE MECHANICS' INSTITUTE, Will open on MONDAY, AUGUST 23, 1870, and continue for FIVE DAYS, at the Pavilion Building, On Union Square, San Francisco.

The Exhibition will be of FRUITS, FLOWERS, PLANTS, CEREALS, and all that relate to the Flora of California. Every facility will be extended to Exhibitors, and FULL BAND, and Instrumental Solos.

CASH PREMIUMS To the amount Two Thousand Dollars Will be awarded to Competitors in the Products of CALIFORNIA WINES.

THE SOCIETY'S Gold Medal will be awarded for CALIFORNIA WINES. THE PAVILION will be appropriately decorated, and in the evening, in addition to the Floral and Pomological display, there will be Music by the best attainable FULL BAND, and Instrumental Solos. The Exhibition will be visited by many of the representatives of the leading Horticultural and Agricultural journals of the Eastern States, now on a visit to California to inspect its Fruits, Flowers and Agricultural resources.

ADVISORY COMMITTEE: DR. EZRA CARR, Professor of Agriculture and Horticulture, State University. S. W. SHAW, President Fruit Growers' Association. U. S. HITTLE, Author Resources of California. E. J. WEEKS, President Bay Dist. Ag. Society. J. L. SANFORD, Napa. M. HASKELL, Marysville. A. J. MOULDER, Sec'y Board of Regents. It is intended that this Exhibition shall be the feature of the season, and everything will be done to make it an agreeable and attractive entertainment to the visitor.

ADMISSION: Double Season Tickets, (Gentleman and Lady) \$2 50 Single Season Tickets..... \$1 50 Single Admission..... 50 Children..... Half Price. Season Tickets can be obtained of any member of the Board of Managers, at the Mechanics' Institute Library, 27 Post Street, or at any of the Book or Drug Stores. All communications desiring information, or applications for space, must be addressed to H. C. KIBBE, Corresponding Secretary Mechanics' Institute, who will forward Premium List, Rules, etc., or application can be made at the Library of the Mechanics' Institute, 27 Post street.

Per order Board of Managers A. S. HALLIDIE, President. GEORGE PARRY, Secretary.

PATENT AGENCY DEWEY & CO.

PUBLISHERS OF THE MINING AND SCIENTIFIC PRESS. Principal Agents west of the Mississippi.—Established 1830. Our appointments are substantial, reliable and complete, for securing patents in the U. S. and EVERY COUNTRY IN THE WORLD where patents are allowed. Our business is large and our exceedingly successful practice justifies the assertion that Pacific Coast inventors can invariably secure their rights at a great deal quicker, and more perfectly, through us, than by any other solicitors—and at favorable rates. Illustrated pamphlets, containing a digest of

Reasons for Success. We would especially call the attention of the inventive public to the fact that our Patent Agency is taking out a larger number of Patents than any other agency west of the Mississippi River. We do our work promptly and thoroughly, and refer to our standing amongst inventors as an evidence of our success in our special department. Our work is all done inside of our office, by COMPETENT AND RELIABLE PERSONS, who have been for years interested and associated with us. We therefore are not compelled (like many agencies) to trust valuable and important inventions premiscuously to outsiders, to have part of the case prepared, but inventors can depend that, from the time their cases are first placed in our office, they are kept with proper secrecy until full rights are secured in the Patent Office in Washington. This is an important point in the proper prosecution of Patent business. It is a notorious fact that some prominent agencies trust a considerable portion of their cases to apprentices and amateurs. A deficiency or want of attention to the small affairs of any kind of business will often prove as harmful as a flagrant violation of the most important rules which govern and control it.

Interferences. INTERFERING APPLICATIONS are conducted with spirit and ability on the most favorable terms, by DEWEY & CO. It sometimes happens that an applicant finds his invention has been patented by another, but more recent discoverer. In such cases the prior discoverer can obtain full right to the invention if he can produce tangible evidence of priority.

When patents are threatened with interference they should consult able and responsible agents before they either allow themselves to be backed down from their rights, or trespass upon the rights of others. We will always counsel and advise in such cases upon the most reasonable terms—often saving clients heavy damages and exorbitant fees.

Advancing Cases. If any case placed in our hands meets with rejection, we do not wait to write and inform the inventor of this fact, (as is the case with most agents,) but our representative at Washington proceeds at once to examine the stated objections, and if it be not a just and unavoidable decision, the claims of the inventor will be presently argued before the Examiner, and if possible the decision reversed.

San Francisco Metal Market.

PRICES FOR INVOICES.

Jobbing prices rule from ten to fifteen per cent. higher than the following quotations.

TUESDAY, August 11, 1870.	
Inov.—Duty: Pig, \$9 per ton; Railroad, 60c per 100 lbs.; Bar, 1 1/2c per lb; Sheet, polished, 3c per lb; common, 1 1/2c per lb; Plate, 1 1/2c per lb; Pigs, 1 1/2c per lb; Galvanized, 2 1/2c per lb.	
Scotch and Eng. Pig Iron, per ton, \$31 00 @ \$32 00	
Whites Pig, per ton, 28 00 @ 30 00	
Refined Bar, had assortment, per lb., — 03 @ —	
Refined Bar, good assortment, per lb., — 04 @ —	
Boiler, No. 1 to 4, — 04 1/2 @ —	
Plate, No. 5 to 9, — 04 @ — 04 1/2	
Sheet, No. 10 to 13, — 04 1/2 @ — 05	
Sheet, No. 14 to 20, — 05 @ — 05 1/2	
Sheet, No. 21 to 27, — 05 @ — 06 1/2	
COPPER.—Duty: Sheathing, 3 1/2c per lb; Pig and Bar, 2 1/2c per lb.	
Sheathing, per lb., — 26 @ —	
Sheathing, Yellow, — 20 @ — 21	
Sheathing, Old Yellow, — 10 @ — 11	
Composition Nails, — 21 @ — 22	
Composition Bolts, — 21 @ — 22	
TR. PLATES.—Duty: 25 per cent. ad valorem.	
Plates, Charcoal, IX, per box, 12 00 @ — 50	
Plates, I C Charcoal, — 10 00 @ 10 50	
Roofing Plates, — 10 00 @ 10 50	
Banca Tin, Sibs, per lb., — 42 @ —	
STEEL.—English Cast Steel, per lb., — 15 @ —	
QUICKSILVER.—per lb., — 65 @ —	
LEAD.—Pig, per lb., — 7 1/2 @ — 8	
Sheet, — 10 @ —	
Pipe, — 11 @ —	
Bar, — 9 @ —	
ZINC.—Sheets, per lb., — 11 @ —	
BORAX, — 35 @ — 38	

Machinists and Foundries.

FULTON Foundry and Iron Works.

HINCKLEY & CO.,

MANUFACTURERS OF

STEAM ENGINES,

Quartz, Flour and Saw Mills,

Hayes' Improved Steam Pump, Brodie's Improved Crusher, Mining Pumps, Amalgamators, and all kinds of Machinery.

N. E. corner of Tehama and Fremont streets, above Howard street, San Francisco. 3-qr

THE RISDON Iron and Locomotive Works.

INCORPORATED.....APRIL 30, 1863.

CAPITAL.....\$1,000,000.

Corner of Beale and Howard Streets, SAN FRANCISCO.

Steam Engine Builders, Boiler Makers, Machinists, Foundrymen, and Manufacturers of Car Wheels equal to the best imported, and guaranteed equal to Eastern Works.

Directors: S. F. Butterworth, Lloyd Tevis, Wm. Alvord, Wm. Norris, Joseph Moore, Chas. E. McLane, John N. Risdon.

JOHN N. RISDON.....President.
JOSEPH MOORE.....Vice President and Superintendent.
LEWIS R. MEAD.....Secretary.

UNION IRON WORKS, Sacramento.

WILLIAMS, ROOT & NELSON,

MANUFACTURERS OF

STEAM ENGINES, BOILERS,

CROSBY PATENT BOILER FEEDER AND SEDIMENT COLLECTOR,

WILCOX'S PATENT WATER LIFTERS,

Danbar's Patent Self-Adjusting Steam Piston

PACKING, for new and old Cylinders.

And all kinds of Mining Machinery.

Front Street, between N and O streets, 16-1

SACRAMENTO CITY

CALIFORNIA BRASS FOUNDRY,

No. 125 First street, opposite Minna,

SAN FRANCISCO.

ALL kinds of Brass, Composition, Zinc, and Babcock Metal Castings, Brass Ship Work of all kinds, Spikes, Sheathing Nails, Rubber Fraces, Hinges, Ship and Steamboat Belts and Gears of superior tone. All kinds of Cocks and Valves, Hydraulic Pipes and Nozzles, and Hose Couplings and Connections of all sizes and patterns, furnished with dispatch.

PRICES MODERATE.

P GALLAGHER, J. H. WEED, V. KINGWELL

WM. W. CANTY, JNO. DUBIE, F. PRETORIOUS, JNO. CONNER.

MINERS' CO-OPERATIVE BOILER SHOP.

228 FREMONT STREET,

Between Howard and Folsom, San Francisco.

— ALL KINDS OF —

High and Low Pressure Boilers Built.

Sheet Iron Work, Etc., Etc.

Repairing promptly attended to.

17-20-5m WM. W. CANTY, Manager.

California File Manuf'g Co.

437 BRANNAN STREET, bet. Third and Fourth.

W. WUSTHOFF, L. KRAMER, M. HARRIS, J. BURKE.

REAPER AND MOWER SECTIONS, BARS AND KNIVES COMPLETE.

At a saving of 50 percent. New Files of every description on hand and made to order. Old Files re-cut, and warranted equal to new. Orders from the country promptly attended to.

GEO. T. PRACY'S MACHINE WORKS,

109 and 111 MISSION STREET,

SAN FRANCISCO.

MANUFACTURER OF

PRACY'S IMPROVED

PATENT STEAM ENGINE

GOVERNOR.



These Governors are the most sensitive built, running at a high velocity and maintaining a uniform speed.

SOLE AGENT FOR

L. W. POND'S CELEBRATED TOOLS,

— SUCH AS —

Lathes, Planers, Drills, Boring Mills, Milling Machines, Etc.,

Which I will offer at very low rates. Also,

MORSE'S TWIST DRILLS,

AND CHUCKS OF ALL KINDS.

MANUFACTURER OF

Steam Engines, and Mill Work Generally.

Sole Agent for TAYLOR'S PATENT SHEARS AND PUNCHES.

ESTABLISHED 1851.

PACIFIC IRON WORKS,

First and Fremont streets,

SAN FRANCISCO.

IRA P. RANVIN, A. P. BRAYTON,

GEO. W. FOGG, Superintendent.

Steam Engines and Boilers,

MARINE AND STATIONARY.

IRON AND BRASS CASTINGS,

Mining Machinery of Every Description,

And all other classes of work generally done at first-class establishments, manufactured by us at the lowest prices, and of the best quality.

Particular attention paid to Jobbing Work and Repairs.

Sole Agents for sale of HUNTOON'S CELEBRATED PATENT GOVERNOR.

18-20-3m GODDARD & CO.

McAFEE, SPIERS & CO.,

BOILER MAKERS

AND GENERAL MACHINISTS,

Howard street, between Fremont and Beale, San Francisco.

Fine or Tubular Boilers, with plain circular or spiral courses. Upright Fire or Tubular Boilers, Locomotive and all kinds of Boilers, and Wrought Iron Tanks of every description.

Hydraulic Pipe supplied at reasonable rates. In ordering, give the quantity of water to be supplied, height of the fall, and total length of pipe, so as to enable the firm to determine the diameter of the pipe and thickness of iron to be used.

Repairs.—Boilers, Smoke Stacks, Pipes, etc., put in repair with promptness.

To Boiler Makers and Machinists in the Interior.—The firm is prepared to furnish estimates of Boilers, supply new Heads, drilled and punched, and attend to the selection and forwarding of Iron for Boilers, Pipes and other purposes.

Plans, Drawings and Specifications.—The firm is prepared to make out Plans and Specifications, receive estimates, and superintend the Erection of any Machinery that may be entrusted to their care.

To Inventors.—The firm is prepared to assist in developing the plans of those who have the ideas but not the practical experience necessary to put the same in form, by making Drawings of their Inventions, giving them the benefit of their practical knowledge in the construction of Machinery, and attending to the manufacture and introduction of their Inventions.

MACHINERY

— AT —

GREATLY REDUCED RATES.

Miners' Foundry & Machine Works,

235 TO 245 FIRST STREET,

SAN FRANCISCO.

This Establishment is now working upon the

CO-OPERATIVE PLAN,

And are thereby enabled to manufacture

MACHINERY, CASTINGS & BOILERS

AT EASTERN PRICES.

And better adapted to the wants of the Pacific States.

Ascertain our prices before purchasing. 8-20q

NELSON & DOBLE,

AGENTS FOR

Thomas Firth & Sons' Cast Steel.

Sledges, Hammers, Stone Cutters', Blacksmiths' and Horse-Shoers' Tools.

13 and 15 Fremont street, near Market, San Francisco. 10-14q

THOMPSON BROTHERS,

EUREKA FOUNDRY,

and 131 Beale street, between Mission and Howard

San Francisco.

LIGHT AND HEAVY CASTINGS,

of every description, manufactured 24-16q

The Merchants' Exchange Bank OF SAN FRANCISCO.

Capital, One Million Dollars.

A. N. COLEMAN.....President.

G. H. WHEELER.....Cashier.

BANKING HOUSE,

No. 418 CALIFORNIA STREET.

25-20-qy

GIANT CEMENT.

GIANT CEMENT.

A most extraordinary and universally needed article for mending Furniture, Crockery, Glassware, Marble, Meerschaum Pipes, Ornaments, etc.; also splicing Leather Belting and patching Boots and Shoes. This Cement possesses extraordinary merit, and is in every way a first-class article. Every can is its own testimonial. Also, MINERS' RUBBER CEMENT, for mending Rubber Boots, Shoes, Belting, Coats, and Hoses without stitching! Easily applied, never failing, and perfectly waterproof. Both Cements are put up in TIN CANS ONLY, with full directions. Take no other. GIANT CEMENT and MINERS' RUBBER CEMENT are kept by Druggists and Dealers throughout the country. Country Dealers can be supplied by ordering from any house here or in Sacramento with whom they deal, or by sending direct to us. Send for Agents' Circulars and Price List, to Giant Cement Manufacturing Co., 419 Washington street, San Francisco.

MINERS' RUBBER CEMENT.

MINERS' RUBBER CEMENT.



The Great Family Medicine of the Age.—THIRTY YEARS have elapsed since the introduction of the Pain-Killer to the public, and yet at the present time it is more popular and has a larger sale than ever before. Its popularity is not confined to this country alone; all over the world its beneficial effects in curing the "ills that flesh is heir to," are acknowledged and appreciated, and as a pain-killer its fame is limited to no country, sect or race. It needs only to be known to be prized.

THIRTY YEARS is certainly a long enough time to prove the efficacy of any medicine, and that the PAIN-KILLER is deserving of all its property is plain for it is annually proved by the unparalleled popularity it has attained. It is a sure and effective remedy. Sold by all Druggists. Price 25 cents, 50 cents, and \$1 per bottle.

Directions accompany each bottle. 4-21-1m

GRANDALL'S PATENT SPRING BED.

COOLEY & GREEN, Proprietors.

Manufactory, corner Front and M streets, SACRAMENTO These Spring Beds, wherever known, are universally acknowledged to be superior to any other in use. They are light, durable and elastic, and present no harborage for bugs or any other kind of vermin, thus being free from the objections so often urged against the ordinary spring beds. Orders received at our manufactory, or at our agencies, as follows:

S. B. SNEDAKER, 413 Pine street and

S. 639 Market, near New Montgomery.

W. H. SARLES, San Jose.

MR. NICHOLS, Stockton.

IRWIN & GARNETT, Oakland.

MR. MURPHY, Vallejo.

E. A. TOMPKINS, Grass Valley.

22-20

HIBBERD, SANBORN & CO.,

BUILDERS.

South Point Mills, Henry Street.

Between Third and Fourth, San Francisco. Orders from

the country promptly attended to. All kinds of Sash Material furnished to order. Wood and Ivory Turners. Billiard Balls and Ten Pins. Fancy News and Painters.

DR. ABORN

Has Consented to Remain on the Pacific

Coast a while longer.

He can be consulted until the 10th of September, as follows: At the Auzeais House, San Jose, from the 1st to the 31st of July; at 22 Kearny street, San Francisco, from the 1st to the 5th of August; at the Yosemite House, Stockton, from the 6th to the 31st of August; and again at 22 Kearny street, San Francisco, from the 1st to the 10th of September.

Card from Wm. Hoskins, Notary Public, Oakland.

Dr. Aborn.—I take pleasure in hearing testimony to your skill and Treatment for Catarrh and Bronchial Affection, having been under your treatment the past ten weeks, and find myself greatly cured. As you are about leaving for San Jose, I cheerfully recommend you to all similarly afflicted.

Oakland, June 3, 1870. WM. HOSKINS.

No Painful Operations.

Dr. Aborn does not subject his patient to any painful or unpleasant operations. His treatment is mild, and safe for the most delicate child. The afflicted are hereby informed, that after the first visit, for many of the diseases which he makes a specialty, they can take the treatment home and use it until cured, without pain or interruption to their usual avocations.

Prominent Californians.

Hon. James A. Johnson, M. C., Lieut. Governor Holden, Charles N. Fox, Esq., S. O. Houghton, Esq., Gen. E. F. Beale, Melville Cottle, Esq., Wm. Hoskins, Esq., Messrs. Wm. B. Cooke, H. M. Jones, Henry Orman, Jr., J. H. Hardwick, Perry Dyer, J. S. Carter, Hubert Burgess, and many other prominent citizens of California, have willingly given their cards to the public, testifying to the efficacy of Dr. Aborn's treatment. Many cures have been effected by the Doctor within a few days, and a number of those cures were of many years standing, and had resisted all the ordinary modes of treatment. The usual success attending Dr. Aborn's treatment should inspire new hopes of speedy recovery even in the most hopeless cases.

17-21-2m

The large majority of United States and Foreign Patents granted to inventors on the Pacific coast during the past few years, have been obtained through the agency of DEWEY & Co., publishers of the SCIENTIFIC PRESS. Established in the year 1860, we have an extensive patent library, with full record of cases on this coast, and can give the best and most reliable advice as to the patentability of new inventions.

Oil Cake Meal.

THE BEST FEED KNOWN FOR LIVE STOCK.

We desire to call attention to Oil Cake Meal, which we are now manufacturing. No description of feed so greatly promotes the health of animals as Oil Cake Meal, and we urgently request all engaged in the dairy business, raising and fattening stock, or wool growing, to give it a trial, feeling confident that they will find it of very great value. By those who have used it thoroughly, ONE pound is pronounced to be equal to two pounds of Corn Meal, and in the United States Government Report of the Department of Agriculture for 1865, it stands in the following relation to other feeds as to the percentage of flesh produced from a hundred pounds of feed, viz: Indian Corn Meal, 11 per cent.; Barley Meal, 13 per cent.; Oat Meal, 18 percent.; Oil Cake Meal, 22-100 per cent. For life-sustaining properties to all stock exposed to sudden changes of weather or over-driving, it has no equal.

For MILCH COWS it is particularly valuable, increasing the quantity of milk and improving its quality to a far greater extent than any feed known. A suitable quantity for them at the commencement is one quart in the morning and one quart at night, either alone or mixed with any other feed; generally mixed with the mash of bran, slops, roots, or cut feed of any kind. It improves it to soak it for six or eight hours, the effect being to increase its bulk two or three times. The quantity can be increased gradually, according to the effect produced—ordinarily not exceeding three or four quarts per day.

FOR BEEF CATTLE it has fattening properties which cannot be found in any other feed—the beef always being more tender and juicy, and of a much finer quality than when fattened on any other feed, and no feed known will so quickly prepare animals for market as Oil Cake Meal.

FOR HORSES a small quantity given daily promotes their health, and is especially valuable for them when chilled or injured from over-driving. It is one of the best remedies known for Horses subject to the Heaves or Rheumatism, and greatly increases the cleanliness and evenness and glossiness of the hair.

FOR SHEEP there is no article of food known that produces such fine mutton or so promotes the growth of wool. A small quantity given to chilled Cattle or Sheep will keep them alive and greatly increase their warmth and vitality.

At present price (\$25 per ton) it is the cheapest feed in market. It is now selling in New York at \$42 per ton gold; at \$50 per ton in England, where it has been proven for a long time to be in every respect the most profitable feed known for stock of all kinds—one ton being fully equal to three tons of bran.

The increasing demand for this meal from those on this coast by whom it has been thoroughly tested, has induced us to increase our facilities for its manufacture, and we are now fully prepared to furnish it in quantities as may be desired. For sale by the Grain and Feed Dealers, and at the manufactory, King street, near Third. All orders will receive prompt attention. Address—

Pacific Oil and Lead Works,

Nos. 3 and 5 Front St., San Francisco.

26-20-1am3m

TREES,

FRUIT AND ORNAMENTAL.

1870.

THE LARGEST AND MOST COMPLETE STOCK

— IN THE —

UNITED STATES.

Orders for large or small quantities promptly filled.

Packing performed in the most skillful and thorough manner. SMALL PARCELS forwarded by Mail when desired. Nurserymen and Dealers supplied on liberal terms. Descriptive and Illustrated priced Catalogues sent prepaid on receipt of stamps, as follows:

No. 1—Fruits.....10 cents.

No. 2—Ornamental Trees.....10 cents.

No. 3—Greenhouses.....5 cents.

No. 4—Wholesale.....FREE.

ELLWANGER & BAR RY,

ROCHESTER, N.Y.

000 ACRES

CHOICE FARMING AND GRAZING

LAND!

IN SHASTA VALLEY

In Tracts of 160 to 20,000 Acres.

Abundance of Rain and Running streams all the year round—the whole valley ALWAYS covered with a rich growth of grass.

PRICES VERY LOW -- TERMS EXTREMELY EASY

For full particulars, maps, etc., apply to

YOUNG & PAXSON,

Jy 30 No. 424 Montgomery St., San Francisco.

New York Metal Market.

[COLLECTED WEEKLY FROM THE AMERICAN ARTISAN.]

New York City, Saturday, July 30, 1870.
IRON.

Pig, Scotch, No 1 (cash), per ton...	\$52 50	@	\$35 50
Pig, American, No. 1 (cash).....	32 00	@	33 00
Pig, ordinary, No. 2.....	30 00	@	31 00
Swedish, ordinary sizes.....	115 00	@	115 00
Common.....	72 00	@	80 00
Refined.....	77 50	@	95 00
Rods.....	85 00	@	120 00
Horse-shoe.....	95 00	@	—
Hoop.....	105 00	@	115 00
Scroll.....	87 00	@	115 00
Nail-rods, per lb.....	—	@	7 1/2
Spring.....	—	@	7 1/2
Tire.....	—	@	7 1/2

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Bars, best cast, warranted, per lb...	16 1/2	@	17 1/2
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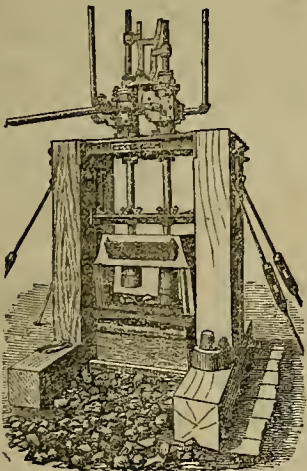
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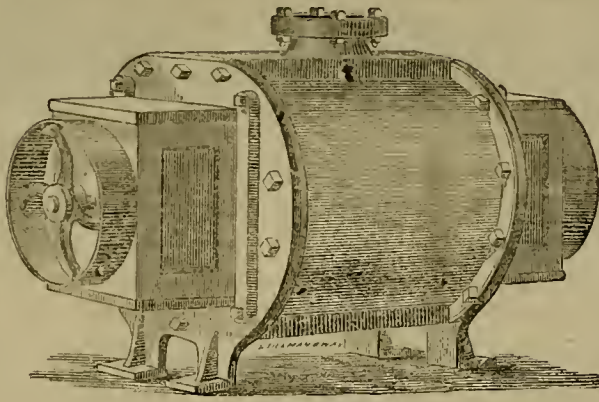
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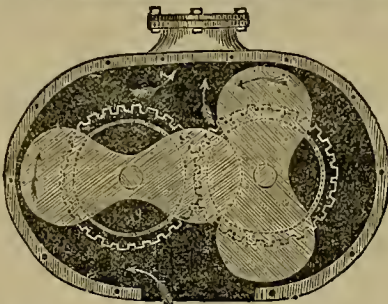
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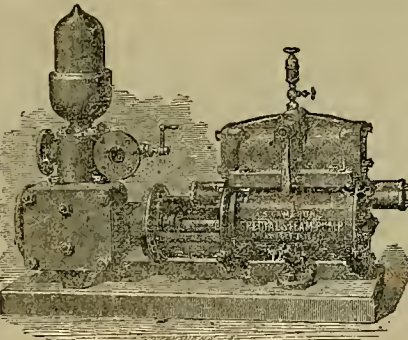
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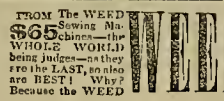
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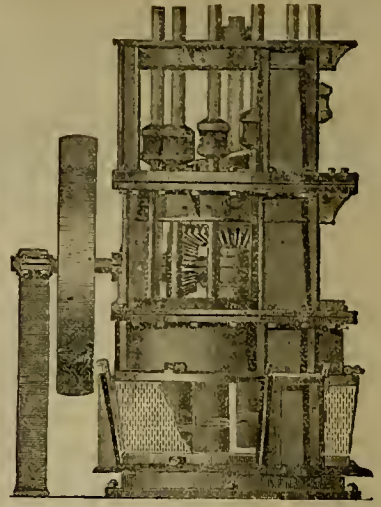
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Classification of Ores; Important Silver Ores; Difference between Real Silver Ores and Argentiferous Ores; Important Combinations; Means of Desulfurization; Means of Reduction; Desulfurization of Ores Not Efficient; What a Chloride is, and How Chlorination is Effected; Means of Separating the Metals from Chloride.

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A. Chloridizing Roasting; Necessary Amounts of Sulphurets; Amount of Salt Used; Permanent Stirring Not Essential; Signs of a Good Chloridizing Roasting; Means of Destroying Base Metal Chlorides; Steam decomposes Base Metal Chlorides; Application of Steam in Roasting; Lead has a Bad Influence; Difference in Roasting Processes; In what condition the Metals are after Roasting; Changes in Roasting.
B. Oxidizing Roasting; Chemical Changes in Roasting; What Process requires Oxidizing Roasting; Roasting Furnaces; Furnaces managed by Handwork; Reverberatory Furnaces; Single Roasting Furnace; Double Roasting Furnace; Long Roasting Furnace; Muffle Furnace; Furnaces with Mechanical Apparatus; Revolving Hearth Furnace; Ernst's Rotary Furnace; Parke's Furnace; Buckner's Furnace; O'Hara's Chain Furnace; Stetefeldt's Furnace; Chimneys and Flues.

III. EXTRACTION OF SILVER BY LIXIVIATION.

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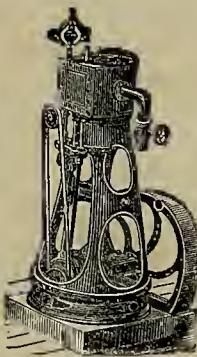
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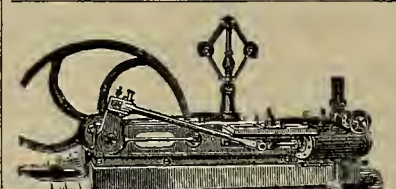
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**RIDER'S GOVERNOR CUT-OFF ENGINE,**

Manufactured by the DELAMATER IRON WORKS, WEST THIRTIETH ST., NEW YORK. The prominent features of this engine are: Economy equal to any; perfect regulation of speed by cut-off; entire absence of delicate or complicated mechanism; simplicity of design and non-liability of derangement; requiring no more case than common engines. NOTE.—This improvement can be applied in many cases to existing engines. Pamphlets sent on application. 26v20-3m16p

SCIENTIFIC PRESS.

AN ILLUSTRATED JOURNAL OF SCIENTIFIC AND INDUSTRIAL PROGRESS,
Mining, Farming and Mechanic Arts.

BY DEWEY & CO.,
Patent Solicitors.

San Francisco, Saturday, August 20, 1870.

VOLUME XXI.
Number 8.

Improved Sectional Mills.

We have often received enquiries with regard to some apparatus for grinding bones and the like substances. Raw bones are very difficult to be handled in this way. They are hard and, besides, so tough that they form a peculiarly intractable substance. We illustrate, therefore, very gladly to-day a machine which comes with strong recommendations, and which has been working successfully in manufactories in Philadelphia and Chicago on this material where its great capacity and strength have been demonstrated. They are working also gnanos, plaster, fire-brick, smac, bark, ores, fish scraps and all sorts of substances, and are said to be most efficient. Fig. 1 shows the general appearance of the mill, and Fig. 2 gives a sectional view of the same.

In the old form of iron mills, the grinding surfaces were confined to a system of straight grooves, this form being adopted and used as the only one not too expensive for practical use, not because it was the best. It is easy for any one to see that to use the same kind of surface for every variety of material, was radically wrong. For a substance of a given character, a certain shape and kind of surface is necessary, and as the substance to be ground varies in character and condition, a corresponding variation of the surface is required. By casting the grinding surface in sections, these requirements can be fulfilled. The special advantages of this method, the ease of making necessary changes, etc., need not be further enlarged on here. We proceed with a description of the apparatus under consideration, from which our readers can get an idea of its efficiency.

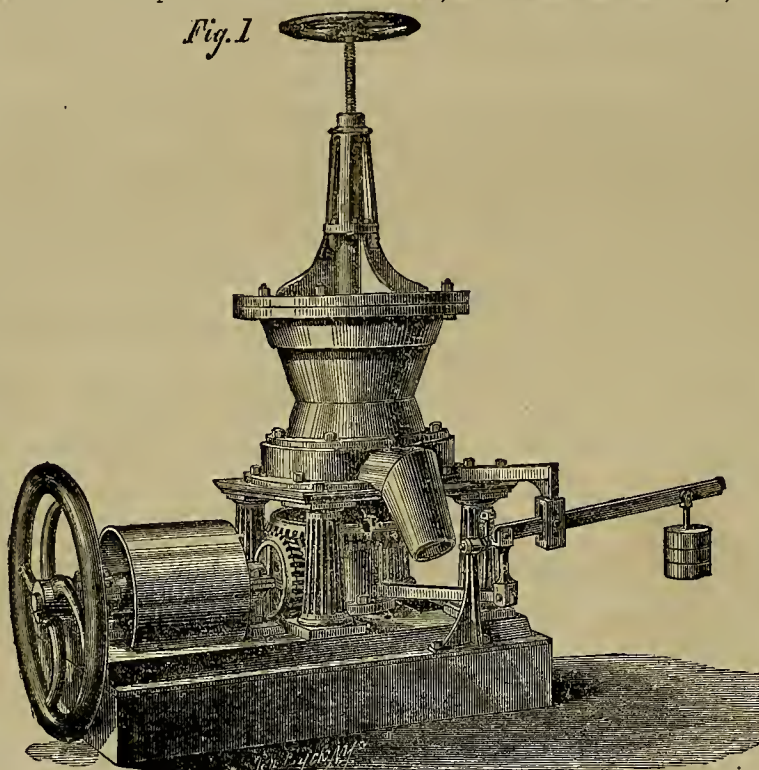
A is the top breaker, with a projecting arm varied in shape to suit different material, and made to slip over a sleeve which fits on the shaft, so as to protect it and to obviate the need of renewing that much iron with every breaker. The large screw-nut, B, holds the breaker down in place. It is a left hand screw and tightens itself in working. C is the circular grinder, with holes for stud bolts (only one of which is shown) used to hold in place the grinding sections, D, which are eight in number. E is the stationary sectional dress in the upper part of the shell, eight of which form a circle. The corrugations are very deep, so as to admit of a great amount of wear. The outside stationary sections, G, are held in place by the nuts, H. The circular shape of the bottom of the dresses, D and G, admits of a great amount of wear at the bottom, where they come first in contact, and gives greater space, on raising the lever, to allow any iron to get out, which may by chance get into the mill.

I is the cone to which the dress castings, D, are attached. It has a heavy wrought-iron band around the base to support the dress, and is held in place by two feathers, L, in the shaft, and a tight collar below. Wipers, J, carry the ground material to the spout. The main shaft, K, is of wrought iron, but its lower end, which works in the

step, is made of solid steel. There are two feathers, L, let into it, to hold the cone and breakers in place. A steel, conical, anti-friction disk placed under the shaft

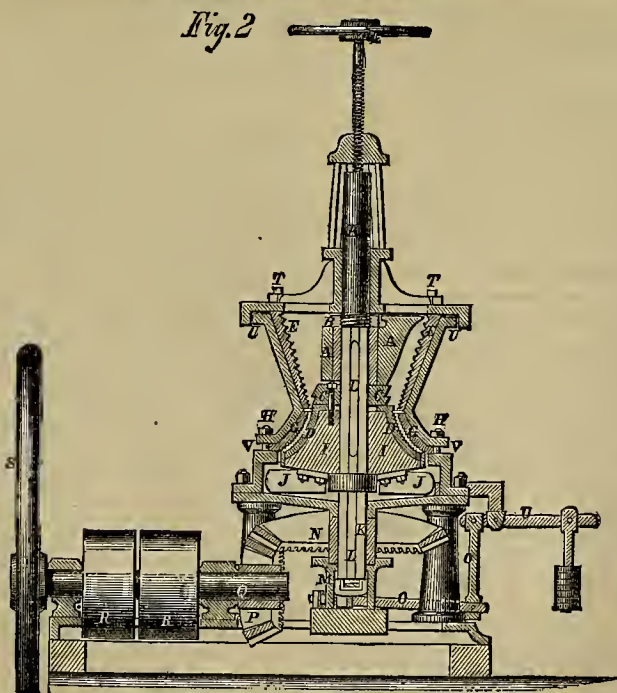
supported by M. Levers for adjusting the mill with weights are shown at O; or screws may be used instead. P is the driving cog-wheel, half the size of the other wheel, thus

Fig. 1



E. P. BAUGH'S IMPROVED SECTIONAL MILL.

Fig. 2



SECTIONAL VIEW OF MILL.

effectually prevents heating. The step-box which has a steel lining, is movable. The step moves up and down in a hollow column, M, in closing and opening the mill to adjust the grinding; the shaft working freely through the bevel cog-wheel, N, which is

doubling the power of the belt. Q is a wrought-iron counter-shaft, to which are attached the fixed and loose pulleys, R. S is the fly-wheel, which, with its shaft, is supported by pedestal boxes fitted with anti-friction metal.

The large screw at the top of the mill is used for raising the different parts to change the dress. In order to change the upper parts, the bolts, T, are loosened, allowing the mill to be opened at U. To change the lower grinding surface, the bolts, H, are unscrewed, allowing the mill to be opened at V. Then the large nut, B, is loosened, and the breaker and sleeve are raised, and finally the stud-bolts passing through C are unscrewed, when all the dress can be removed.

There are various sizes made. The largest, "No. 1," is of very great power and strength and is intended to prepare all hard substances for smaller mills, although it is claimed that a large percentage of its product ordinarily requires no further treatment. It is claimed that the hardest substance susceptible of grinding or breaking can be crushed without risk of injury to the mill. The power required to run the machine to its full capacity is from 10 to 12 horses; yet its main shaft being solid wrought-iron, five inches in diameter, it can be run safely with power of 25 horses! The manufacturers state that it can work, in 10 hours, 20 tons and upwards of raw bones varying with their more or less dry condition; 30 to 40 tons of hard guaneros, quartz and other mineral substances; 50 to 60 tons of plaster; and 25 tons of South Carolina guano.

Such is the mill of Mr. E. P. Baugh. It has been the aim of its manufacturers to combine economy and efficiency with simplicity and rapidity of execution, which are especially demanded in America. Testimony to their success is given in a number of certificates. The mill has been secured by patents in Great Britain, France and the United States, and is manufactured by Baugh & Sons, No. 20 South Delaware avenue, Philadelphia, Pa.

THE AMMONIA ENGINE.—The New York Mining Journal gives an illustrated description of Lamm's engine. Briefly, it consists of a reservoir filled with liquefied ammoniacal gas, immersed in a tank filled with water. A pipe leads from the upper part of this reservoir to the cylinder of the engine, and the exhaust pipe leads the gas, after the piston-stroke, into the tank of water surrounding the reservoir. The gas is there immediately re-absorbed by the water, and gives out again the heat which was made latent by its evaporation. By the increased heat of the water, thus produced, the liquefied ammonia in the reservoir is again vaporized ready for work. There is no heat lost, except the mechanical equivalent of the power produced. The journal aforesaid gives, as some of the advantages possessed by ammonia over steam, the fact that the vapor does not condense either in the cylinder, or when used at a distance from the boiler, and the fact that it may remain "bottled up"—so to speak—for years, ready for use upon the simple turning of a faucet. It adds, "Practically, a large central depot could be cheaply erected, with apparatus of capacity to liquefy a quantity of ammoniacal gas sufficient to propel all the street cars of a large city."

Communications.

IN THIS DEPARTMENT we invite the FREE DISCUSSION of all proper subjects—correspondents alone being responsible for the ideas they advance.

Eureka District, Nevada.

[Continued from page 106]

Jackson and Wilson Mine.

This is located on the same belt as the Champion and Buckeye, and is the same one of which the *White Pine News* published an item some time ago, to the effect that an interest, purchased for \$7,000, had returned to the buyers, in fifteen days the amount paid, besides clearing all mining expenses. I can readily believe the statement, judging from what I have seen. The mine lies under a cliff of quartzite with a gentle pitch to the east, and although work has just commenced, comparatively speaking, (work has been prosecuted steadily only about forty days) and no one can tell definitely how deep or permanent the mine will prove, yet enough has been done to indicate that there is an immense body of ore here, as large as anywhere in the district. The foreman, Mr. Edgerly, was very kind and showed me everything. In the drifts and shafts, above and below, I found ore everywhere. There is one chamber, some twenty feet in diameter, where on the roof, floor and walls nothing but rich carbonate is to be seen. Since the present company commenced work, their furnace has yielded daily two and a half tons of bullion, worth about \$300 per ton in gold and silver. The expense of mining is very light, very little timbering or blasting being necessary. Some 35 men are employed. There are 200 tons of ore on the dump, and 25 tons are sent daily to the smelting works. In the lower side of the hill a tunnel is being run in. They are now in 65 feet, and expect to tap the deposit at a distance of 75 feet.

This and the Champion and Buckeye are simply huge. I was surprised myself at their extent, and I can say that no one will ever regret the expense of time and money incurred in giving this place a visit.

Other Mines.

My enthusiasm has led me to speak so fully with regard to the above mines, that I suppose I must be more brief with regard to the other ones, or the editor's pencil will be drawn mercilessly through my finest sentences. But a short distance from the Jackson is the deep mine owned by Wm. Adams, and Joseph Farren. This is located east of the Marcelina and is a splendid looking one. Drifts have been run in and some 80 tons of good smelting ore are now on the dump. Work has been stopped for the present, but will be resumed soon, as it does not pay to let the ore lie there while it is worth "much monies."

Between this and the Jackson, is the Adams and Farren mine, where a few men are busy drifting. A long tunnel has been run into the deposit, and the prospects are that it will turn out a good mine.

Next to this, on the hill opposite the Jackson, is the Gem mine, owned by W. Frank & Co. This is supposed to be the same deposit, as the Adams and Farren, and has the same kind of ore. The shaft is down 25 feet.

I also visited the Carson ledge, which is situated on the east side of Buckeye Hill and has a shaft 14 feet deep. The prospects are good.

The Eureka Smelting Works.

The pioneer works of this camp, erected by Mr. Buel, and others, are situated at the lower end of the town, and to the right as we come into the place from the railroad. The Superintendent is Mr. Joseph Farren. The 38-horse power engine was made at the Miners, Foundry of San Francisco, and the boiler, 15 feet long and 54 inches in diameter, by the Neptune Iron Works. The consumption of fuel is $1\frac{1}{4}$ cords daily. The fan is a No. 7 Starrevant.

The two furnaces are built of stone,

found in the vicinity, with the lining of sandstone which comes from Pancake mountain. Of these I have spoken before. The height from the hearth to the feed-hole is 16 feet and the stack is 25 feet higher. The charge is simply the carbonates ore with some slag and charcoal. The furnaces, have been running a long time without stopping. They were built by Mr. R. P. Jones, formerly of North Wales, who is generally considered to be a first class workman and to know his business. He is foreman of the smelting department and has been very successful. These works are to be consolidated with the Champion and Buckeye. I met up here Mr. G. Knstel, who came for the purpose of making any necessary modifications and improvements, besides deciding whether it would be better to add one larger furnace or two of the same size, in order to have a capacity sufficient for the business.

Coaquanock—Buttercup—Carpenter's.

The next furnaces are those of a Philadelphia Company, Wallace, Bevan & Co., known as the Coaquanock Mining and Smelting Co. The engine is 8-horse power, the fan is No. 3 Starrevant, the furnace round, 2 feet in diameter in the clear, 7 feet high, and with a stack 20 feet high. They claim to run through 10 to 12 tons of good ore in 24 hours. Three tons of ore produce one ton of bullion. They lately shipped 30 tons of bullion (a 10 days run) to Newark, New Jersey. The freight charge from Carlin to Newark was \$37½, and about \$20 from this place to Carlin.

About 100 feet off, is Col Robbins furnace, known as the Buttercup works. The old furnace is 22 inches in the clear, but the new one, now building, is to be 36 inches square inside. The concern is doing some very good work and is, at present smelting ores from the Kentuck, Mountain Boy and other mines which the company owns.

Next to this is the furnace of Carpenter & Co. Here is a 10-horse power engine with one of Root's splendid blowers. They shipped lately 25 tons of bullion, an 8 days run. They do a flourishing business, principally custom work.

Marcelina—Roslin Works.

The Marcelina furnace is owned by the Jackson Mining Company, and smelts the ore from the Jackson and Wilson mine. It is eight feet square outside and two feet square inside and 24 feet high, with the stack 14 feet higher. It was built by J. D. Williams, an experienced furnace builder. The Superintendent is Mr. H. G. Richmond. The company are alive to new improvements and are about to build a new furnace and put up a new engine.

The Roslin Smelting works are owned by Adam Hall, J. M. Robertson and Moses Wilson, who have secured a large ranch of 160 acres, some two miles up the cañon, and own a large number of mines. They have commenced to build a water-lined furnace, and have all the necessary machinery on the ground. The whole affair will be under the supervision of J. M. Robertson. The upright 16-horse power engine was imported by Capt. Unshing of your city. The boiler is 16 feet long. The jacket was made at the Fulton Foundry, San Francisco. This will have an inch-and-a-half lining of fire-clay, which was bought from the glass works of your city. Equal portions of burnt and unburnt clay are to be mixed thoroughly in making this lining. The cold water passes through the water jacket and thence goes to the boiler, thus utilizing the furnace heat to a considerable extent. Mr. Robertson promised me that he would send you an account of how he gets along. The company feels very confident of success, and we are all interested in their work.

The following results of smelting were collected by Mr. W. T. E. Pitchard for the

Eureka Sentinel, and were given to me when mutually interchanging notes and ideas. They are the amounts and value of bullion extracted up to June 30th, 1870.

Smelting works.	Bullion.	Av. value	Total value.
Eureka Con. M. Co.	374 tons	\$348	\$130,152
Marcelina M. Co.	200 tons	\$350	70,000
McCoy Furnace	110 tons	\$450	49,500
Buttercup M. Co.	100 tons	\$375	37,500
Wallace & Bevan	75 tons	\$350	26,250
Total.			\$313,402

The average amount of coal consumed to one ton of ore is 28 bushels; $3\frac{1}{2}$ tons of ore yield on the average one ton of bullion.

W. H. M.

Eureka, July 10, 1870.

Notes of Travel in Placer County.

[Written for the Scientific Press.]

Rocklin and its Stone Quarries.

EDS. PRESS.—According to promise I send you for publication a hudget of items (or notes of travel) gathered in making the tour of Placer County.

The first point of note which I reach, is Rocklin, situated 22 miles east of the capital of the State. Your readers will doubtless recollect the place, if not the name, from the circumstances of its periodical baptism, occasioned by the necessity of purifying it at least bi-annually from its political sins. Rocklin at present contains about 300 inhabitants. In 1865, during the excitement of building the C. P. R. R., it contained about 1,000 inhabitants. It is the point from which nearly all the blue granite building and paving stone is brought to Sacramento and San Francisco. Messrs. Brigham and Hawes, foot of Third street, San Francisco, own the largest quarry here, and the only one that is now being worked. They employ from 10 to 50 men the year round, and ship by railroad to San Francisco, annually, some 3,500 tons of this, the finest building stone in the State. About \$4 per ton is paid the R. R. Company, to lay it down in your city. The largest Round House on the C. P. R. R., is situated at this place. It has a capacity of housing at one time 28 engines. A large number of mechanics, consisting of machinists, copper-smiths, finishers, etc., etc., are kept constantly employed here, keeping the engines in repair. Mr. M. W. Cooley, the gentlemanly superintendent of the Round House, showed us every courtesy during our visit, allowing us free access during business hours.

The Fruits of Newcastle and Ophir.

Newcastle, some 12 miles further east on the railroad, is an important station, from which large quantities of fruit are shipped both to your city and to the East. Over 30 tons of berries of the different kinds, (strawberries, raspberries and blackberries) were shipped from this one station this year. Mr. Charles M. Silva, owns an 80-acre tract here and has about 10 acres under cultivation. He has cleared from this little spot over \$900 per acre each year, from berries of different kinds. Of strawberries alone he marketed 5 tons this year, and they averaged him 20 cts per pound.

One mile north of Newcastle, diverging from the Railroad, is the little camp of Ophir, containing about 100 inhabitants. Within the town limits of this little camp are at least three men getting rich off of the fruits and berries of from 5 to 10 acres of land each. Messrs. Jemison, Bromley, and Rev. N. R. Peck are the gentlemen in question. From good authority, I learn that these gentlemen clear from \$500 to \$1000 per acre annually. I will not attempt to particularize, but will give an account of a few of the many products of the Rev. Mr. Peck's 10-acre orchard and vineyard. He will market this year from 1500 to 2000 lbs of blackberries, at an average of 20 cts. per lb; 4000 lbs of dried figs, at 18 cts. per lb; from 7 to 10 tons of apples, at 3 cts. per lb; besides several tons of Raisin grape, German prunes, white figs, peaches, plums, Nectarines, &c. They have the best water here and plenty of it.

L. P. Mc.

[To be continued.]

SUTTS.—R. R. and J. Craig of Nevada, proprietors of the Globe Hydraulic Nozzle, have brought suit against R. Hoskins of Dutch Flat, for alleged infringement of patent; also against A. Nevins & Co. of Nevada County.

Diamonds in California.

[Written for the Scientific Press.]

I wish to add a few facts to what has already been published concerning the probability of diamonds being found in paying quantities in California.

As long ago as 1854, in a newspaper article, written by Mr. Melville Attwood, of this city, "On the Importance of an Extended Knowledge of Mineralogy to the California Miner," he says, "I am anxious to call attention to the chance of finding diamonds in this country, and the likelihood of their being overlooked. The rocks in which they occur are common in California. Itacolumite, a soft micaceous sandstone, always the associate of the diamond, is also found here. The gravel always found in the river washings so closely resembles the 'Cascaho' or 'Diamond gravel' of Brazil, that I think it very probable that, if proper search was made, diamonds would be found." Mr. Attwood spent several years in the diamond districts of Brazil, and is familiar with the subject of which he wrote. A few small diamonds have since been found, which proves the truth of his views.

Humboldt in one of his works—"Essay on the Bearing of Rocks"—calls attention to the fact that gold, platinum and diamonds are associates in various parts of the globe; in some places, gold, platinum and palladium, in others, gold, platinum and diamonds. In the river Ahoite, in Brazil, diamonds are found with platinum; near Tejeira, with platinum and gold. These facts awakened in him the strongest hope of finding diamonds in the Ural, where the association of these metals is known to exist. When he arrived at any of his works, he caused the gold sands to be examined microscopically, and if gold and platinum were found, he directed the workmen to look carefully for diamonds. These examinations led to the discovery of microscopic crystals, previously unknown in the gold sands of the Ural—such crystals as in Brazil occurred with gold, platinum and diamonds.

The truth of Humboldt's theory as to the existence of diamonds in the gold sands of the Ural, was proved by the subsequent discovery of a valuable stone by Paul Popoff, a boy of 14, to whom belongs the honor. It was first supposed to be a topaz, but a young Freiberg student, a Mr. Schmidt, who had the necessary instruments to test the hardness and specific gravity, identified it as a true diamond. Two others were soon afterwards found, the third being larger than both the others, followed by systematic search, which has since produced many valuable stones. Diamonds have lately been discovered in Australia. Up to the present time, 759 have been found by the Australian Diamond Mining Co.

The same association of metals occurs in the northern counties of California, especially in the region drained by the Trinity river, in the sands of which microscopic diamonds are actually found. The same may be said of the vicinity of Coos Bay, in Oregon, and along the banks of Smith river, in Del Norte county. Miners throughout this whole region should search carefully for diamonds, and should send anything they find, which is likely to be such, to some competent and reliable mineralogist for identification. Diamonds may be looked for in flumes and in cleaning up sluices, with gold and platinum.

The platinum so common in the region alluded to, is also valuable. It can be saved and sold at a profit. Miners are generally mistaken as to its value, some believing it to be more valuable than gold itself. Chemical examination of samples from those localities show it to contain considerable iridium and osmium, which lessens its value as compared with pure platinum. Mr. H. M. Raynor, 25 Bond st., New York, will purchase any quantity of crude platinum sand containing 33½ per cent. of platinum, at a price which will, no doubt, pay for saving it. Those interested can address him on the subject, and depend upon receiving all the information they may require. The whole topic is well worthy of the attention of miners.

HENRY G. HANKS.

Mechanical Progress.

A NEW TELEGRAPH.—Signor Guattari, an Italian has invented a novel apparatus for sending messages, which is thus described in the *London Telegraph* of the 12th ult: "The inventor charges a reservoir with compressed air, and by the operation of valves sends pulsations through a tube, which pulsations are made to work upon the receiving instruments with an effect corresponding with that of the electric current passed along insulated wires. The Royal Institution of Naples has paid to Signor Guattari the rare compliment of a gold medal. At the experiments yesterday the working apparatus was all contained in a stand or table, eight feet long by five wide and four deep. Air pumps, worked by a crank, are used to charge the reservoir. The amount of pressure is shown upon a dial. The telegraphic instrument is worked by hand in the ordinary way. A very considerable pile of gutta-percha tubing, half an inch in diameter, and said to be about a mile in length, was connected with the instrument at the battery and with two other instruments in the room. The experiments began by the charging of the reservoir to about one-sixteenth of its actual capability, this being a comparatively crude machine. The method for the working is the Morse, or printing cipher system. Signor GUATTARI, at the transmitting end, sent through, message. The words were recorded in cipher, at the receiving end, and read off.

"Experiments were tried on the apparatus for communicating with various parts of a ship, and with what may be called the domestic telegraph. In this case Signor G. dispensed with the use of the reservoir, and by mere manipulation of an air ball at the end of a tube recorded cipher characters on the strip of paper of the receiving instrument. This is the kind of telegraphy to which the apparatus will probably prove best adapted. In large hotels, in ships of war, in communication from factories to counting houses, from private residences to places of business, and in town communication generally, the system promises to be advantageous.

"The inventor claims that his apparatus will be less expensive than electric batteries, and less subject to the influence of storms."

THE 35-TON GUN.—*Engineering* gives from an exchange an account of the forging of an immense coil, which is to form a part of the 35-ton gun now constructing at the Royal Gun Factory in Woolwich. We quote: "The men being all at their posts, and the gigantic tongs of 12 tons weight being brought into position, the iron door of the furnace was raised. The tongs, swinging from one of the steam cranes, and manned by nearly twenty men, were thrust into the furnace, and drew out the massive coil. The crane being slewed round, the coil was carried to its place, and deposited under the steam hammer. The outer coil weighed nearly 11 tons, being formed of eighteen ordinary bars joined together at the ends, the total length being 201 feet. The inner coil, 170 feet long, weighed about 9 tons, making a total of 20 tons. In a minute after the coil was withdrawn from the furnace the great hammer began its work, thundering down upon the white hot metal, speedily reducing the height of nine feet or more, which the cylinder originally possessed. The broad face of the hammer, having a diameter of nearly 5 feet, was insufficient completely to cover the upper end of the coil, but the latter was shifted. Presently a hollow mandrel was placed, point downwards, on the upper end of the coil, and driven into the center of the mass. The coil was then thrown on its side, and made to rotate on the ground while the hammer struck its sides. The entire operation was most satisfactorily performed, its object being to weld together the whole of the coiled bars into one compact mass.

STONE-BREAKER JAWS.—At the late Oxford Show of the Royal Agricultural Society. Mr. Marsden, the English agent for Blake's stone-breaker, exhibited one of those machines, designed by him for preparing road-material, in which the fluted surfaces of the jaws were so formed, that the projecting ridges were directly opposed to each other, instead of being as heretofore alternated. The square opening thus formed, constituted a sort of gauge for the size of the broken material.

WHITE GUTTA-PERCHA.—The *Journal of Applied Chemistry* gives the following method of preparing this for dentists' use, and for other purposes. Four ounces of pure gutta-percha is digested with five pounds of methyl-chloroform until the solution is thin enough to pass through filtering paper. It is then filtered (an additional pound of chloroform will facilitate this), and should then be clear and nearly colorless. Alcohol is now added in sufficient quantity to precipitate the gutta-percha in a voluminous white mass, which is washed with alcohol, pressed in a cloth and dried in the air. It must finally be boiled in water in a porcelain vessel for half an hour, and while still hot rolled into sticks. The chloroform can be separated from the alcohol by adding water, and the alcohol recovered by distillation.

STEAM ENGINE NOTES AT THE OXFORD SHOW.—We select one or two items from *Engineering* of July 22d. In an engine exhibited by Clayton & Co., the arrangement for clearing the steam jacket of the water resulting from condensation, consists of a vessel placed beneath the cylinder, and furnished with two cocks, one—the upper one—communicating with the jacket and the other with the atmosphere. Under ordinary circumstances the upper cock is open and the lower one closed, and the water arising from condensation thus collects in the vessel. To discharge it the upper cock is shut and the lower one opened, when, of course, the water is at once forced out by the steam generated from the water on the relief of the pressure.

Messrs. Aveling and Porter's handy little crane-engine of the "Little Tom," pattern stands in about the same relation to ordinary traction engines that an elephant in his natural state bears to the same animal deprived of his trunk. By the aid of the crane at its front end, it can lift any article to be transported, walk off with it, and put it down again exactly in the position it is wanted. The whole machine, with its hoisting, lowering, and traversing motions, is completely under the control of one boy. Another exhibit of Aveling and Porter is their new 5-horse agricultural locomotive. In this engine the reversing gear consists simply of an eccentric mounted on a sleeve capable of being turned on the crank shaft by means of a lever having a pin entering a spiral slot in the sleeve. Thus by moving the lever parallel to the crank shaft, the eccentric can be turned round from the position corresponding to forward to that required for backward motion, or *vice versa*. Within certain limits, also, this gear can be used as an expansion gear, but the range of expansion obtainable by it is but moderate, on account of the rapid increase effected in the lead of the valve as the eccentric is moved round from its full gear position.

HAMER'S OSCILLATING REVOLVING CYLINDER ENGINE.—This was on exhibition at the Agricultural Hall in Islington, on July 16th. *London Engineering* says: "In this engine there is at the bottom of the cylinder, which is vertical, a ball working in a cup with steam passages through them to the cylinder; the steam acting on the piston in the ordinary way, the ball with the cylinder oscillates in the cup, revolving at the same time, and by so doing, the cup, ball and cylinder are always kept true. Mr. Hamer dispenses with slide, slide box and rod, connecting rod, eccentric and hand, connecting rod from crank to piston rod, guides, &c. If for a reversing engine or a pair of engines, Mr. Hamer places a slide and box attached to the two pipes from the under side of the cup, the steam passing to the slide box. By moving the slide with a hand lever the steam passage is changed to exhaust passage, and the contrary, and stops or reverses the engine at pleasure without the use of gear work. It is a very simple arrangement and works exceedingly well."

NEW ARTICLE FOR UPHOLSTERERS' STUFFING.—A New Hampshire inventor has patented an article which is thus spoken of by the *Cabinet Maker*: "It consists in a new preparation of wood, suitable as a stuffing for upholstery and other work or purpose, obtained by a saw of peculiar dress, whereby it cuts off from the side of a board not enough to make a veneer and too much to make dust. This product is entirely different from a stuffing made from wood cut by a plane into mere curls, and is superior to the latter in many respects as a filling."

Scientific Progress.

A NEW CROCODYLIAN FROM THE EOCENE OF NEW JERSEY.—Prof. O. C. Marsh describes, in the *American Journal of Science and Arts* for July, some reptilian remains from the Eocene green sand of New Jersey, recently received by the Museum of Yale College. "They indicate," he says, "a new species of Gavialis, considerably smaller than any Crocodylian heretofore discovered. The specimens, which were found together, and are evidently parts of the same skeleton, consist of various fragments of the skull, and ten vertebrae." The animal to which they belonged was slender, and about six feet in length. Prof. Marsh places it provisionally in the genus *Gavialis*, and calls it *Gavialis minor*.

MELTED IRON IN HYDROGEN.—M. Caron observed that iron, when it is kept melted for some time in an atmosphere of hydrogen, somewhat increases in density, and becomes soft and malleable as copper. Remelted in a crucible, it becomes scaly when cold, doubtless in consequence of the evolution of absorbed hydrogen.

THE FUEL OF THE SUN.—This is the title of a new book by W. M. Williams, F. C. S. His theory is that an atmosphere much like that of the earth, though more attenuated, pervades all space, and that this atmosphere furnishes the sun's supply of fuel. We quote: "It is evident then that the first result of the great evolution of heat from mechanical condensation of the mixed atmosphere of aqueous vapor, carbonic acid, and free oxygen and nitrogen, will be the dissociation of the water and the carbonic acid. But there must somewhere be a height at which the temperature capable of effecting dissociation terminates; where the atmosphere of elementary gases fringes upon that of combined aqueous vapor, and where these separated gases must revert into re-union with a furious chemical energy which will be manifested by violent combustion. Thus we shall have a sphere of dissociated gases and a sphere of compound vapors separated by an interlying stratum of combining gases, a spherical shell of flame, constituting exactly what solar observers have described as the 'photosphere.'"

GEOLOGICAL SURVEY OF TEXAS.—Prof. Roessler, who has just returned from an expedition into Northwestern Texas, which was cut short by an Indian attack, writes the *New York Engineering* that no other State in the Union offers so interesting a field for the geologist as Texas. It contains "a complete series of geological formations, ranging from the Potsdam sandstone up to the latest tertiary, with an abundance of organic remains and an immense mineral wealth as yet hardly known to the people themselves." The Permian formation, known to be elsewhere rich in copper, nickel and cobalt ores, is extensively developed in the State. On Big Wichita river, Prof. R. found "the fossil remains of a complete skeleton of an indescribable species of the genus *Elephas*, greatly superior in size to that of *Elephas primigenius*, mastodon, or any other known species." An editorial article in the same issue of the above named journal, says that the jaw-bone of this skeleton measured twelve feet in length.

A NEW TEST-PAPER.—*Cosmos* says that M. Böttger has produced a highly sensitive new test-paper for alkalies. The reagent is a magnificent coloring matter, obtained from the leaves of an exotic plant, (*Coleus Verschaffeltii*) upon digestion for 24 hours, with absolute alcohol, to which a few drops of sulphuric acid has been added. The paper is prepared by the usual process. The color is a splendid red, which passes more or less rapidly into a fine shade of green. It is far more sensitive than either turnsol or turmeric; it is unaffected by carbonic acid, and will indicate the presence of the least traces of the carbonates of the alkaline earths in natural waters. A moistened strip of the paper, when held at the opening of a gas jet, immediately assumes a green color, from the effect of the ammonia.

EVIDENCE OF VOLITION IN PROTOZOA.—Dr. Engelmann has observed in *Arcella*, a minute protozoon like an *Amoeba* with a shell, a periodical development of gas. He describes minutely how gradually in the protoplasmic hyaline substance of the animalcule, black points arise, which as gradually coalesce, forming a distinct air bubble. This gas can after a time be absorbed again, and reasons are given for believing that a sort of volition is exercised by the *Arcella* in the secretion and absorption of the gas, which they use in the manner of a float or air-bladder. The air bubbles are not connected with the contractile vacuoles, or with the nuclei. The air bubbles do not occur in the non-granular protoplasm, but in the granular substance, and are of irregular form. The chemical composition of the gas was not determined, nor the mechanism (if any exists) of the formation and disappearance of the air bubbles. The discovery is of importance from two points of view: in the first place, for the development of gas in protoplasm as a physiological phenomenon; in the second place, for the supposed voluntary nature of this development, of which this exceedingly simple organism makes use for the purpose of locomotion.—*Quarterly Journal of Science*.

SODIUM AS A FLUX FOR MINERALS.—The following is the method adopted by Dr. Schonn: "A steel crucible 1½ inches deep and the same in diameter, is brought to glowing over an ordinary lamp. Into this are projected a few pieces of metallic sodium, and afterwards the finely divided and dry mineral is added. The crucible is then covered and heated red hot. As soon as the reaction is finished the contents of the crucible are allowed to cool, and water is cautiously added sufficient for the purpose of filtration. The fused mass is then thrown upon a filter and thoroughly washed. In the filtrate will be found the electro-negative constituents of the mineral combined with the sodium, such as sulphur, cyanogen, chlorine, chromic acid, silica, molybdic and tungstic acids and such oxides as are soluble in the soda lye. On the filter will be found the metals and their oxides, also the lower oxides of titanium, molybdenum, tungsten, and possibly silica and alumina. The contents of the filter and the solution in the filtrate can be further treated according to the order of analysis."

ACTION OF PEROXIDE OF MANGANESE ON CHLORATE OF POTASH.—In preparing oxygen by means of these substances, the action has been explained on the principle of catalysis. Krebs gives a new explanation: "The temperature of infusible bodies increases upon addition of heat very rapidly. * * In a mixture of black oxide of manganese and chlorate of potash, the manganese is the first to become rapidly hot and it immediately gives up its acquired heat to the chlorate and thus promotes the hasty decomposition of that salt. If hot oxide of iron be projected into fused chlorate of potash, the evolution of oxygen takes place very violently. In like manner other infusible bodies which are not decomposed by the chlorate, promote its decomposition, as for example, oxides of tin, zinc, calcined gypsum and the like. This explanation of the action of solid bodies to bring about the liberation of oxygen from the chlorate of potash is more rational than the old notion of catalysis, and may be safely accepted until a better one has been offered."—*Journal of Applied Chemistry*.

FUSING IRIDOSMINE.—We take the following from the "*American Chemist*" the new publication which will take the place of the American reprint of the *Chemical News*:—Moses G. Farmer, of Boston, has fused the native iridosmine by placing the natural grains in a groove in charcoal, and subjecting them to the action of a current of voltaic electricity from sixty large Bunsen cells, using large platinum wires to make contact with the ends of the groove. He obtained in this manner hare of perfectly compact metal, brittle and very hard. Mr. Farmer estimates the temperature of the fusion at about 10,000° F. The object of the experiment was to prepare a bar of the alloy for the purpose of electric illumination. On rendering it luminous by an electric current, he found that when near the melting point, one square inch of surface evolved light equal to 2,800 candles, which threw shadows in broad daylight at noon, and produced excellent photographs. The same battery converted solid hydrochloride of iridium into fused metal, as soft and ductile as platinum.

Mining Summary.

The following information is gleaned mostly from journals published in the interior, in close proximity to the mines mentioned.

California.

ALPINE COUNTY.

LEVIATHAN.—*Miner*, Aug. 6th: The enopla blast furnaces, after a re-modeling of the hearth, was started again this week, and several tons of ore smelted with satisfactory results. The arch, however, gave way.

The Monitor and Northwestern Silver Mining Co., owners by recent purchase of the property formerly belonging to the M. O. M. Co., are fully organized. Headquarters are in Milwaukee, Wisconsin. The work will be pushed. The drift is expected soon to cut a deposit of the rich, soft Tarsish ore.

GLOBE.—*Chronicle*, 6th: Work has stopped on account of non-arrival of funds.

TARSHISH.—The lower tunnel is going ahead, at the rate of thirty feet a week. It will take five weeks longer to reach their ore deposit.

AMADOR COUNTY and no

AKKRY LOW DEEP.

WILLIAMS.—*Ledger*, Aug. 13th: This mine, better known as the Markles, is four miles from Volcano, near Foster's ranch. This shaft is down two hundred and ten feet, with a vein five feet in width, yielding quartz that pays \$50 to the ton.

VOLCANO.—This ancient town holds its own better than any camp in this county. Although water is scarce at this season, there is a large amount of gold taken out each week.

PIONEER.—This mine, five miles above Volcano, has for some time laid idle. A company from Philadelphia have taken it in hand and commenced work.

CASCO.—J. R. Hardenberg returned to Amador, backed by capital, to continue work on the Casco mine. It is the intention to sink 300 feet deeper, by contract. The new Co. is styled the Chicago Milling and Mining Co.

CALAVERAS COUNTY.

CHLORINATION WORKS.—*Chronicle*, 13th: Mr. C. J. Garland is erecting chlorination works in Lower Rich Gulch, for the purpose of treating the sulphurets from the Palomo and Alexander mines. Mr. G. expects to commence reducing in two weeks. The furnaces for roasting will have a capacity of two tons.

INDEPENDENCE.—Cor. of same: The owners of the Cudell claim have sunk the main shaft 130 feet, and are now running levels. The quartz extracted while sinking yielded \$40 per ton. Sundermier & Co. have a shaft 50 feet in depth, and a ledge 2 feet in width. The ore looks promising. The Bald Eagle, Gamble & Co., have had one crushing, which paid, over expenses, \$30 per ton. The Freeman Bros' shaft is down 80 feet, and they have had one lot of assorted rock worked, which yielded \$70 per ton. Lewis Bros' claim may be set down as the richest mine in this neighborhood. The owners have erected steam hoisting works, propelled by a 40 horse power engine. They have in course of erection a battery of ten stamps. They have sunk this main shaft 160 feet, and are engaged, night and day, with 15 to 20 men. The last rock they had crushed paid \$300 per ton. At the Lefoy they have attained a depth of one hundred and fifty feet. They have crushed one lot of ore, only, and that yielded \$40 per ton.

In the immediate vicinity of Railroad Flat there are but few mines worked. The Petticoat has been for two months at a standstill. Many rumors are afloat in regard to a change of ownership. On the Pints claim they have a shaft down 60 feet and flattering prospects. The Buckeye commenced a south drift at a depth of 60 feet, and have been rewarded by a ledge 18 inches in thickness, showing free gold in every piece.

INYO COUNTY.

ITEMS.—*Independent*, Aug. 8th: Around the works of M. W. Belshaw, Cerro Gordo, are stocked \$25,000 worth of ore, coal, &c. Mr. Beaudry is building a new smelting furnace on the most approved plans. At Swansea, the smelting works of the Owens Lake Silver Lead Co., are kept in constant operation, running out stacks of silver lead bars.

LOS ANGELES COUNTY.

QUARTZ.—*News*, Aug. 13th: Yesterday a well known professional man of this city exhibited to us several pieces of gold-bearing quartz, in size from a hickory nut to a hen's egg, which were rich almost beyond belief. The quartz and gold were so intermixed that we could scarcely believe that it was not a solid mass of the precious metal. We are assured that the ledge from

which the specimens were taken is in this county, at a point easily accessible. The parties are reticent concerning its whereabouts.

NEVADA COUNTY.

SOUTH YUBA GRAVEL CO.—*Transcript*, 11th: This company has a tunnel run around on the rim rock, one side of the tunnel being in gravel. We learn this gravel prospects two hits to the pan, and the gold is coarse. This company has resolved to incorporate. It is their intention to put up hydraulic works.

IMPORTANT ENTERPRISE.—Same of 12th: Messrs. Eddy, Ball, and others have arrangements for running a tunnel from the South Yuba side of the ridge to their claims near French Corral. The tunnel will be 2,000 feet in length, having a width of ten feet, and will be run on a level to drain Empire Flat, and most of Kate Hayes Flat. It will open a bed of rich cement gravel forty feet in depth, and many acres. The intention is to have two tunnels put down the entire length and extend them beyond the mouth as may be desirable, as there is plenty of fall. By this means they calculate that the cement, which they have been crushing in stamp mills, will be completely disintegrated and the gold set free.

KANSAS MINE.—*Gazette*, 9th: This company are down 226 feet with their shaft. They have passed through twenty feet of boulders and gravel, and reached bed rock. They have a tunnel commencing ten feet above the bottom of the shaft, which they have run 140 feet over and through boulders from ten to twenty feet thick. The gravel prospects well. There appears to be no doubt this company are in the main channel—a continuation of the Live Oak and Nebraska. The explorations go to prove a large gravel range up the Washington ridge. Half a dozen companies are anxiously watching the development.

SINGULAR FORMATION.—Same of 10th: Between Washington and Phelps Hill, is a stratum of slates and plumbago, 300 feet wide, which has been traced 2,000 feet. This deposit is almost as soft as pipe clay. At either end its course appears to be cut off by enormous ledges of barren quartz. Various assays have been made which range from \$4 to \$26 a ton. The ledge has been located and 1,000 pounds of this material is at Stiles' mill to be thoroughly tested.

GRAVEL ON WASHINGTON RIDGE.—Same of 13th: Recent explorations of the ground on the ridges beyond Henefauth's go to show that the gravel channel runs directly through from this Yuba to the Deer Creek side. The main channel appears to be half a mile wide. From the highest point to the bed rock is 400 feet and the bottom of the channel is 250 feet, above the Yuba river. On this bed rock is blue gravel similar to that at Moore's Flat, Relief Hill, You Ber and Dutch Flat. There are five companies that propose to make extensive developments, viz: Henefauth, South Yuba, and Filibuster on the north side, and the Spring Hill Slide and the Bell Clapper, on the south.

PROSPECTING.—*Grass Valley Union* 10th: The Gold Hill mill has been running for six weeks, on custom work, sent by the prospecting companies. The results have been in many instances astonishing. This mill has rock enough to keep it in work for a month.

TORNADO.—Same 11th: a force of miners was put on yesterday.

NORTH BLOOMFIELD G. M. Co.—*Transcript*, 15th: This Co. are making good progress in rebuilding their flumes, destroyed by fire, and will have their ditch running water in September. They employ over three hundred men.

ROUGH AND READY.—Extensive prospecting in the vicinity of Randolph Flat. The Webster and Grant & Coombe are working with encouraging prospects, and work is prosecuted by the Torphey, McSorley, Green Mountain, and Griffin companies on the Squirrel creek side of Bunker Hill. Griffin is to commence hydraulicing soon. The Black and Landis are running a tunnel near Deer creek to tap their gravel. The Portuguese Co. are not washing but blasting a cut.

MOORE'S FLAT.—The Boston Co. cleaned up Friday \$5,000 from four weeks' run. Bedington, of the Hickey claims, picked up a specimen weighing five and three fourths ounces.

BLUE TENT.—The Killam Co. are running a bed rock tunnel in their claims preparatory to a big blast. They intend to use seven hundred kegs of powder at one time.

MULBERRY LEDGE.—Same of 16th: The incline is down 85 feet, and from that point they have commenced a drift from which to stope out while the sinking will be continued. The first crushing from ore

near the surface, yielded \$11 a ton, but the average of three crushings has been \$15. At the bottom of this incline, the vein is eighteen inches in width.

PLACER COUNTY.

FIRST DUST OF THE SEASON.—*Stars and Stripes* 11th: We understand that the river claims at Rattlesnake have begun to yield. On Saturday John McBride purchased a considerable amount of dust. The indications are promising.

SAN BERNARDINO COUNTY.

COX RANCH.—*Guardian*, Aug. 6th: Parties this week from the mines report that Hubbs & Co. have had a clean up from their arastras, and obtained satisfactory results. We understand that the company intend erecting machinery.

SAN DIEGO COUNTY.

JULIAN DISTRICT.—A Los Angeles telegram of the 13th says: The mining interests are reviving. Mills are running on rock paying from \$25 to \$100 per ton. The owners of the Stonewall Jackson have received a quit claim deed to half their claim, 1100 feet, by surrender of the other half, conditional on confirmation of this grant.

SIERRA COUNTY.
GIBSONVILLE.—Cor. of *Messenger*, 13th: Doty & Jones have struck dirt in the "Shoo Fly," which pays from fifty to five hundred dollars to the pan.

The general impression is that the Mount Pleasant ledge will turn out a big thing.

SISKIYOU COUNTY.

WILL COMMENCE.—*Yraska Union*, August 10th: Lash & Co., of Humboldt, will commence to run their quartz mill this week. Their ledge is three to five feet thick, and the rock worked, has yielded an average of \$15 to the ton. This claim is opened well, and the cost of mining and milling will not exceed six dollars to the ton.

TUOLUMNE COUNTY.

The *Sonora Democrat* of the 13th says that Shstuck's quartz mill at First Garrote, has suspended operations and it is doubtful when they will be resumed.

Arizona.

WALKER DISTRICT.—*Prescott Miner*, July 30th: N. B. Bowers, General Coe, Dr. Soule, Messrs. Cruger and Tiernan, went up to Lynx Creek this week. They found Uncle Billy Pointer and C. Y. Shelton hard at work grinding ore in arastras. Some placer miners were at work.

HASSAYAMPA.—Ons man took out, in two days, two and a half ounces of coarse gold, and two men, in one day, an ounce and a half. Frank Alters and Sam. May talk of digging a ditch to carry water into some rich gulches, near the head of the Hassayampa, in which Frank has made excellent wages with a rocker.

STERLING.—Capt. Garretsee got back from San Francisco last week. We learn that he is going to run this mill, provided the supply of water keeps up. Mr. Wertheimer, who visited the mine Tuesday, informed us that Mr. Garretsee had found very rich bonny-comb rock, in a new place in the Sterling.

British Columbia.

KOOTENAI.—*Walla Walla Union*, Aug. 6th: From John Galbraith, just down, we learn a new camp has been struck, called Palmer's Bar, with good prospects, the claims yielding from \$14 to \$40 to the hand. A company has been formed to bring water from the Moyea river, 6 miles; washing was just commencing in both the old camps, Perry creek and Wild-horse.

Idaho.

ITEMS.—*Avalanche*, 13th: It is reported that the Sherman mine in Flint district has been sold to Chicago capitalists. The New York mill has shut down until the arrival of quicksilver. There are 300 Chinese in this placers below Wagon town, making \$2 to \$5 per day to this hand. John McMabon has made another strike on War Eagle. This ledge is small but very rich. He has christened it the Humming Bird.

SNAKE RIVER MINES.—*Boise City News*, Aug. 6th: Conflicting reports are received. A friend from there a few days ago informs us that they are better than he expected. Yet there are hundreds of men who own no ground. Claims have been sold at from fifty to a thousand dollars. Our informant thinks that if a man has any kind of a "decent thing" at home he would advise him to stay.

THE BASIN.—The editor of the *Chronicle* has made a trip through the Boise Basin. From his notes we call the following: The Gold Hill quartz mill, near Granite creek, runs its 25 stamps and 4 pans day and night. A nine days' run cleaned up \$6,000. The Yellow Jacket mill is nearly completed. It is the 10-stamper formerly

on the Gsmbrinus ledge, near Idaho City. A tunnel one hundred feet in length runs in on this ledge. From a paufull of the decomposed quartz we saw \$12 washed out. In another week the mill will be crushing. They have 300 tons of quartz to begin on. On the opposit mountain a company have commenced running a tunnel on a new ledge and are in 50 feet.

Montana.

PILGRIM BAR.—*New North West*, Aug. 5th: On Sunday Catching & Co. cleaned up \$3,125. Walker & Co., \$3,600; Blair & Co., \$4,500; Beery & Co., \$4,489; and the other claims on the baran average of \$900 to each string of sluices. Beery & Co., shifted one string of boxes last week, and were hardly started on their good ground. They expect \$7,000 to \$8,000 this week. Water is failing.

GERMAN GULCH.—From Mr. Fletcher, we learn that there are 125 men now at work, and the head rock flume companies, of which there are 13, got fairly to cleansing up July 15th. This gulch is paying from \$6 to \$30 per day to this hand. The California Co., working 8 men, and having the best ground and dump in the gulch is yielding an average of \$30.

CEDAR CREEK.—Cor. of same: Homeward Bound, Co., on No. 11, O'Keefe's District, after attaining a depth of forty feet were driven out by water, which caused a few members to withdraw. Ten reorganized srs making larger pumps and ars bound for bedrock. In Sunriss Gulch, 17 claims were sluicing, none taking out less than \$7 to this hand. On No. 18, 11 ounces were sized one day last week, to six men. The ground is known to pay from No. 2 below to No. 25 above discovery, where the water is getting scarce. At No. 30 above, the water sinks, but men packing dirt in sacks from the northern divide to a spring, washed out \$7 to \$8 per day to the rocker. In Lost Gulch, work has ceased, and claims are laid over to November 15th, by a miner's vote; the parties being at present short of means to pay expenses while opening them.

Cedar Cor. of *Helena Gazette* says: Many of the claims are paying from \$10 to \$25 per day to the hand. I saw two clean-ups of one day's run each, in two strings of sluices, of over \$200 each. For four miles above Forest City the claims are being prospected.

New Mexico.

ELIZABETHTOWN.—*Press and Telegraph*, Aug. 6th: The Chester quartz mill has been steadily running 20 stamps. For some reason, known to the Co., no returns are allowed to be published.

RIO HONDO.—This spring, a company headed by Peter Welch started a cut three miles from this head of the gulch, and have run 500 feet. Not having any sluice boxes, they save no gold, but the prospects justify them in continuing until they strike bedrock. They have found pieces of gold as large as beans. This side of this gulch being very high and steep, it is expected that the diggings will prove very dssip, possibly 30 or 40 feet.

Nevada.

COPE DISTRICT.

The *Chronicle* of Aug. 11th, notes shipment from Elko for the half week, of about 87,000 lbs. crass bullion and 20,000 lbs. ore; all to S. F. except some 6,000 lbs. bullion to New Jersey. Treasure from Cope per W. F. & Co. \$2,300. Sams of 14th, notes \$3,000 treasure from Cope. During the 70 days from June 4th, to Aug. 13th, \$55,441 treasure from Cops.

ESMERALDA.

DUUNDERBERG.—Cor. of *Inyo Independent*, July 30th: Recent developments show that this is a rich mine. One hundred feet in the first north extension was sold a few days ago for \$1,800. The Carson Appeal says, Levi Dagus has taken a contract to erect upon the Duunderberg a first class mill.

DELMONTE.—This property has been purchased by A. P. K. Harmon, of San Francisco, for \$13,000. A. L. Greeley, of Virginia, has purchased from him the "Stark and Tucker" and the "Old Antelope" mills. The Wide West mill will start about the 1st of next month.

Oregon.

SPANISH GULCH.—*Dallas Mountaineer*, Aug. 6th: The mines are on the Canyon City road, one hundred and forty-five miles from this city. They were discovered 8 years ago by a party of Spaniards, who sunk a 20-foot shaft, but left on account of the water and the Indians. Some years after, Dr. McCoy and others dug a six-mile ditch from Rock Creek, but it broke several times, and little work was done. This spring they went at it again, put up a hydraulic, and repaired the ditch. Week

before last, they made their first clean-up after a run of 31 days. It amounted to over \$2,000, an average of \$14. per day to the hand.

Several new companies have been formed in the region.

HUMBOLDT.

ITEMS.—*Silver State*, Aug. 12th: Jack Cavanaugh & Co. are down on their ledge over 100 feet, and are having a fine show.

THE ARIZONA is vomiting forth precious mineral at the rate of 50 tons per day. Float Rock has been discovered near Star Peak, assaying \$3,002 per ton. The ledge is believed to be a blind one. Jake Hawley has a fine lead on the south side of Main street, Unionville.

ON A NEW BASE.—The Sacramento and Humboldt Mining Co. have instituted a suit against Fall & Temple for the ground lately in dispute between the Silver Mining Co. and Fall & Temple, upon the Arizona ledge. The S. & H. M. Co. is the same company re-organized and incorporated under California laws.

REESE RIVER.

BULLION.—*Reveille*, 9th: The Manhattan Co. shipped yesterday through Wells, Fargo & Co., 7 bars of bullion of the value of \$12,123.21. Same of 10th: Yesterday the Manhattan shipped 9 bars weighing 830 pounds and valued at \$14,007.83.

MILL STOPPED.—Same of 13th: The mill at Hot Creek has stopped, for the present, for the want of ore.

The quartz mill at Washington, owned by the Utica and Herkimer Co., will start in a few days.

Austin telegram, of 16th: The Manhattan mill is turning out fine bullion with the Stetefeldt furnace. They ship to-day five bars, valued at \$8,981.73, and will ship twenty-two bars to-morrow.

WASHOE.

YELLOW JACKET.—*Enterprise* Aug. 14th: Daily yield 200 tons, from the 900 and 1,000 foot-levels. The drift north at the 1,000 foot level is being energetically driven. One hundred and ten feet will carry it to the winze. The drift, however, will strike the ore before it reaches the winze.

CROWN POINT.—Daily yield 50 tons low grade ore from the upper levels. The quality shows some improvement, especially that from the 160-foot level. At the 800-foot, a small vein of pretty good ore is found 3 feet wide. July receipts, \$20, 182. 73.

OPHIR.—A quantity of ore recently crushed yielded a couple of thousand dollars profit. The ore was from the upper works and had for some time remained on the dump. A quantity of ore has been developed near the old Moscow incline. The tunnel north from the 700 foot level is in 225 feet.

GOULD AND CURRY.—Daily yield 50 tons from the upper works. At the Potosi section a body of ore has been discovered which yields 15 tons per day of good quality. The balance principally from El Dorado section.

CHOLLAR-POTOSI.—The yield for the week is 1,654 tons, averaging per assay \$67. 21 per ton. No new development.

SIERRA NEVADA.—The ore is much improved, and the quantity of bullion produced is greatly in excess of former yields. The new pan is working satisfactorily.

KENTUCK.—About 30 tons per day mostly from the upper levels, with a few tons from between the 800 and 900 foot. All efforts to effect an opening to ore known to exist between the 500 and 600 foot levels have been defeated. There is still fire in this section.

SAVAGE.—About 75 tons per day extracted, which mills \$20 per ton. All prospecting work has been discontinued, except the sinking of the main shaft, which is 85 feet below the eighth level.

HALE & NORCROSS.—The daily yield is 230 tons, generally from the 1,200 foot level. The winze at the bottom has been sunk nearly 100 feet, and discloses good ore all the way. All the developments are of most gratifying character. The receipts of last month were \$200,833.

OCCIDENTAL.—All matters are being carried out in a satisfactory manner for supplying the new mill with ore. It will be started in a few days.

IMPERIAL-EMPIRE.—The bottom of the shaft is in favorable looking matter. The cross-cut at the 1,200 foot level shows favorable looking quartz.

SACRAMENTO AND MEREDITH.—Everything progressing satisfactorily. There is no want of ore. The mill is run constantly to its full capacity.

CONSOLIDATED VIRGINIA.—The tunnel at the 500 foot station is in 575 feet. The

ground is favorable. The upper works are yielding the usual amount.

CALEDONIA.—Yielding well from the 200 foot level. Arrangements have been made for working through the American shaft.

BELCHER. Good progress made in re-opening the southwest drift at the 420-foot level. Some increase of ore is found in a winze sunk ten feet below the 150-foot level, north.

SEGREGATED BELCHER.—Daily yield 25 tons of fair ore. The drift makes a good showing on the 400-foot level.

SUTRO TUNNEL.—The Suro Tunnel was in 1,440 feet yesterday. The rock is exceedingly hard.

HORE.—About 40 tons of \$25 ore continues to be the daily yield, keeping both mills running.

WHITE PINE.

REVIEW.—*News*, 14th: There is a greater desire on the part of mine owners on Treasure Hill to go to work, since the recent strikes in the Aurora South, Silver Wave and Silver Wedge. These continue to take ore from the large bodies recently struck. There are many mines that have large quantities of low-grade ore on their dumps, and could be turned to account if mills were owned in connection. The Consolidated Chloride Flat is working a number of men. Pinto, Kern, Robinson, Pierpont and a number of other outside districts will soon add to our bullion shipments. The base metal mines are to a great extent awaiting the completion of Governor Matteson's smelting and separating works. The Welch and Rathburn furnaces are running steadily on smelting ores—the former on ore from the Trench mine.

BULLION.—The shipment of base bullion for the week foots up 9,000 pounds. The shipment of fine bullion, \$32,234.02.

ITEMS.—Aurora South is still in that rich body recently struck, and shipping 40 to 50 tons daily to the Stanford mill. Adington is looking well. Several tons have been worked, producing \$300. We are informed that parties East are negotiating for this mine. Autumn No. 2 are in a streak of rich ore. Aurora Consolidated is taking out good rock. Bourbon, on Lower Chloride Flat, struck a body of good ore; 40 tons on the dump now being assorted. Chloride Flat Co. have a good force of men at work. Emigrant is being worked and several tons have been shipped. El Dorado and Black Cloud are in good ore. Gorilla—Have struck a seam of milling ore. Great Basin, on the Wabash, Hemlock and Glacier struck good ore in the Wabash and has 50 tons on dump. Iceberg South has good indications. Mammoth showing good. Has 50 tons of unsorted ore on dump. Original Hidden Treasure—Are in good ore; shipping 40 tons per day to two mills. Posthole worked under a lease. Red Rover still in rich ore. Silver Wave shipped 50 tons to mill last week. Silver Wedge—Are in a good body of first class ore. Of the base metal mines, Butler has a shaft down 34 feet; ledge almost perpendicular, from 10 to 20 inches in width, and in good ore. Assays \$120 to silver, and 40 per cent. in lead. Empress Josephine has a large force at work. Elko has a lot of first-class ore on dump. Erie mine in litigation. No work going on. Great Valley tunnel shows good ore. The shaft down 160 feet, shows good indications. Imperial Point—Work going on with encouraging prospects.

KERN DISTRICT.—*News*, 10th: We have been shown four assays from the St. Charles ledge, showing as low as \$302.68 and as high as \$5,011.03. There are about 30 miners in the district.

EUREKA BULLION.—The Elko *Independent* of 13th, says: Whitney & Co. have been shipping Eureka bullion the past three days, of which 41,502 pounds went east and 38,653 pounds to San Francisco. The bullion averages \$300 the ton in silver.

GOSHORE.—This, says the *News*, is the name of the ledge discovered by Owen Long, Julius Myer and others, 40 miles northeast of Sacramento District. Assays show \$172 the ton—of which \$35 is gold. A district has been organized under the name "Elk Mountain."

PROCHE.—Cor. of *News*, 13th: The new mill of the Meadow Valley Co. is turning out a fabulous amount of bullion. Mine is looking better, and producing richer ore, at a depth of 125 feet, than ever. The Creole is showing a large body of good ore. The parties holding a lease have upon the dump 300 tons of the best quality. The Meadow Valley Co. have upon the dump 2,500 tons, which they are moving to mill as rapidly as possible.

Mining Shareholders' Directory—Meetings, Assessments and Dividends.

(Compiled weekly from advertisements in the SCIENTIFIC PRESS and other San Francisco journals.)

ASSESSMENTS.			
NAME, LOCATION, AMOUNT AND DATE OF ASSESSMENT.	DAY	DAY	OF SALE.
Aurora Cons. W. P., July 7, \$3.	Aug. 10	Aug. 10	Sept. 1
Alpha Cons. G. H., July 13, \$1.	Aug. 22	Aug. 22	Sept. 2
Bonnie Tunnel, W. P., Aug. 9, 10c.	Sept. 13	Sept. 13	Oct. 3
Brush Creek, Sierra Co., Aug. 5, \$2.50.	Sept. 13	Sept. 13	Sept. 27
Crown Point, G. H., \$3.	Sept. 6	Sept. 6	Sept. 27
Cosula, July 30, \$1.	Sept. 17	Sept. 17	Sept. 27
Cons. Virginia, Storey, July 6, \$1.	Aug. 10	Aug. 10	Sept. 1
Dancy, Lyon co., July 8, \$1.60.	Aug. 11	Aug. 11	Aug. 30
Empire, O. H., Aug. 4, \$6.	Sept. 8	Sept. 8	Sept. 29
Excelsior, Argenta, June 22, 20c.	July 30	July 30	Aug. 20
Evening Star, No. 1, W. P., June 4, 5c.	Aug. 4	Aug. 4	Aug. 24
Featherstone, W. P., June 14, 20c.	July 20	July 20	Aug. 11
Empress, O. H., Aug. 4, \$6.	Sept. 8	Sept. 8	Sept. 29
Gould & Curry, July 14, \$12.50.	Aug. 18	Aug. 18	Sept. 12
Hall & Van Dyke Cons., June 7, 50c.	July 23	July 23	Aug. 20
Julia, July 22, 75c.	Aug. 25	Aug. 25	Sept. 12
Jennie A. Cons., W. P., June 20, 10c.	July 25	July 25	Aug. 15
Katawawa, W. P., Aug. 15, 15c.	Aug. 2	Aug. 2	Aug. 30
Land Purchase, Assn., Aug. 3, 5c.	Aug. 30	Aug. 30	Sept. 24
Mountain City, Elko co., July 14, 25c.	Aug. 29	Aug. 29	Sept. 26
Noonday, W. P., July 20, 20c.	Aug. 24	Aug. 24	Sept. 30
Nevada L. & M. W. P., Aug. 11, 2c.	Sept. 14	Sept. 14	Oct. 3
N. Bloomfield Gravel, June 20, \$5.	July 23	July 23	Aug. 9
North American Cons., July 16, 5c.	Aug. 17	Aug. 17	Sept. 17
Oriental, Sierra co., July 7, 25c.	Aug. 2	Aug. 2	Aug. 30
Pinto, W. P., July 2, 10c.	Aug. 25	Aug. 25	Sept. 15
Pogonip Flat, W. P., June 15, 3c.	Aug. 2	Aug. 2	Aug. 18
Placer G. & C., Placer co., June 11, \$2.	July 26	July 26	Aug. 16
Silver Vault T. & M., W. P., July 20, 5c.	Aug. 25	Aug. 25	Sept. 15
Sophia Cons. 50c.	July 27	July 27	Aug. 16
Wheeler, Pine Grove, June 28, 50c.	July 30	July 30	Aug. 20

MEETINGS TO BE HELD.			
NAME, LOCATION, AMOUNT AND DATE OF ASSESSMENT.	DAY	DAY	OF SALE.
Argenta.	Annual Meeting, Sept. 5		
Meadow Valley.	Annual Meeting, Aug. 18		
Pinto.	Annual Meeting, Sept. 7		
Succor.	Annual Meeting, Sept. 5		

San Francisco Stock Market Review.

THURSDAY EVENING, August 18, 1870.

MISCELLANEOUS STOCKS.

Spring Valley Water Company stock has been in the market during the past week at \$68 per share. San Francisco Gas sold at \$88 50 @88. Twenty shares of California Steam Navigation Company stock realized 41½ @42 per cent. This Company disbursed its usual dividend on the 15th inst. The Central Railroad Company disbursed a ½ percent. dividend on the 15th. The California Powder Works paid a dividend of 1 per cent. on the 15th inst. The Bank of California disbursed its customary dividend of 1 per cent. per month on the 15th. The following named gentlemen have been elected Trustees and officers of the Pacific Rolling Mill Company for the ensuing year: Trustees—William Alvord, D. O. Mills, L. B. Benchley, A. Hayward, and B. P. Brunner; President, W. Alvord; Vice-President, L. B. Benchley; Superintendent, B. P. Brunner; Secretary, Samuel I. C. Swezey.

MINING SHARE MARKET.

The transactions at the Stock Board since our previous reference show quite a diminution in volume, but as a general thing prices have been well maintained, and in a number of instances exhibit an advance over opening rates of the week. The apathy at present prevailing in nearly all business circles has its effect in the direction of stocks, and, as a consequence, less business of a speculative nature is now transpiring.

CHOLLAR-POTOSI.—has been less active than during the previous week, but obtained better figures. For the week ending August 13th they extracted 1,656 tons of ore, the sample assay value being \$67 21 per ton; in previous week 1,700 tons were mined, giving an assay value of \$68 10 per ton. The ore-producing localities of this mine continue to promise well. They are now supplying half a dozen mills daily with from 250 to 300 tons of ore.

HALE AND NORCROSS.—has been well maintained. The yield of ore for the week ending August 13th amounted to 1,505 tons, 1,156 tons coming from the seventh level station. On the 535 level the south drift has reached the southern line, and they will now turn it east and carry it to the east vein—212 feet—thereby obtaining access to both veins and securing better ventilation. They have discontinued sinking the winze below the seventh level, owing to the increased flow of water. The developments made by this winze are reported to be very favorable.

GOULD AND CURRY.—sold to about the same extent as last week. For the week ending August 15th 288 tons of ore were extracted, that taken from the Potosi deposit showing an assay value of \$69 80 per ton. In the "raise" from the seventh station little has been done during the week. In the Potosi deposit, middle adit, they have made a raise of 41 feet from the top of the "schute" for air, and the face of the raise

is in ore of about the same quality as on the floor, showing that they have ore in that body to that height. A telegram of the 17th says: "Ore in raise fifteen feet wide."

KENTUCK.—light sales. During the week ending August 12th 245½ tons were mined, showing an assay value of \$2,914 95, or \$11 84 per ton. Most of the ore comes from the old west workings, about 80 feet from the surface. A small quantity is taken from the 700 level, but is all of low grade. Crown Point was more free of sale at a lower figure. For the week ending August 12th 361½ tons of ore were extracted, valued at \$4,495 36, or \$12 12 per ton. The station on the 1,100 level, at the incline, has just been completed. The incline is down and east from the 1,000 level 180 feet, or about nine feet below the 1,100 station.

SAVAGE.—was in the market to a large extent. For the week ending August 13th, 489 tons of ore were extracted, valued at \$10,269, or \$21 per ton, and is said to net a loss of \$177 in the aggregate, for production and reduction. Imperial reports that the west cross-cut still continues in porphyry and quartz; that the bottom of the shaft is in lively quartz, and that the winze fifty feet above is in good ore.

MINING STOCK QUOTATIONS, AUGUST 18, 1870.

WASHOE.			
Bid.	Asked.	Bid.	Asked.
Alpha Cons.	5½	Gold Hill Q. M. S.	31½
American	5	Hale & Norcross.	87½
Belcher	5	Imperial.	31
Bullion	—	Julia	20c.
Crown Point.	4½	Kentuck	45
Cole, Va.	—	Lady Bryan.	25½
Empress.	44½	Occidental.	9
Featherstone.	45	Ophir.	10
Cons. Virginia.	7½	Overman.	9
Dancy.	—	Savage.	25½
Empire.	2	Sierra Nevada.	10½
Excelsior.	—	Seg. Uelcher.	—
Flournoy.	68½	Yellow Jacket.	55½
Gould & Curry.	68½		

WHITE PINE.			
Bid.	Asked.	Bid.	Asked.
Amador Cons.	—	Noonday.	25c
Broderick.	—	Orig. Hidden Tr.	27c
Chloride Cons.	—	Pocotillo.	—
Featherstone.	—	Pogonip.	—
Hidden Tr. Cons.	—	Silver Wave.	—
Mammoth.	25c	Virginia.	—

Amador. \$200
Bullion. \$205
Eureka. \$310
Idaho. \$315
Golden Char. \$22½
Ida. Elmore. \$20½

Commercial Herald

New Incorporations.

The following have filed certificates with the County Clerk, San Francisco:

CHICAGO, M. Co.—Amador County, Aug. 5. Capital Stock, \$500,000 in 5,000 shares. Trustees: C. J. Pillsbury, V. Ward, J. B. Hardenburgh, A. H. Lissak Jr., and M. Derr.

AMERICAN CONSOLIDATED M. Co.—Nevada, Aug. 8. Capital stock, \$1,000,000 in 20,000 shares. Trustees: J. C. Wade, F. McManis, W. J. Henley, J. G. Clancy and N. H. Wilson.

SAN FELICE M. Co.—Lone Pine District, Inyo county, Aug. 8. Capital stock, \$1,000,000. Trustees: G. S. Mann, A. Wheeler, H. W. Schmidt, M. A. Wheeler, and G. Weiss.

The following have been recorded in the Secretary of State's office, Sacramento:

SACRAMENTO AND HUMBOLDT M. Co.—Humboldt county, Nevada, Aug. 8. Capital stock, \$230,000 in 1,000 shares. Trustees: F. A. Tittle, W. S. Wood, B. Robinson, H. F. Hastings and E. Cadwalader.

Meetings, Elections, Etc.

OCCIDENTAL M. Co.—Aug. 3. Trustees: E. Ruhling, J. P. Smith, J. Browning, W. Weston and S. Schewick. **SAN FRANCISCO AT SAN JOSE M. Co.**—Aug. 8. Directors: H. M. Newhall (President), Peter Donahue (Vice President), W. C. Ralston (Treasurer), C. Mayne, M. D. Swasey, J. O'Neill, G. Palache, J. L. Wilent, Secretary.

CENTRAL PACIFIC R. R.—Aug. 9. Directors: L. Stanford, M. Hopkins, C. P. Huntington, W. E. Brown, (vice A. P. Stanford), C. Crocker, E. H. Miller and C. H. Cummings. (vice C. Marsh.)

UTAH M. Co.—Trustees: G. Stroh, G. H. Moyle and R. Dorn (Secretary), O. P. Sutton, Treasurer.

MAXWELL M. Co.—Trustees: D. D. Colton, (President), M. S. Latham, E. D. Keyes, R. C. Harrison and G. Wallace (Secretary).

COGS BAY COAL M. Co.—Trustees: L. Stracas, O. Eldridge, J. W. Raymond, W. H. Sharp, C. Speckles, J. L. Pool and J. T. Dean.

EAGLE MINING DISTRICT.—An "Old Miner," who has been prospecting among the San Rafael mountains, some 30 miles north of Santa Barbara, writes favorably concerning the quicksilver claims of the Eagle Mining company, to the Santa Barbara Times. The situation of the mines, he says, is all that could be wished; abundance of wood and water, and a tunnel of three hundred feet will prospect the mine to the depth of four hundred feet; in many places the cropping of the mine is from forty to eighty feet above the surface of the ground, and varies from twenty to a hundred and fifty feet in width, and showing metal in nearly every part; the small veins can be traced several miles, and all concentrated into this grand out crop which certainly beats anything of the kind that I have ever seen. He speaks very enthusiastically of the prospects of the Eagle Quicksilver Mining Co. The officers of this company (Wm. H. Watson, President; Judge Townsend, Vice President; T. W. Colburn, Secretary; and J. Panir, Treasurer) are equally sanguine, as any one here can ascertain by calling at 26 Hayward's Building, 419 California Street.

Farming and Gardening.

COMMUNICATIONS for this department are solicited from all parts of the Pacific States and Territories.

The Sunflower.

The sunflower, *helianthus annuus*, is generally regarded as a comparatively worthless plant, cultivated about cottages because the owners lack the taste or do not feel able to cultivate more pretentious plants to ornament their places. True, it is a somewhat coarse, rank growing annual; but it is neither unattractive nor useless. The sunflower is a native of South America, and was introduced into this country and Europe during the fifteenth century. Of late years its cultivation has been strongly recommended as a field crop, to be employed for economical purposes. The soil most suitable for its growth is that of a dry, friable nature, and if the ground is strongly impregnated with alkali, that fact is an advantage rather than otherwise. The economical uses of the plant and seed are numerous.

Years ago, the leaves of the sunflower were used as a substitute for tobacco, and were said to be especially useful for the asthma. They can be plucked off during the summer, without injury to the plant, and dried for fodder or fed green to stock of any kind. When fed green, they are said to greatly increase the flow of milk in milch cows, by whom they are eagerly devoured.

The stems may be made useful for bean poles or may be employed as supports for other climbing plants—the larger ones even for hops. When dried they form an excellent summer wood; fully as good as small willows, which are much sought after by bakers, from their furnishing a quick, hot blaze, with very little deposit of soot, much less than is the case with pine wood. In burning, the stems will yield ten per cent. of potash, a valuable product.

The seed, however, is the most important product. In some countries it is ground into flour, and used for bread or gruel. When simply "cracked," it furnishes a most excellent food for poultry, especially for young and growing chickens, or those which it is desirable to fatten for market. This fattening quality is due to the large amount of oil which they contain, but for that reason they should be fed only sparingly to laying hens. When roasted, the seeds have very much the flavour of coffee, and an infusion makes a very pleasant beverage.

The seed, on expression, furnishes a most excellent oil, which may be used as a salad oil, for the lamp or for the manufacture of soap. We saw a statement not long since, that a Mr. Schlicht, of Siskiyou, we think, is raising the sunflower on a large scale, and has put up an oil mill, by which he is manufacturing from this product an article of sweet oil, equal to anything of the kind in the market. He also makes a salad oil equal to the best made from the olive.

There is still another use not yet mentioned, and which, by no means, forms the smallest economic value of this hitherto neglected plant. We refer to the fact that it affords a most excellent bee pasturage. Indeed, the florets are said to be so full of nectar that the bees which visit them sometimes become clogged with the excess of sweetness, being not unfrequently so covered therewith, that their comrades are obliged to come to their relief. This peculiarity ought to give the plant a special value in some of the drier portions of the State, where bee food soon dies out; for by making a succession of plantings, which shall come into flower at the proper time, constant pasturage may be secured through the dry season, while the bee-keeper may go to any reasonable distance to find a convenient spot for his plantation.

The sunflower, like nearly all other vegetable productions, sometimes grows to enormous proportions in this State. Some three years ago, there was a mammoth sunflower exhibited at the *Bulletin* office, in this city, grown by Mr. E. T. Crane, of San Leandro, which measured four and a half feet in circumference or one and a half in diameter. This monstrous flower grew upon a stalk fifteen feet high, while its seeds were as large as ordinary grains of corn! Mr. Crane, we believe, planted several acres for the purpose of obtaining the seed for his poultry, and to shield an adjoining orchard from dust. Both objects were accomplished to his fullest satisfaction. The average growth of the plant and production of seed was enormous. After the young plants had become thoroughly rooted, they ran up at the rate of nearly two feet a week, or four inches a day!

An acre of land will contain 25,000 plants, when placed twelve inches distant from each other. The product will of course vary with the soil and mode of cultivation; but the average has been found to be about fifty bushels of seed, which will yield fifty gallons of oil and leave about 2,000 pounds of cake, as valuable as linseed oil cake, is worth, say \$30 in the market or \$50 for feeding. To this should be added the value of the stems and leaves as above.

Taking the above facts into consideration, we cannot but think the cultivation of the sunflower is deserving of far more attention than has usually been allotted to it. The varied and important uses to which it may be applied ought certainly to set people to thinking.

Selling Eggs by Weight.

It has long been urged, that eggs should be sold by weight, instead of by count. There can be no doubt that the great difference in size, a difference which is growing more and more marked by increased care in breeding, fully warrants the proposed change. *Twice a Week*, says that the average of a great number of hens' eggs, weighed at random from time to time, in the market, is two ounces, or 1½ pounds per dozen; but the difference in consequence of breed or feed and care makes the range from 1½ to 2½ ounces, so that if eggs are 45 cents per dozen the buyer would, on the average, pay 30 cents per pound, but by paying the same price per dozen and taking those larger or smaller than the average, he may get his eggs at 40 cents per pound or pay but 16½ cents per pound for them. For an article of as great consumption as eggs the difference is too great to be thought a trifle, and a little care will save many a dollar in the annual marketing outlay. Some people might think it small to stand and pick out eggs, but there is nothing wrong or little about it. In fact, it is the duty of every housekeeper to do so, and let it be once understood that either only the large eggs will be taken, or a less price paid for small ones, and dealers will find it necessary to sell by weight.

As to the difficulties in the new system, the *Poultry Bulletin*, which advocates the weight system, says "Fractions of a pound can be as easily calculated as meat, cheese or other commodities, the exact needed weight wanted, it is almost impossible to make, yet which are always sold by weight, and no difficulty found in the transaction."

A LADY FARMER.—Mrs. Millington, at the last meeting of the Royal Agricultural Society of Oxford, Eng., obtained the special prize of a five hundred dollar gold cup, for the best cultivated farm in that District. The prize was won against several very able and wealthy competitors.

ITALIAN CHESTNUTS are doing well in Santa Barbara as well as in Los Angeles. Judge Fernold, of the latter place, has one on his ground, but three years old, on which 23 nuts are growing! This tree is said to be a rapid grower, hardy and a very prolific bearer. It grows from seed and needs no grafting.

Grain Markets, as Affected by Seasons.

BY PROFESSOR ROWLANDSON.
[Concluded from last week.]

Speyning, Summer Drought, Rain, and Winds.

Severe vicissitudes from the end of February to May, rarely affect the wheat crop in England to any serious extent south of the Tweed. March frosts, however to the north of that river sometimes, though very seldom, occasion damage in the way already described; in the winter season, this portion of the kingdom being generally preserved from such evil effects by a covering of snow. During the month of May, wheat invariably assumes a yellow, sickly hue, a circumstance which for hundreds of years has been bruited almost every season, by real or pretended alarmists, as prognosticating a forthcoming deficient harvest. This sickly appearance arises from what is termed "speyning" Up to this period the wheat plant has obtained its support chiefly from the seed, and solely, through the medium of its seed roots. About this time a new set of roots is rapidly developed, just above the seed, at the point where the plant stools, and on the growth of which the future character of the plant almost wholly depends. The subsequent functions of the seed roots are thereafter of a mere nominal character. This singular habit of the wheat plant, which is confined exclusively to the cereals, was fully described and figured in the *Press* on page 46 of the present volume. This annual occurrence is so well known by the British farmers that it has given rise to the following doggerel quatrain.

"If you look at your wheat in May
You will come weeping away,
If you visit it again in June,
You will come away with a merry tune."

The character of the month of June exercises a most important influence on the harvest yield. Drought, such as is stated to have occurred during the month of June last is apt to occasion a dwarfed and spare appearance amongst wheat fields; but the yield in consequence rarely falls below an average, unless followed by an unfavorable—that is an extremely wet season. The most extraordinary summer drought known during the past century occurred in 1826, at which time in the Lake district where the annual rain fall averages from 75 to 150 inches, the crop of oats and barley were so stunted that neither sickle nor scythe could be employed to gather them, and the large majority of fields had to be hand pulled. On limestone and chalk uplands, cattle perished, as we have witnessed more than once in California under similar circumstances of drought. In the instance under notice, the rainless, or almost wholly rainless period, lasted from the commencement of June, until the end, July; yet the crop of wheat came up to an average as well as I can remember. Am obliged to make the last statement under limited conditions as I am without accurate data of grain prices beyond the year 1828. In the quarterly agricultural report for the market of that year, I find the following paragraph:

"The vast deficiency of these last (barley and oats) in 1826 produced an enormous foreign importation." As no reference is made in this report, to any importation of wheat, and as that grain, if of foreign growth, was not allowed at this period to be entered for consumption until the six weeks averages came up to 80s per quarter, or four dollars per 100 lbs, it is pretty evident that no foreign wheat was consumed in England, in consequence of the remarkable drought of 1826. In fact seasons of drought occurring during the early summer, have usually been succeeded by good wheat crops, and the instance cited goes far to show that in the severest cases, anything like a failure of crop, as a result need not be anticipated.

June is the flowering season, at which period the harvest yield may be seriously affected by either wind or rain; but more particularly by a combination of the two, which if long continued may affect the ultimate yield to the extent of from 25 to 50 per cent; as an extreme case, I may state one which I witnessed where a wheat field, from the combined influences named,

yielded little over twenty bushels per acre, which is a fair average year would have yielded eighty bushels. In the case observed in the year noticed (1829) heavy rains, accompanied by boisterous winds, blowing from all parts of the compass, prevailed during the flowering season, and destroyed the pollen. Usually however, a bad flowering season consists of pretty continuous wet weather, accompanied by almost equally continuous brisk, cold winds; the continuous effect of which are found to be as destructive to the pollen, as hurricanes or rains of a torrential character. From a bad flowering period, to harvest time, British corn markets are in a feverish condition; as the judgment of the most experienced observers are baffled in estimating the damage which has been so occasioned. The thrashing machine being the only safe test. In a generally extended bad flowering season however, the damage rarely falls below one fourth of the average crop. Neither prudence, skill nor judgment can guard or mitigate the effects of an unfavorable flowering season; all others, even to the destructive effects of the insect world, may in some measure be tempered; but no means exists of ameliorating the evils arising from an unfavorable flowering period.

A bad, that is a wet and cold ripening, and harvest time, frequently disappoints the hopes of the farmer, after his crop has successfully surmounted the risks of the prior season; the former causes the grain to be light, much only fit for tailings. The weight of flour to the weight of grain, as well as the quality, is also inferior, when compared with the produce of average years. By the adoption of my old acquaintance Alderman Mechi's proposal, a plan of drying crops by artificial means (and I have long believed the mode to be perfectly feasible and economical,) the dangers arising from a wet harvest, will be reduced to a minimum; in such an event, the great dangers to a British crop will, in a large measure, be reduced to two periods—the flowering and ripening seasons. The writer does not recollect any instance where a wet harvest has followed a May and June drought. To sum up in a few words, the chief danger to British harvests, will be found to consist in unfavorable flowering and gathering seasons.

BUTTER AND EGGS.—A lady of this city] but a "dairyman's daughter" sends us the following:

FOR PRESERVING BUTTER.—Take one gallon of water and add thereto salt until the water will bear up an egg; then add three tablespoonfuls of white sugar and one teaspoonful of saltpetre. Boil the solution five minutes and then allow it to stand until cold, when it should be strained into a bowl or other vessel. Pack into the same as much butter as the brine will cover.

TO PRESERVE EGGS.—Eggs may be kept good for a considerable time if packed in fine salt, and placed upon end. The eggs should be perfectly separated from one another and the upper layer completely covered. [An improvement on this would be to first inclose them in melted paraffine, so as to form a thin coating and so fill the pores of the shells as to render them air tight. The destruction of the egg is due to the entrance of the air from outside.—Eds. *Press*.] When packing for market they should be placed in boxes of oats, and always on end.

PALMS IN SAN JOSE.—In addition to other semi-tropical fruit, there are two fan and one date palm growing in the open air of the courtyard of Santa Clara College.

GOMA OIL.—The Japanese colony, at Placerville, has lately engaged in the cultivation of an oil-plant, of the nettle family, called Goma. The seeds of this plant are said to be so rich in oil that one hundred and thirty-six pounds of oil can be obtained from the product of an acre. The plant itself needs a great deal of moisture, which is to be supplied by means of irrigation. The young shoots form an excellent salad; the flowers are much sought after by bees; and the stems furnish a large amount of fibre. It is asserted that this goma oil, well prepared, is equal to the best olive oil, and does not become rancid so quickly, replacing the olive oil in all its technical applications. The price is expected to be considerably less than that of olive oil. We have clipped the above from one of our exchanges, the name of which we have inadvertently overlooked.

What I Know of Farming—No. 31.

The Farmer's Calling.

If any one fancies that he ever heard me flatter farmers as a class, or saying anything, which implied that they were more virtuous, upright, unselfish, or deserving, than other people, I am sure he must have misunderstood or that he now misrecollects me. I do not even join in the cant, which speaks of farmers as supporting everybody else—of farming as the only indispensable vocation. You may say if you will that mankind could not subsist if there were no tillers of the soil, but the same is true of house-builders, and of some other classes. A thoroughly good farmer is a useful, valuable citizen: so is a good merchant, doctor, or lawyer. It is not essential to the true nobility and genuine worth of the farmer's calling that any other should be assailed or disparaged.

Still, if one of my three sons had been spared to attain manhood, I should have advised him to try to make himself a good farmer; and this without any romantic or poetic notions of Agriculture as a pursuit. I know well, from personal though youthful experience, that the farmer's life is one of labor, anxiety, and care; that hail, and flood, and hurricane, and untimely frosts, over which he can exert no control, will often destroy in an hour the net results of months of his persistent, well-directed toil; that disease will sweep away his animals, in spite of the most judicious treatment, the most thoughtful providence, on his part; and that insects, blight, and rust, will often blast his well-grounded hopes of a generous harvest, when they seem on the very point of realization. I know that he is necessarily exposed, more than most other men, to the caprices and inclemencies of weather and climate; and that, if he begins responsible life without other means than those he finds in his own clear head and strong arms, with those of his belpmeot, he must expect to struggle through years of poverty, frugality, and resolute, persistent, industry, before he can reasonably hope to attain a position of independence, comfort, and comparative leisure. I know that much of his work is rugged, and some of it absolutely repulsive; I know that he will seem, even with unbroken good fortune, to be making money much more slowly than his neighbor, the merchant, the broker, or eloquent lawyer, who fills the general eye while he prospers, and, when he fails, sinks out of sight and is soon forgotten; and yet, I should have advised my sons to choose farming as their vocation, for these among other reasons;

I. There is no other business in which success is so nearly certain as in this. Of one hundred men who embark in trade, a careful observer reports that ninety-five fail; and, while I think this proportion too large, I am sure that a large majority do, and must fail, because competition is so eager and traffic so enormously overdone. If ten men endeavor to support their families by mere huckstering in a township which affords adequate business for but three, it is certain that a majority must fail, no matter how judicious their management or how frugal their living. But you may double the number of farmers in any agricultural county I ever traversed, without necessarily dooming one to failure, or even abridging his gains. If half the traders and professional men in this country were to betake themselves to farming to-morrow, they would not render the pursuit one whit less profitable, while they would largely increase the comfort and wealth of the entire community: and, while a good merchant, lawyer, or doctor, may be starved out of any township, simply because the work he could do well is already confided to others, I never yet heard of a temperate, industrious, intelligent, frugal, and energetic farmer who failed to make a living; or who, unless prostrated by disease or disabled by casualty, was precluded from securing a modest independence before age and decrepitude divested him of the ability to labor.

II. I regard farming as that vocation which conduces most directly and palpably to a reverence for Honesty and Truth. The young lawyer is often constrained, or at least tempted, by his necessities, to do the dirty professional work of a rascal intent on cheating his neighbor out of his righteous dues. The young doctor may be likewise incited to resort to a quackery he despises in order to secure instant bread; the unknown author is often impelled to write what will sell rather than what the public ought to buy; but the young farmer, acting as a farmer, must realize that his success depends upon his absolute verity and integrity. He deals directly with Nature, which never waxes and never will be cheated.

He has no temptation to sow beach sand for plaster, dockseed for clover, or stoop to any trick or juggalo whatever. "Whatsoever a man soweth that shall he also reap," while, true, in the long run, of all men, is instantly and palpably true as to him. When he, having grown his crop, shall attempt to sell it—in other words, when he ceases to be a farmer and becomes a trader—he may possibly be tempted into one of the many devious ways of rascality; but, so long as he is acting simply as a farmer, he can hardly be lured from the broad, straight highway of integrity and righteousness.

III. The farmer's calling seems to me that most conducive to thorough manliness of character. Nobody expects him to cringe, or smirk, or curry favor, in order to sell his produce. No merchant refuses to buy it because his politics are detested or his religious opinions heterodox. He may be a Mormon, a Rebel, a Millerite, or a Communist, yet his grain or his pork will sell for exactly what it is worth—not a fraction less or more than the price commanded by the kindred product of like quality and intrinsic value of his neighbor, whose opinions on all points are faultlessly orthodox and popular. On the other hand, the merchant, the lawyer, the doctor, especially if young and still struggling dubiously for a position, are continually tempted to sacrifice or suppress their profoundest convictions in deference to the vehement and often irrational prepossessions of the community, whose favor is to them the breath of life. "She will find that that won't go down here," was the comment of an old woman on a Mississippi steamboat, when told that the plain, deaf stranger, who seemed the focus of general interest, was Miss Martineau, the celebrated Unitarian; and in so saying she gave expression to a feeling which pervades and governs many if not most communities. I doubt whether the social intolerance of adverse opinions is more vehement anywhere else than throughout the larger portion of our own country. I have repeatedly been stung by the receipt of letters gravely informing me that my course and views on a current topic were adverse to public opinion: the writers evidently assuming as a matter of course, that I was a mere jumping-jack, who only needed to know what other people thought to insure my instant and abject conformity to their prejudices. Very often, in other days, I was favored with letters from indignant subscribers, who, dissenting from my views on some question, took this method of informing me that they should no longer take my journal—a superfluous trouble, which could only have meant dictation or insult, since they had only to refrain from renewing their subscriptions, and their TRIBUNE would at once come. Whenever they should have received what we owed them; and it would in no case stop till then. That a journalist was in any sense a public teacher—that he necessarily had convictions, and was not likely to suppress them, because they were not shared by others—in short, that his calling was other and higher than that of a waiter at a restaurant, expected to furnish whatever was called for, so long as the pay was forthcoming—these ex-subscribers had evidently not for one moment suspected. That such persons have little or no capacity to insult, is very true; and yet, a man is somewhat degraded in his own estimation by learning that his vocation is held in such low esteem by others. The true farmer is proudly aware that it is quite otherwise with his pursuit—that no one expects him to swallow any creed, support any party, or defer to any prejudice, as a condition precedent to the sale of his products. Hence, I feel that it is easier and more natural in this pursuit than in any other for a man to work for a living, and aspire to success and consideration, without sacrificing self-respect, compromising integrity, or ceasing to be essentially and thoroughly a gentleman.

HORACE GREELEY.

NEW CHERRIES IN OREGON.—Mr. Luelling, of Oregon, has recently originated a new seedling cherry which is said to present some most excellent points. It ripens late, and when fully ripe is almost black, its flesh is very firm, crisp and juicy, with a delicious flavor. It is very large—some specimens are said to have measured three and over three inches in circumference or an inch and one sixth in diameter. It does not bleed when the stem is removed, and is a prolific bearer. Its firmness renders it especially valuable for transportation. Some samples of this cherry were sent to New York, last summer, by steamer, and reached there in good condition. A box of

cherries were exhibited at the late meeting of the Pomological Society, at Portland, together with some branches of the tree with the fruit attached, which is represented as having been a grand sight. The fruit was pronounced by good judges, present the best they ever tasted. Mr. Luelling and others are engaged in propagating this tree, so that there is reason to believe that within a few years it will be common in our gardens. It should, by all means be named after its originator, rather than be called, as now, the "Black Republican."

Mr. J. W. Wellig, of Oswego, Oregon has also originated a new cherry which is described as "dark, rich, sweet and juicy, and of very large size." We are pleased to announce these valuable tributes of Oregon to the pomological world.

Oregon seems to be a natural home for the cherry, as it appears to flourish better than anywhere else on the Pacific Coast. The fruit of the eastern cherries is said to be quickly improved when grown there, and the crop never fails. Pomologists there hope to be able to produce many other and valuable varieties to send back to their Eastern friends, in return for the well known kinds which they have received from the East.

How Roots Grow and Feed.—No. 2.

In our remarks on the manner in which roots grow and feed, we have stated that the "root-hairs" are the mouths through which the plant feeds, while the leaves are its lungs. If we examine the roots of trees in the spring, especially roots of a pre-



vious year's growth, we shall find no rootlets, but in their place, innumerable little excrescences, each composed of many cells. From these cells new rootlets are produced, and from these new rootlets the root-hairs are thrown out, which are not true roots, any more than the leaves are true branches, and they never become roots, any more than leaves become branches. As the leaves extract nutriment from the atmosphere, so the root-hairs absorb it from the soil during the growing season. When their work for the season is done, they separate from the roots and decay in the soil, just as the leaves fall from the branches and decay on the surface. Root-hairs are also found on all the small roots which continue through the winter, the bark of which is not too spongy or scaly for their production. When the growth for the year is over, and the season of rest, or the winter, comes on, both the leaves and rootlets, as well as the root-hairs, are

thrown off, and the tree divested of all its clothing, both above and below ground, remains naked and unprotected through the frosts and bleak winds of winter; or through the resting season of deciduous trees, in semi-tropical climates.

The contact of the rootlets and root-hairs is very intimate. If we carefully lift a young plant from the earth, we shall notice that each rootlet is covered with an envelope of earth, which adheres with such tenacity that even a gentle shaking will not be sufficient to displace much of it. Fig. 1 represents a young wheat plant as taken up, and pretty strongly shaken. Each rootlet is separately enveloped, the earth being held in position by the root-hairs which cover them, as shown in the figure which we employed last week to represent the root-hairs upon a mustard plant, from which the soil had been carefully removed by the aid of water. The soil will be seen to adhere to Fig. 1, from the point where the roots start from the seed, down to near their tips, which are never covered with root-hairs, for reasons stated last week. Fig. 2 represents a single root of a wheat plant, with its branching rootlets, about one month older than the plant as represented in Fig. 2. In this instance it will be observed that not only are the root tips naked, as in figure 1; but the older parts of the root from the root-stem, nearly half the way down to the tip of the main root, are no longer enveloped with adhering soil. This arises from the fact that the root-hairs, on the older part of the root, have already begun to decay and drop off. Thus we see that while the root-hairs on deciduous or perennial plants continue to perform their office through the entire growing season, those on annuals have a very short life; beginning to decay very soon after the plant commences its growth, but being renewed by the newer portions of the root as it continues to push its way through the soil.

A knowledge of this latter fact leads to an important practical lesson, viz: that any disturbance of the newer roots of our annuals, such as wheat, corn, etc., should be carefully avoided; as it is upon that portion of its roots that the later growth of the plant depends. It is the newer parts of the root alone that are covered with active root-hairs; the upper or older portion being mainly employed as a conduit for conveying to the plant the food and moisture taken up by the newer portion.

San Francisco Market Rates.

Wholesale Prices.		
THURSDAY EVENING, Aug. 18th, 1870.		
Flour, Extra, 50 lbs.	55 75	\$56 25
Do. Superfine, 50 lbs.	50 00	50 00
Corn Meal, 100 lbs.	2 25	2 25
Wheat, 100 lbs.	1 15	1 15
Oats, 100 lbs.	1 05	1 05
Barley, 100 lbs.	1 00	1 00
Seed, extra, dressed, 100 lbs.	2 50	2 50
Potatoes, 100 lbs.	1 00	1 00
Hay, 100 lbs.	9 00	9 00
Live Oak Wood, 100 cords	9 00	9 00
Sheep, extra, dressed, 100 lbs.	7 10	7 10
Sheep, on foot, 100 lbs.	2 00	2 00
Hogs, on foot, 100 lbs.	7 10	7 10
Hogs, dressed, 100 lbs.	8 00	8 00
GROCERIES, ETC.		
Sugar, crushed, 50 lbs.	14 10	14 10
Do. Hawaiian, 50 lbs.	8 10	8 10
Coffee, Costa Rica, 50 lbs.	20 00	20 00
Do. Rio, 50 lbs.	20 00	20 00
Tea, Japan, 50 lbs.	75 00	75 00
Do. Green, 50 lbs.	60 00	60 00
Hawaiian Rice, 50 lbs.	7 10	7 10
China Rice, 50 lbs.	6 10	6 10
Coal Oil, 50 gallons	41 10	41 10
Candles, 50 lbs.	14 00	14 00
Overland Butter, 50 lbs.	20 00	20 00
Ranch Butter, 50 lbs.	20 00	20 00
Isthmus Butter, 50 lbs.	20 00	20 00
Cheese, California, 50 lbs.	10 00	10 00
Eggs, 50 dozen	15 00	15 00
Lard, 50 lbs.	16 00	16 00
Hams and Bacon, 50 lbs.	16 00	16 00
Ham and Bacon, 50 lbs.	16 00	16 00
Shoulders, 50 lbs.	9 00	9 00
Retail Prices.		
Butter, California, fresh, 50 lbs.	40 00	40 00
Do. pickled, 50 lbs.	40 00	40 00
Do. Oregon, 50 lbs.	40 00	40 00
Cheese, 50 lbs.	20 00	20 00
Honey, 50 lbs.	25 00	25 00
Eggs, 50 dozen	15 00	15 00
Lard, 50 lbs.	15 00	15 00
Hams and Bacon, 50 lbs.	15 00	15 00
Crabapples, 50 gallons	1 00	1 00
Potatoes, Sweet, 50 lbs.	2 00	2 00
Potatoes, 50 lbs.	2 00	2 00
Omons, 50 lbs.	2 00	2 00
Apples, No. 1, 50 lbs.	4 00	4 00
Hears, 50 lbs.	10 00	10 00
Plums, dried, 50 lbs.	10 00	10 00
Peaches, dried, 50 lbs.	10 00	10 00
Oranges, 50 dozen	10 00	10 00
Hams and Bacon, 50 lbs.	10 00	10 00
Chickens, 50 lbs.	75 00	75 00
Turkeys, 50 lbs.	10 00	10 00
Soap, Pale and C.O.	15 00	15 00
Soap, Castile, 50 lbs.	15 00	15 00

CONTINENTAL Life Insurance Co., 302 Montgomery street, corner of Pine.

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San Francisco:
Saturday Morning, Aug. 20, 1870.

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Notices to Correspondents.

J. P. L., Port Wine, Sierra Co., Secretary Iowa M. Co., believes a steam pump is just the thing needed in those diggings. He wishes the address of parties manufacturing and selling steam pumps. San Francisco dealers ought to advertise. Send circulars as above.

Sixteen Pages Extra.

We shall print a THIRTY-TWO PAGE EDITION, September 3d, containing the paper, already announced, entitled: "A Guide to California Immigrants." Its publication has been delayed partly on account of the printers' strike, which came to a sudden end, with a reduction of prices.

DIAMONDS.—An article (to be found on another page of this issue) on the probability of the occurrence of diamonds in California, by Mr. Henry G. Hanks, is worthy the attention of miners.

PROF. HENRY DURANT, just elected President of the State University, is a gentleman of thorough education, and his efforts towards the progress of the Colleges of California, during a long time, have not been excelled by any others. He is also a person of liberal spirit and geniality, and among the best citizens of Oakland, and to whom he is most familiar, his election is exceedingly popular, and is considered a fortunate result.

PERSONAL.—We were much pleased, on Tuesday last by the appearance in our office of Father Chichi, formerly of the St. Ignatus College, but more lately connected with the Georgetown College, at Georgetown, D. C. We understand that he has again returned to this State to resume his connection with the College at Santa Clara.

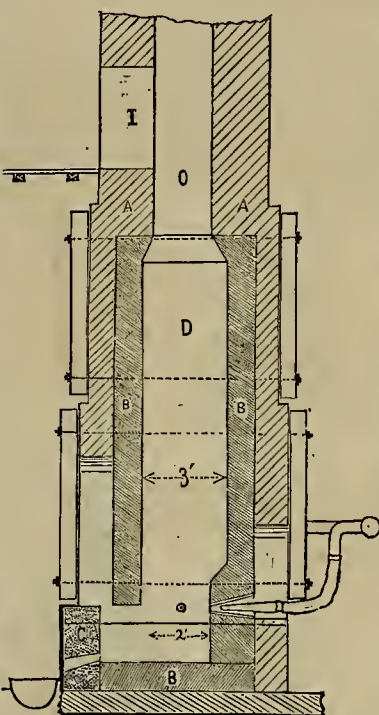
DESTRUCTIVE FIRE AT NEW ALMADEN.—On August 15th, at 2 A. M. a fire broke out in a bakery in the town on the hill at the New Almaden mines. There were no means of extinguishing the flames, which spread until nearly the whole town was burnt down. The people, roused from their sleep, had barely time to save themselves, without being able to save any of their effects. Many are reported to be left entirely destitute.

Smelting at Eureka, Nevada.

BY GUIDO KUSTEL.

At present, the smelting of argentiferous lead ores at Eureka is conducted in six furnaces, belonging to different parties. Other furnaces are in the course of construction.

These furnaces are all built after the same general pattern and vary but little. They are vertical blast or cupola furnaces with a square horizontal section. The blast is admitted through three tuyeres, one at the back and one on each side. The mouth or nozzle of the tuyeres is generally three inches in diameter, admitting a very large amount of wind—too much, considering the horizontal dimensions of the furnaces, which are about two feet square, and the easy fusibility of the ore. The shaft is from 12 to 16 feet high, from the tuyeres to the charging hole. The hearth is about two feet below the tuyeres, and is made of stone, the front part alone being formed of a composition. At the bottom of the hearth is the tap-hole, through which the



lead is run out at intervals. One tapping gives about 200 pounds of pig lead, which, being run into moulds, forms bars weighing from 80 to 120 pounds apiece.

The furnace is built of stone found here, lined inside with a fire-proof sandstone, which is found at Pancake mountain, about twenty miles distant. This last is porous and of an excellent quality. Lately, sandstone equally as good has been found at Eureka. The blast is furnished by fan blowers. The illustration shows the common style of furnace used. Here A denotes the walls, built of a sort of porphyry tufa; B, the inside lining of sandstone; C, the front of the hearth, of composition. The shaft, D, has a square horizontal section, and the shaft, O, a circular one. I is the charging hole.

The ore is principally cerussite or carbonate of lead. There is also some galena, but only in limited quantities at present, and mostly changed into a dull, black mineral, retaining the structure of galena, and apparently unchanged in the center. Singularly enough, the dull portion is richer in silver than the galena, from which it seems evidently to have been formed, perhaps by the influence of internal heat. It resembles Stetefeldtite. On an average, the ore prepared for smelting contains 40 to 45 per cent. of lead, \$60 to \$80 in silver, and \$15 to \$20 in gold per ton. In bulk, the ore has a yellow color, due to the iron

in it. There is also arsenic in the ore, which, in smelting, combines with the iron, forming a white compound (speise), somewhat like mntt, and holding \$36 to \$45 per ton in silver and gold, and 24 per cent. of lead. The ore smelts readily by itself, nothing being added except about 20 per cent. of slag.

Analysis of the slag shows the following composition. For the sake of comparison, the composition of a Freiberg slag is also given. No. 1 is the slag from Eureka, and No. 2 that from Freiberg:

	No. 1.	No. 2.	
Silica.....	30.20	36.50	
Iron (suboxide).....	50.60	40.50	To form this requires
Alumina.....	3.01	8.50	2,660° Fahr., and to
Lime.....	7.10	4.00	melt it when formed.
Magnesia.....	0.10	3.00	2,402°.
Lead (oxide).....	8.70	7.50	
	100.51	100.00	

There is a little too much iron in the slag No. 1. For the protection of the furnace lining a somewhat larger proportion of quartz in the ore would seem to be advantageous. Yet as it is, there is a most fortunate coincidence of all the requirements for easily smelting the Eureka ore.

About 24 pounds of charcoal are charged into the furnace at one time, and from 40 to 45 pounds of ore, besides 12 pounds of slag. But the charging is done in a very irregular manner, by means of shovels and without weighing or measuring. One furnace can smelt from eight to nine tons of ore in 24 hours. Three and a half tons of ore yield about one ton of pig lead, or "bullion," as they prefer to call it. The consumption of charcoal varies from 30 to 35 bushels to the ton of ore. At present, it costs about \$20 to smelt a ton of ore; it is probable, however, that, by using a furnace of larger capacity, the expenses may be reduced to \$14 or \$15.

When the furnaces are properly managed, the loss of lead will probably not exceed 20 per cent. At present, however, it is larger, owing to several reasons, and very largely to the very frequent use of crowbars about the hearth, whereby a great deal of lead is mixed in with the slag. By using such large tuyeres, it would seem that too much wind was brought into the furnace, and without sufficient pressure. Hence the heat is not concentrated in the smelting region just above the tuyeres, but is diffused in the upper part of the furnace, and the carbonate of lead commences to melt at a distance of one or two feet below the charging hole, and the lead is thus exposed a long time to volatilizing influences. Hence, also, in the hearth the temperature is too low, the slag stiffens, sticks to the walls, makes the constant use of the crowbar necessary and takes up mechanically considerable lead. Again, the ambition of having a very long run induces some smelters to keep the furnace at work when it evidently needs repairs, and this is another source of loss of lead and silver.

The amount of speise (the combination of arsenic and iron) is about three per cent. of that of the ore. At present this is not treated further.

The bullion contains, on the average, about \$170 in silver and \$80 in gold, or a total of \$250 per ton. This statement must be taken, of course, as a very general one. The lead is at present shipped to Newark, N. J., for the purpose of extracting the silver and gold. There is nothing to prevent its being cupelled at Eureka, but different circumstances induce the companies to send it away.

A large furnace, with five tuyeres, and capable of smelting 24 tons in 24 hours, is now being built by the Eureka Smelting Company, under the superintendence of Mr. Ch. V. Liebenau. This furnace will be six-sided, and in the middle of each side, except the front one, comes a tuiere directed towards the centre of the furnace. The diameter of the furnace, or rather the distance of the centers of opposite sides, is three and a half feet at the level of the tuyeres, and four feet at the level of the feeding hole. From the tuyeres to the feeding hole is 16 feet. The furnace will cost between \$2,500 and \$3,000.

Wire Tramway at White Pine.

We learn that the English company at White Pine are about to put up a wire tramway from their mines, on Treasure Hill, to their mills. The system to be introduced is that of Mr. Hodgson, an English engineer, which is in use in England, Ireland, France and Hungary, and of which a specimen line (portion of a line, 60 miles long, to be erected at Ceylon), has lately been set up at Brighton, England, so as to afford a crucial test of the capabilities of the method.

This system consists of an endless wire rope running over a series of pulleys carried by posts, which are ordinarily placed about 200 feet apart, but which at Brighton vary in distance up to 900 feet. This rope passes at one end of the line around a drum, driven by any sufficient power, at a rate of 4 to 8 miles per hour. The box which carries the load is attached to a box-head (which travels with the rope) by means of a curved arm or pendant, which maintains the box in equilibrium and enables it to pass the supporting posts and pulleys.

The box-head consists of an oak block, about 14 inches long, lined with leather, and cut out on its under side into a A-shape, so as to catch over and grip on the rope. It has, moreover, four small wheels, which run on rails placed on each support, and thus lift the box-head at these points from the rope and enable it to pass the pulleys, the momentum acquired keeping the load in motion until the box-head again catches the rope beyond the pulley.

The boxes can be made to carry from 1 cwt. to 10 cwt. On the five-mile line at Brighton the rope is thought to be capable of delivering 120 tons each way in a day of 10 hours. This rope is of charcoal iron, is two inches in circumference and presents gradients in some parts as steep as 1 in 8. The power employed is a 16-horse power engine. There are two curves where the line turns at right angles, besides having several lesser angles, and the surface of the country is very irregular and broken, being chosen on this account. The rope is driven at a uniform rate of 5 miles an hour.

The tests at Brighton seem to have been sufficiently successful to attract quite a general attention to the system. We are glad that now it is to be tried in our country. We need anything of the kind which will lessen the expenses of transportation, and this method seems to promise well in this direction. It may also admit of a wider application than originally intended. Perhaps it may be used for passenger traffic, although this is very doubtful in our opinion. But the 60-mile line at Ceylon will be an important experiment. This line, we ought to state, will be divided up into five-mile sections, similar to the one at Brighton. We ought also to state that the lines now in operation are said to give good satisfaction and that there are, in addition, lines in construction in Peru, New Zealand, Brazil, Italy, Spain and Sweden, with new constructions in France and England.

ANOTHER.—A new paper, the *Rural Californian*, edited by M. J. Kelly, is to be published at Sacramento. It is to be devoted to the agricultural interest and, in addition, to contain considerable reading matter for the home circle. It is promised that no pains will be spared to bring it up to the highest standard. If the managers fulfil their promise, no one will be more ready to wish them success than the SCIENTIFIC PRESS.

REDUCTION WORKS OF OAKLAND.—The City Council have passed an ordinance prohibiting the erection of the smelting works for sanitary reasons. Whether this will result in deterring the company from continuing their operations, is doubted by some. Probably no immediate steps will be taken.

Air Target Pistol.

There is a peculiar fascination about shooting, which attracts both sexes and all ages of mankind. Although the "dreadful noise" is a great drawback to the more general indulgence in this pastime by the fairer and gentler sex, yet many have accustomed themselves to hold a pistol, or even a gun, occasionally. Since air-guns have come into vogue, practice with them is said, indeed, to have become a standard amusement at pleasure resorts and water-lag places.

To indulge, however, in the use of an article which costs from twenty to sixty dollars, as has been the case with air-guns and pistols hitherto constructed, is expensive enough to deter many from participating in the amusement. Mr. Hawley has therefore constructed a pistol, the one here illustrated, which costs only three and a half dollars, and is said to be the cheapest air pistol ever made.

The stock is of japanned iron and the barrels are of brass. The upper barrel holds the missile, and the lower one is the air-pump which fills the stock with compressed air. The dart is placed in the rear end of the upper barrel, and over the space shown is drawn a ring slide, forming an air-tight chamber. The hammer strikes the nipple, which opens a valve in the passage from the air-chamber in the stock to the upper barrel, allowing just enough air for one charge to escape. Five to ten shots may be fired before it is necessary to re-charge the air-chamber. The range is from thirty to fifty feet.

Darts are furnished with each pistol, and every piece is tested before leaving the factory. The patentee is E. H. Hawley. For pistols address P. C. Godfrey, 119 Nassau street, New York. Agents are wanted.

State University.

A meeting of the Board of Regents was held on Tuesday last, Gov. Haight presiding. Prof. Gilman having declined the Presidency of the University, another choice was necessary. On the first ballot, Mr. Henry Durant, of Oakland, was elected, there being but two names in nomination, and none of the Eastern gentlemen, recommended by various parties and candidates at the last election, being mentioned.

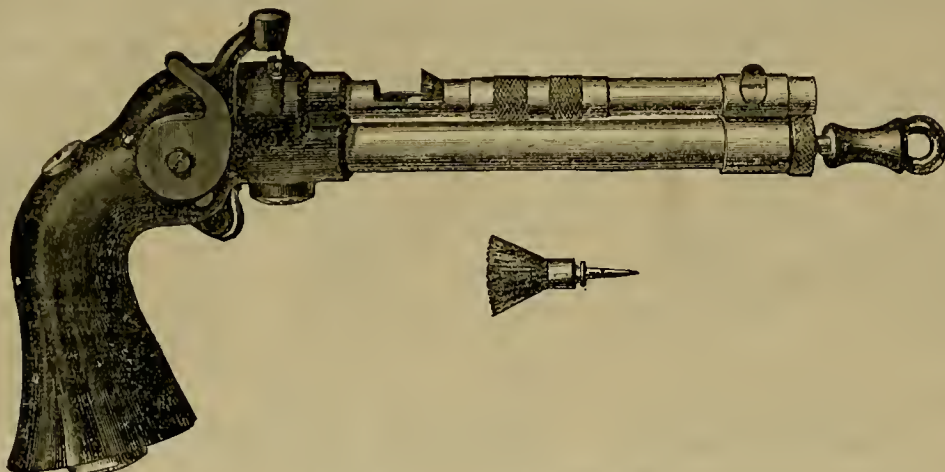
The Library Committee reported that Mr. F. Bret Harte had been appointed Professor of Recent Literature and Curator of the Library and Museum, with a salary of \$3,600 per annum. The purchase of the valuable library of Dr. A. S. Taylor, of Santa Barbara, was recommended. Mr. W. C. Ralston donates to the library two large, illustrated volumes of the "History of the University of Oxford."

Matters relating to the Mechanic Arts College and the Toland Medical College were referred to the proper committee. The Committee on Instruction were directed to report on the proper steps to be taken for establishing free competition scholarships.

COMPLETED.—The Kansas Pacific Railroad is completed to Denver. On the morning of the 15th, 10½ miles still remained unfinished. A flag was placed in the center and two parties, under E. W. Wood, and J. W. Eicholtz, working from the east and west, had a race to reach the flag. Wood's party came in ahead at 12½ P. M. The last rail was down at 2½ P. M.

Agricultural Notes.

REPORTS from the upper portions of the State are still more favorable than ever for the crops in that region. The cabbage crop of Plumas, however, has been much injured by lice, so much so that it is



E. H. HAWLEY'S PATENT AIR TARGET PISTOL.

thought the people of that county will have to take their corned beef straight next winter.

OIL FACTORY.—A new oil factory is about being built at Alameda Point by a Mr. Orr, which will manufacture oil from the *kakui* nut, an invoice of which will soon be here from the Sandwich Islands. This nut, which grows in great profusion on the Northern and Southern Pacific Islands, is exceedingly oleaginous, and can be reduced at very small cost. It yields the nut oil of commerce, and is held in high favor for lubricating purposes. It might, no doubt, be raised in California. Mr. Orr will also, after he gets fairly under

the mitrailleuse have been given for the sake of general effect rather than as the result of actual experience. We add a cut this week which shows the arm ready for transportation. By two men, one at each end, it can be readily carried to almost any desired spot. The cut likewise shows the relative position of the barrels.

ADMIRAL FARRAOUT is dead. A sailor from his earliest youth, he escaped the mediocrity which too often falls to the lot of those who commence an occupation so young and without previous education, and growing always with his years, finally attained the highest position in our navy.



The Mitrailleuse in Position for Carrying.

way, turn his attention to the manufacture of castor, linseed and table oils. This establishment, we believe, will make the fourth or fifth of its class on the Pacific Coast, one of which is at Salem, Oregon, and which expects to work up 30,000 bushels of flax seed this season.

LARGE ONION.—The Butte Record has seen an onion grown in one of the Oroville gardens whose weight is 2½ pounds, and which measures 18 inches in circumference. It is a huge specimen of the *genus allium*.

THE STANDISH STEAM PLOW, constructed at South Boston, under Mr. Standish's personal superintendence, has been tried with success. A slight modification in its feed, being the only thing necessary to make it entirely satisfactory. Some Louisiana people are looking upon this first improved machine with covetous eyes, but we hope it will soon come to California. Mr. Chas. Coffin of Boston, agent for the proprietors, is here on a short visit, and we trust he will be induced to bring the plow here to commence with, as previously anticipated. Its success will add greatly to the value of an immense amount of California lands.

ROAD ENGINE FOR CALIFORNIA.—One of Thompson's improved rubber tire road engines, for steam plowing and other agricultural purposes, is expected here from London in a few weeks, for Mr. George D. Roberts and his associates in the Tule Land Reclamation Co.

THE Marshall tunnel, at Georgetown, Colorado, has been driven 750 feet in the mountain. It is 7 feet high and 8 feet wide. It has cut four lodges.

The Mitrailleuse.

Patents and Inventions.

A Full List of Patents Issued to Pacific Coast Inventors.

[FROM OFFICIAL REPORTS TO DEWEY & CO., U. S. AND FOREIGN PATENT AGENTS, AND PUBLISHERS OF THE SCIENTIFIC PRESS.]

FOR THE WEEK ENDING AUGUST 9th.

AUTOMATICALLY-OPERATED WATER-CLOSET-SEATS.—Perry W. Davis, Portland, Oregon.

DEVICE FOR PACKING BOTTLES.—George C. Fisher, Yreka, Cal.

MACHINE FOR THE MANUFACTURE OF COMPOSITION PIPES FOR DRAINAGE.—Robert Skinner and Richard Gaines, San Francisco, Cal; said Gaines, assignor to said Skinner.

NOTE.—Copies of U. S. and Foreign Patents furnished by DEWEY & CO., in the shortest time possible (by telegraph or otherwise), at the lowest rates. All patent business for Pacific coast inventors transacted with greater security and in much less time than by any other agency.

The New Patent Act.

AN ACT TO REVISE, CONSOLIDATE AND AMEND THE STATUTES RELATING TO PATENTS AND COPYRIGHTS.

APPROVED, JULY 8, 1870.

[CONTINUED FROM PAGE 113.]

SEC. 25. And be it further enacted, That no person shall be debarred from receiving a patent for his invention or discovery, nor shall any patent be declared invalid by reason of its having been first patented or caused to be patented in a foreign country; provided the same shall not have been introduced into the public use in the United States for more than two years prior to the application, and that the patent shall expire at the same time with the foreign patent, or, if there be more than one, at the same time with the one having the longest term; but in no case shall it be in force more than seventeen years.

SEC. 26. And be it further enacted, That before any inventor, discoverer shall receive a patent for his invention or discovery, he shall make application thereof, in writing, to the Commissioner, and shall file in the Patent Office a written description of the same, and of the manner and process of making, constructing, compounding, and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art or science to which it appertains, or with which it is most nearly connected, to make, construct, compound, and use the same; and in case of a machine, he shall explain the principle thereof, and the best mode in which he has contemplated applying that principle so as to distinguish it from other inventions; and he shall particularly point out and distinctly claim the part, improvement, or combination which he claims as his invention or discovery; and said specifications and claim shall be signed by the inventor and attested by two witnesses.

SEC. 27. And be it further enacted, That when the nature of the case admits of drawings, the applicant shall furnish one copy signed by the inventor or his attorney in fact, and attested by two witnesses, which shall be filed in the Patent Office; and a copy of said drawings to be furnished by the Patent Office, shall be attached to the patent as part of the specifications.

SEC. 28. And be it further enacted, That when the invention or discovery is of a composition of matter, the applicant, if required by the Commissioner, shall furnish specimens of ingredients and of the composition, sufficient in quantity for the purpose of experiment.

SEC. 29. And be it further enacted, That in all cases which admit of representation by model, the applicant, if required by the Commissioner, shall furnish one or convenient size to exhibit advantageously, the several parts of his invention or discovery.

SEC. 30. And be it further enacted, That the applicant shall make oath or affirmation that he does verily believe himself to be the original and first inventor or discoverer of the art, machine, manufacture, composition, or improvement for which he seeks a patent; that he does so know and does not believe that the same was ever before known or used; and shall state of what country he is a citizen. And said oath or affirmation may be made before any person in the United States authorized by law to administer oaths, or when the applicant resides in a foreign country, before any minister, charge d'affaires, consul, commercial agent, holding commission under the United States, or before any notary public of the foreign country in which the applicant may be.

SEC. 31. And be it further enacted, That on filing of any such application and the payment of the duty required by law, the Commissioner shall cause an examination to be made of the alleged new invention or discovery; and if on such examination it shall appear that the claimant is justly entitled to a patent under the law, and that the same is sufficiently useful and important, the Commissioner shall issue a patent therefor.

SEC. 32. And be it further enacted, That all applications for patents shall be completed and prepared for examination within two years after the filing of the petition, and in default thereof, or upon failure of the applicant to prosecute the same within two years after any action therein, of which notice shall have been given to the applicant, they shall be regarded as abandoned by the parties thereto, unless it be shown to the satisfaction of the Commissioner that such delay was unavoidable.

SEC. 33. And be it further enacted, That patents may be granted and issued or reissued to the assignee of the inventor, or discoverer, the assignment thereof being first entered of record in the Patent Office; but in such case the applicant, in for the inventor or discoverer; and also if he be living, in case of an application for reissue.

SEC. 34. And be it further enacted, That when any person, having made any new invention or discovery for which a patent might have been granted, dies before patent is granted, the right of applying for and obtaining the patent shall devolve upon his executor or administrator, in trust for the heirs-at-law of the deceased, in case he shall have died intestate; or if he shall have left a will, disposing of the same, then in trust for his devisees, as in full manner and on the same terms and conditions as the same might have been claimed or enjoyed by him in his lifetime; and when the application shall be made by such legal representatives, the oath or affirmation required to be made shall be so varied in form that it can be made by them.

[TO BE CONTINUED.]

Professional Cards.

JOHN GORMAN,
NOTARY PUBLIC.
COMMISSIONER FOR
Nevada, New York, Etc.
No. 612 MERCHANT STREET. 5v20-3m

JAMES M. TAYLOR,
Attorney and Counsellor at Law,
Court Block, 636 Clay Street
SAN FRANCISCO.

JOHN ROACH, Optician,
Has removed from 522 Montgomery street to
540 Washington street,
East of Montgomery.
Surveying Instruments made, repaired and adjusted
2v17-3m

GILES H. GRAY. JAMES M. HAVEN.
GRAY & HAVEN,
ATTORNEYS AND COUNSELLORS AT LAW,
In Building of Pacific Insurance Co., N. E. corner Cal-
ifornia and Leidesdorf streets,
SAN FRANCISCO 2v16

REMOVAL.
DR. BEERS, Dentist,
Has removed from Tucker's Building to
No. 109 Montgomery street, three doors
north, opposite the Occidental. 2v20-3m

Dr. J. H. PAINE, Dentist,
Wadsworth House, No. 225 Bush street,
between Cosmopolitan and Occidental
Hotels, San Francisco.

Business Cards.

A. H. JORDAN,
Architect, Designer and Draughtsman,
No. 430 Montgomery Street,
SAN FRANCISCO. 16v19-4v

Farmers and Mechanics
BANK OF SAVINGS,
No. 235 Sansome Street.
Interest paid on Deposits. Money Loaned on Real Estate.
H. DUTTON, President.
GEO. M. CONDEE Cashier. 19v16-3m

J. HOOVER,
PUBLISHER,
And Wholesale Dealer in
Fine Chromos and Lithographs.
The Largest Assortment in Philadelphia.

WHOLESALE DEPOT:
No. 804 Market Street, Philadelphia, Penn.
9v20-6m

C. B. FETY,
SEAL ENGRAVER
AND LETTER CUTTER.
Seals, Brass Stamps, Steel Punches, etc. Orders by
express promptly attended to. No. 622 CLAY STREET,
bet. Kearny and Montgomery, San Francisco. 23v20-3m

PIERRE A. FORTIER,
Practical Optician
105 1/2 Montgomery Street, up stairs.
The only manufacturer in the United States who can
make Glasses adapted to any imperfection of sight.
Prices very moderate. 24v20-3m

Trades and Manufactures.

WM. BARTLING. HENRY KIMBALL.
BARTLING & KIMBALL,
BOOKBINDERS,
Paper Rulers and Blank Book Manufacturers.
505 Clay street, (south west cor. Sansome),
15v12-3m SAN FRANCISCO.

SAN FRANCISCO
PIONEER SCREEN WORKS,
JOHN W. QUICK,
No. 203 Fremont Street, near Howard.
Screen Punching of all kinds and qualities for Quartz,
Cement, Flour and Rice Mills, at Eastern prices. 10v20

SAN FRANCISCO MILL.
HOBBS, GILMORE & CO.,
Manufacturers of Boxes,
Market Street, bet. Heale and Main.
For sale—Mahogany, Spanish Cedar, and other Woods.

J. M. STOCKMAN,
Manufacturer of
PATTERNS AND MODELS,
(Over W. T. Garratt's Brass Foundry,
S. E. Corner of Mission and Fremont sts.,
6v14tf SAN FRANCISCO

SAN FRANCISCO
STARCH WORKS.

LAVERY'S SNOW-FLAKE
YEAST POWDER.

Corner Eighth and Brannan Streets.
Office, 302 California street, up stairs.
22v20-3m W. J. LAVERY & CO.

L. SCHUMANN,
PIONEER
Meerscham Pipe Manufacturer,



No. 341 KEARNY STREET,
Between Bush and Pine streets, San Francisco.
The first and only Manufacturer on the Pacific Coast.
MEERSCHAUM MOUNTED WITH SILVER. Meerscham
Pipes Boiled and Repaired. Amber Mouth-pieces Fitted.

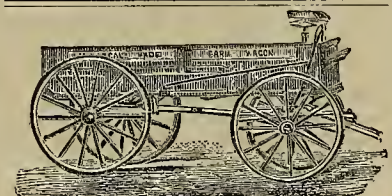
AMERICAN MILLS,
M. BURKE, PROPRIETOR,
Nos. 30 and 32 California Street.
Job work of all kinds in the Drug and Spice Line
promptly attended to.
SECOND DEPARTMENT.—Feed Ground, Corn Meal, Oat
Meal, Graham Flour, etc., constantly on hand. 7v206m

SAN FRANCISCO
CORDAGE COMPANY.
Manila Rope of all sizes. Also, Bale Rope and Whale
Line constantly on hand. Mining Ropes of any size
and length manufactured to order.
TUBBS & CO., Agents,
611 and 613 Front street.
26

THE GIANT
POWDER COMPANY.
BANDMANN, NIELSEN & CO.,
General Agents,
No. 210 Front Street, San Francisco. 25v19

THEODORE KALLENBERG,
Machinist, and Maker of Models
for Inventors.
All kinds of Dies, Stamps and Punches made. Also,
all kinds of Small Gears cut. Repairing done on every
reasonable terms, and in the best manner. 6v No. 10
STEVENSON STREET, near First, Pioneer Mills. 25v19-3m

J. F. PAGES,
SEAL ENGRAVER,
AND LETTER CUTTER.
Brass and Steel Stamps and Dies, 608 Sacramento street,
San Francisco. Orders by express promptly attended to.



CALIFORNIA-MADE
FARM WAGONS
FOR SALE.

We still continue to have manufactured in this city
and vicinity a large number of these Wagons, made gen-
erally for two horses, Light, Medium-size, and Heavy,
with either Iron Axles or Thimble Skins—thus EN-
COURAGING HOME INDUSTRY, and demonstrating to
the satisfaction of every intelligent observer the superi-
ority of California-made Wagons, both as to style,
materials and workmanship, over any Wagons sent here
for sale, whether made at the State Prison, Jackson
(Mich.), or at South Bend (Ind.), or any other Western
place, while our prices are very much lower.
Of every description of vehicles now running in Cali-
fornia, probably ninety-nine out of every hundred have
been made in this State, and their superiority in stand-
ing well in this dry climate has been so well established
throughout the past twenty years that it would, in the
mind of any FAIR DEALER, seem to be an improper re-
flection upon our many skillful mechanics in this
branch of business, to say otherwise.
We are prepared to furnish any reasonable number of
these Wagons on short notice.
Catalogues and price lists sent on application.
Persons wishing to purchase visitors to the city, and
all who may feel any interest in the matter, are re-
spectfully invited to CALL, EXAMINE and COMARE.

MEEKER, JAMES & CO.,
—IMPORTERS OF—
CARRIAGE AND WAGON MATERIALS,
NEW BRICK WAREHOUSE,
CORNER CALIFORNIA AND DAVIS STS.
25v20-1am3m



NATURE'S PRESCRIPTION.—When Nature produces a
great remedy for disease, the best thing science can do
is to follow her prescription. By separating the water of
the famous Seltzer Spring into its elements, science
has discovered the means by which that world-renowned
Sps affects such unparalleled cures, and by combining
those elements artificially in TARRANT'S EFFERVESCENT
APERIENT, the grand prescription of Nature is rendered
universally and instantly available. At this season
when fevers, disorders of the stomach, bowels, bilious
complaints, and all the diseases which effect the diges-
tive, assimilating and secretory organs are especially
prevalent, the importance of having this invaluable al-
terative and corrective at hand in every home, and
within reach of all who travel by land or water, cannot
be over-estimated.
SOLD BY ALL DRUGGISTS.

Railroads and Steamers.

Central Pacific Railroad.

Time Schedule, August 9, 1870.

EASTWARD.		Express Daily.	Passenger Sundays excepted.	Mixed.*
San Francisco	Leave	8:00 A.M.	4:30 P.M.	7:00 P.M.
San Jose	"	6:40 A.M.	4:30 P.M.	"
Stockton	"	12:02 P.M.	7:53 P.M.	"
Sacramento	Arrive	1:50 P.M.	"	7:40 A.M.
Sacramento	Leave	2:10 P.M.	9:30 P.M.	"
Marysville	Arrive	4:00 P.M.	"	1:15 P.M.
Chico	"	6:45 P.M.	"	5:20 P.M.
Colfax	Leave	5:00 P.M.	"	4:00 P.M.
Reino	"	1:15 A.M.	"	5:45 A.M.
Winnemucca	"	9:10 A.M.	"	10:15 P.M.
Ball Mountain	"	12:30 P.M.	"	3:50 A.M.
Carlin	"	3:10 P.M.	"	10:40 A.M.
Elko	"	4:40 P.M.	"	12:30 P.M.
Kelton	"	1:30 A.M.	"	7:45 A.M.
Ogden	Arrive	6:00 A.M.	"	5:00 A.M.

WESTWARD.		Express Daily.	Passenger Sundays excepted.	Mixed.*
Ogden	Leave	6:00 P.M.	"	5:00 P.M.
Kelton	"	10:42 P.M.	"	1:30 A.M.
Elko	"	8:45 A.M.	"	7:15 P.M.
Carlin	"	10:15 A.M.	"	9:45 P.M.
Ball Mountain	"	12:25 P.M.	"	3:50 A.M.
Winnemucca	"	4:05 P.M.	"	9:10 A.M.
Reino	"	1:00 A.M.	"	1:30 A.M.
Colfax	"	8:45 A.M.	"	12:50 A.M.
Chico	"	6:30 A.M.	"	0:30 A.M.
Marysville	"	9:10 A.M.	"	2:30 P.M.
Sacramento	Arrive	11:25 A.M.	"	6:30 P.M.
Sacramento	Leave	11:45 A.M.	7:00 A.M.	"
San Jose	Arrive	5:35 P.M.	12:01 P.M.	"
San Francisco	"	8:00 P.M.	1:40 P.M.	9:30 A.M.

P. M. A. M.	From	Arrive	P. M. A. M.	From	Arrive
3:00	San Francisco	10:40	10:40	San Francisco	7:30
3:20	Oakland	10:12	10:12	Oakland	7:05
4:10	San Jose	8:40	8:40	San Jose	5:35
5:35	San Jose	7:45	7:45	San Jose	4:35

3 P.	4 A.	5 A.	SUNDAY, JAN. 23, 1904.		4 P.	5 P.	
3 00	9 00	10 00	leave.....	SAN FRANCISCO.....	arrive.....	16 40	7 30
4 00	9 20	10 20	OAKLAND.....	10 10	7 05
4 40	11 00	11 00	NILES.....	8 40	6 35
5 35	12 00	12 00	ARRIVE.....	SAN JOSE.....	7 45	4 35
From			From		From		
SAN FRANCISCO.			OAKLAND.		BROOKLYN.		
R 6 50 A. M.			B 5 40 A. M.		B 5 30 A. M.		
D 8 00 "			B 6 55 "		B 6 44 "		
" 8 00 "			" 8 00 "		" 7 50 "		
D 10 00 "			" 9 01 "		" 8 50 "		
" 11 00 "			" 10 49 "		" 9 50 "		
D 12 00 M.			" 11 40 "		" 11 00 "		
2 00 P. M.			12 00 M.		11 50 "		
D 3 00 "			2 00 P. M.		2 50 P. M.		
4 00 "			3 00 "		3 00 "		
5 15 "			4 00 "		4 00 "		
6 45 "			5 20 "		5 10 "		
B 11 30 "			6 55 "		6 45 "		
From			From		From		
SAN FRANCISCO.			ALBANY.		HAYWARD.		
R 7 20 A. M.			R 5 45 A. M.		R 4 30 A. M.		
E 9 00 "			R 7 35 "		B 7 00 "		
B 9 30 "			B 8 05 "		E 8 30 "		
EC 11 30 "			B 9 26 "		R 9 14 "		
1 30 P. M.			E 11 36 "		E 11 00 "		
4 39 "			1 43 P. M.		4 39 "		
6 00 "			4 35 "		3 55 P M		
8 00 "			E 6 45 "		8 00 "		
Sundays excepted. E Sundays only.							
D To Oakland. G To Fruit Vale only.							
A. N. T. VINEY. Gen'l Supt. C. L. PARR.							
T. H. GOODMAN, Gen'l Pass'gr Agent, Sacramento.							

Our Agents.

OUR FRIENDS can do much in aid of our paper and the cause of practical knowledge and science, by assisting Agents in their labors of canvassing, by lending their influence and encouraging favors. We intend to send none but worthy men.

Traveling Agents.

WM. H. MURRAY—Montana, Utah and Colorado.
S. H. HICKING—California.
J. M. WOLF—Oregon.
L. P. McCARTY—California.
L. MINER—Nevada, Montana, Utah and Colorado.

Resident Agents.

CENTREVILLE, Alameda Co., Cal.—L. G. Yates.
OAKLAND—W. H. Hardy.
SACRAMENTO—A. S. Hopkins, No. 70 J street.
JACKSON, Amador Co., Cal.—G. S. Andrews.
TREASURE CITY, Nev.—J. L. Robertson.
HAMILTON, Nev.—Thomas Starr.
CARSON CITY, Nev.—John G. Fox.
SHEKEMANTOWN, Nev.—P. C. Renfrew.
BOISE CITY, Idaho—Larkin Bros.
HELENA, Montana—E. W. Carpenter.
BLACK HAWK, C. T.—Harper M. Oranhood.
CENTRAL CITY, C. T.—Richards & Crane.
GEORGETOWN, C. T.—John A. Lafferty, Postmaster.
DENVER CITY, C. T.—Woolworth & Moffat.
CHICKEN, D. T.—Robert Beers.
OMAHA, N. T.—Barkalow & Brothers.
PHILADELPHIA, Pa.—Fittler, Quig & Co.
LONDON—George Street, 30 Cornhill, E. C.
HEDBORN & MENET, 41 Park Row, New York.
NEW YORK—H. D. Dumont, 73 and 75 Fulton street.
A. C. KNOX, City Soliciting and Collecting Agent.

The California Powder Works

No. 314 CALIFORNIA STREET.

SAN FRANCISCO.

Manufacturers and have constantly on hand

**SPORTING,
MINING,
And BLASTING
POWDER,**

OF SUPERIOR QUALITY. FRESH FROM THE MILLS. It being constantly received and transported into the interior, is delivered to the consumer within a few days of the time of its manufacture, and is in every way superior to any other Powder in Market.

We have been awarded successively
Three Gold Medals
By the MECHANICS' INSTITUTE and the STATE AGRICULTURAL SOCIETY for the superiority of our products over all others.
We also call attention to our

HERCULES POWDER,

Which combines all the force of other strong explosives now in use, and the lifting force of the most blasting powder, thus making it vastly superior to any other compound now in use.

A circular containing a full description of this Powder can be obtained on application to our Office.
16v20-3m JOHN F. LOHSE, Secretary.

HAYWARD & COLEMAN

IMPORTERS AND REFINERS

Illuminating, Lubricating,

PAINT OILS,

CONSISTING OF

KEROSENE, LAMP, SPERM, ELEPHANT, POLAR, TANNERS, NEATFOOT, BOILED AND RAW LINSEED, CASTOR AND CHINA NUT.

Spirits of Turpentine and Alcohol.

Lamps and Lamp Stock!

An elegant and complete assortment.

**SOLE IMPORTERS OF
Devoe's Illuminating Oil,
PATENT CANS.**

5v17-1f 414 Front street, San Francisco.

California Bonzest,

A CALIFORNIA PATENT, manufactured in San Francisco. A Condiment

Rare, Rich and Spicy.

Very palatable, productive of digestion and health. An ANTISCORBUTIC, and sure preventive

Against Diseases incident to Sea Life.

A SPLENDID APPETISER.

TRY IT ONCE, and you will never be without it.

LABEL AND TRADE MARK COPYRIGHTED.

SOLD AT No. 53 CALIFORNIA MARKET,
And by authorized Local Agents. 3v21-3m

**ENGRAVING
ON WOOD**

DESIGNING AND ENGRAVING on wood and for electrotype cuts of every description, done by superior artists at the office of the SCIENTIFIC PRESS. Fine Cuts made for Book and Newspaper

Illustrations, and for Fancy Labels for printing in various colors; Monograms, Seals, etc., etc. Prompt execution and reasonable prices.

DEWEY & CO.,
No. 414 Clay street, S. F.

A NEW REMEDY.

As this Preparation of these plants, lately made public (Patented June 24, 1870), but long proven in Siskiyou county, Cal., owes its efficiency entirely to its remarkable power of INCREASING THE INSENSIBLE PERSPIRATION, or, in other words, the VAPORY EXHALATIONS from the millions of minute pores of the EXTERNAL SKIN, from the crown of the head to the sole of the foot, it is all important that the direction to pass a sponge, or towel, dampened with saleratus water, under the clothing, twice a week, or oftener, be attended to.

Also, that when taken by LADIES, for IMPROVING THE COMPLEXION, for which it is very successful, that it should be in half doses, often repeated; and that one of the Pills of Citrate of Iron and Gum Myrrh, which are beneath the bottom label of each bottle, be taken at night, much aiding in restoring Color in the Cheeks and Lips. To CHILDREN also, give it "a little and often." It is agreeable to them any way, but especially if sweetened a bit; and it is admirably suited to their Diseases, which generally are those of the Mucous Membranes.

FOR the irritated throats of PUBLIC SPEAKERS, Lawyers, Ministers, Teachers, and

FOR driving off threatened CONSUMPTION and Asthma, all Colds and Coughs;

FOR irritated Stomachs, from Bad Liquor, Alkali Water, Strong Coffee, Saleratus Bread;

FOR humors on the Skin, or MUDDY COMPLEXIONS, or, in a single sentence,

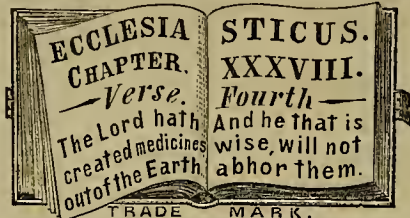
FOR all Diseases of the MUCOUS MEMBRANES, the Surest, and by far the MOST PLEASANT MEDICINE yet found, in its TASTE and EFFECT, is

**DR. FURBER'S CORDIAL
OF
MOUNTAIN BALM
—AND—
OREGON GRAPE,**

Two Plants, abounding on the base of, and on the Mountains surrounding

MOUNT SHASTA, CALIFORNIA,

For all of the purposes of the various PREPARATIONS OF SARSAPARILLA, richer in quality and more efficient as a RESTORER OF GOOD BLOOD, and acting equally as surely,



and as well on the LUNGS as on the STOMACH, is superior to other COUGH MEDICINES, by bringing BOTH to bear with the stimulated action of the WHOLE SKIN in throwing off Disease of either.

FOR SALE AT SAN FRANCISCO BY
R. H. McDONALD & CO., Druggists.

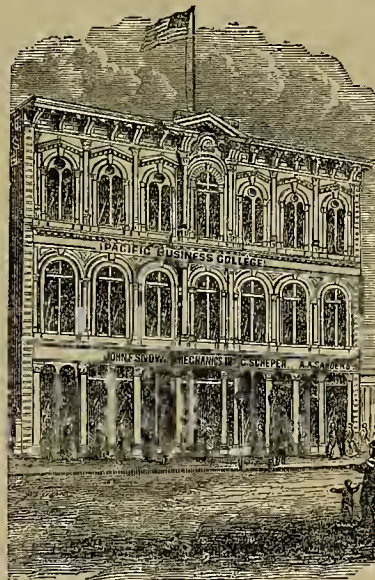
INVALIDS of any of the classes named above will find this worthy of TRIAL. Its virtues, as above asserted, not being visionary, but improved from the SHASTA INDIANS' knowledge and use of these PLANTS for centuries back, made known by them to us.

Such an Invalid, residing at a distance, wishing to try it, had better procure a package of one-fourth of a dozen, which can be done by sending in letter to the above a \$3 greenback, and directing that the package should be sent by WELLS, FAROE & Co's EXPRESS to that office which is nearest to the invalid's residence, and that person will be sure to get it. 3v21-12v17

PACIFIC BUSINESS COLLEGE,

Mechanics' Institute, 27 Post Street,

BET. MONTGOMERY AND KEARNY, SAN FRANCISCO.



THE PIONEER AND ONLY BUSINESS COLLEGE

On the Pacific Coast where BOOK-KEEPING is taught as practiced in the Counting-room. **PENMANSHIP.**

In this useful and very important branch we challenge competition.

PROF. SERENI

Has obtained First Premiums at all the Fairs on this coast where his Penmanship was exhibited, and was awarded the MEDAL at the Seventh Industrial Exhibition of the Mechanics' Institute in 1869 over all competitors. His success as a Teacher is unequalled.

TELEGRAPHING.

The only place in the city where Telegraphing is taught by an experienced Operator.

We cordially invite the public to call and examine the merits of the College. Our Institute is patronized by the youth of fifteen and the man of fifty, where they receive instruction in Single and Double Entry Book-Keeping, Commercial Arithmetic, Commission Jobbing, Business and Ornamental Penmanship, Commercial Correspondence, Actual Business, Merchandising, Banking, Importing Railroad, Steamboating, Mining, Real Estate, Brokerage and Exchange, Mechanical and Architectural Drawing, Telegraphy, Orthography, French, Spanish, Italian, German and English Grammar. No CLASS SYSTEM. Each student receives individual instruction. No Vacations.

Sessions Day and Evening.

VINSONHALER, JULIAN & CO.

12v20-12t



**FUND
INSURANCE COMPANY.**

OFFICE,
S. W. Corner California and Sansome Streets
SAN FRANCISCO, CAL.

Fire and Marine Insurance.

CAPITAL.....\$500,000 00
SURPLUS.....\$67,115 00
TOTAL ASSETS.....\$567,115 00

D. J. STAPLES, President.
G. T. LAWTON, Vice President,
CHAS. R. BOND, Secretary.

**OCCIDENTAL
Insurance Company
OF SAN FRANCISCO.**

Cash Capital, \$300,000

GOLD COIN

OFFICE, 436 CALIFORNIA STREET.

Fire and Marine Insurance.

All Losses paid in U. S. Gold Coin.

A. G. STILES, President.
B. ROTHSCHILD, Secretary. 5v17

R. A. SWAIN & CO.

IMPORTERS AND DEALERS IN

Earthenware, French Porcelain,

GLASSWARE,

Lamps, Lanterns;

CUTLERY

—AND—

FANCY GOODS,

N. E. Corner Sansome and Pine Streets.

21v20-3m

DESIGNS AND PLANS

—FOR THE—

NEW CITY HALL

—OF—

SAN FRANCISCO.

Office Board of City Hall Commissioners, southeast corner of Sacramento and Montgomery streets, San Francisco, June 22, 1870.

The Board of City Hall Commissioners hereby give notice that they will be prepared to receive at their office, on or before the FIRST DAY OF NOVEMBER NEXT, designs and plans for the new City Hall of San Francisco.

The Commissioners, in order to obtain the very best design and plan, invite the fullest competition among architects, and to this end have resolved to offer the following premiums:

First—For the design and plan selected and adopted\$2,500
Second—For the second best design and plan..... 2,000
Third—For the third best design and plan..... 1,500
Fourth—For the fourth best design and plan..... 1,000
Fifth—For the fifth best design and plan..... 500

The premiums payable in City Hall warrants.

As a guide to architects in the preparation of the designs and plans, the Commissioners have prepared a pamphlet containing full instructions and suggestions, as well as the terms and conditions upon which the premiums will be awarded.

Pamphlets can be had on application at the office of the Commissioners.

Any design or plan in which the requirements of the Board, as set forth in the printed instructions, have not been reasonably complied with, will be rejected from the competition.

P. H. CANAVAN, Chairman,
JOS. G. EASTLAND,
CHAS. E. McLANE,
City Hall Commissioners.

26v20-4m

One Per Cent. per Month

Allowed on Six Months' Deposits by the CALIFORNIA BUILDING, LOAN AND SAVINGS BANK, California street, one door from Sansome.

THOMAS MOONEY, President.
August 2, 1869. 6v19-1m

BOOK ON EARTHQUAKES.—A Treatise on Earthquake Dangers, Causes and Palliatives, by Prof. Thomas Rowlandson, comprising Earthquake Dynamics, Earthquake Waves, Sound that attends Shocks, Lime, Mortar, etc., Cosmogony and Seismogony, Phenomena of the Neapolitan Earthquake of 1857, and General Observations respecting Structural Arrangements. Published by Dewey & Co., Scientific Press Office, San Francisco, 1869, containing 96 pages. Price, 50 cents; postage free.

LATRES' ELEMENTS OF COMPOSITION.—This is a valuable book of 166 pages, containing plain and simple instructions in the art of composition. It should be read by all intelligent persons who desire to write or speak English correctly or eloquently. Printed and sold by Dewey & Co., Scientific Press Office.

THE SCIENTIFIC PRESS now stands at the head of such papers on this coast, and is for miners, mechanics, and farmers, a most valuable journal. It is a 16 page journal, contains the latest and most reliable news from every mining section of the Pacific; gives full descriptions with engravings of every new and valuable mechanical invention, devotes considerable space to the agricultural, horticultural, and florist, and keeps its readers well posted on all the facts and improvements in the arts and sciences. Mr. M. is canvassing this Territory for subscribers at four dollars per annum, and we cordially recommend the SCIENTIFIC PRESS to our citizens and welcome it to our exchange list.—*Boise City Chronicle.*

Mining and Company Advt's.

Eagle Quicksilver Mining Co.—Location of Works: Santa Barbara County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 27th day of July, 1870, an assessment of twenty dollars (\$20) per share was levied upon the mines of said Company, payable immediately, in United States gold and silver coin, to the Secretary, at his office, room No. 26, Haywood's Building, No. 419 California street, San Francisco, California.

Any share upon which said assessment shall remain unpaid on Monday, the 19th day of September, 1870, shall be deemed delinquent, and will be duly advertised on September 24th, for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 26th day of September, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

T. W. COLBURN, Secretary.
Office, Room No. 26, Haywood's Building, 419 California St., San Francisco, California. jy30.

Jennie A. Consolidated Mining Company, White Pine District, Nevada.

Notice.—There is delinquent upon the following described stock, on account of assessment levied on the twentieth day of June, 1870, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificates.	No. Shares.	Amount.
D Corson.....	2	2000	200 00
R Stokes.....	53	1000	100 00
A Deligne.....	4	2000	200 00
A Deane.....	21	2000	200 00
J H Cook.....	55	1000	100 00
J H Cook.....	56	500	50 00
J H Cook.....	57	500	50 00
J H Cook.....	58	250	25 00
J H Cook.....	59	250	25 00
J H Cook.....	60	125	12 50
J H Cook.....	61	125	12 50
J H Cook.....	62	125	12 50
J H Cook.....	63	100	10 00
J H Cook.....	64	100	10 00
J H Cook.....	65	100	10 00
J H Cook.....	66	100	10 00
J H Cook.....	67	100	10 00
J H Cook.....	68	100	10 00
J H Cook.....	69	100	10 00
J H Cook.....	70	75	7 50
J H Cook.....	71	75	7 50
J H Cook.....	72	50	5 00
J H Cook.....	73	50	5 00
J H Cook.....	74	50	5 00
J H Cook.....	75	50	5 00
J H Cook.....	76	25	2 50
J H Cook.....	78	25	2 50
J K Skinner.....	8	3000	300 00
Herman Todter.....	79	25	2 50

And in accordance with law and an order of the Board of Trustees, made on the twentieth day of June, 1870, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the office of the Company, on the fifteenth day of August, 1870, at the hour of twelve o'clock, m., of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

J. M. BUFFINGTON, Secretary.
Office, New Merchants Exchange, California street, San Francisco, California. jy30.

Kincaid Flat Mining Company, Tuolumne County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the twentieth day of July, 1870, an assessment of two dollars and a half (\$2.50) per share was levied upon the capital stock of said Company, payable immediately in United States gold and silver coin, to the Secretary, 220 Clay street, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on the twenty-fourth day of August, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the fourteenth day of September, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

D. H. CROWE, Secretary.
Office, 220 Clay street, San Francisco. jy23.

Land Purchasers' Association.

NOTICE.—At a meeting of the Board of Trustees of the Land Purchasers' Association, held August 1st, 1870, the following resolution was adopted by unanimous vote:

Resolved, That an assessment of ten dollars per share, gold coin, be, and the same is hereby levied, upon each and every share of the capital stock of the Land Purchasers' Association now held by members thereof, to be paid by the monthly installment falling due and payable August 1st, 1870. Said assessment is payable on or before the thirtieth day of August, A. D. 1870, to JAMES F. CROSETT, Secretary, at the office of the Association, No. 304 Montgomery street, San Francisco.

Any stock upon which said assessment shall remain unpaid on the thirtieth day of August, A. D. 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on the 24th day of September A. D. 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale.

J. F. CROSETT, Secretary.
Office, 304 Montgomery street, San Francisco. je4.

I. X. L. Gold & Silver Mining Company.
Silver Mountain Mining District, Alpine County Cal. The annual Meeting of the I. X. L. Gold & Silver Mining Company, for the election of Trustees for the ensuing year, will be held at the office of the Company, Pioneer Hall, 804 Montgomery street, San Francisco, California, at 2 o'clock P. M. on Thursday September 8th, 1870.
J. CROWNINSHIELD, Secretary.

Latawana Mining Company—Near Hamilton City, White Pine, State of Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the fifteenth day of August, 1870, an assessment of fifteen (15) cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, at his office No. 614 Merchant Street, Room 26, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on the fourteenth day of September, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the third day of October, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale by order of the Board of Trustees.

A. MARTINON, Secretary
Office, 614 Merchant street, Room 26, San Francisco, California. au20.

Mountain City Mining Company.—Location of Works: Cope District, Elko County, State of Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the fourteenth day of July, 1870, an assessment of twenty-five cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary, at the office of the Company, No. 408 California street, San Francisco, Cal.

Any stock upon which said assessment shall remain unpaid on the twenty-ninth day of August, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the twenty-sixth day of September, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

T. B. WINGARD, Secretary.
Office, 408 California street, San Francisco. jy23.

North America Consolidated Mining Company.—Location of Works: White Pine County, State of Nevada.

Notice.—There are delinquent upon the following described stock, on account of assessment levied on the sixteenth day of July, 1870, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
Thos. Cassin.....	15	666	\$33 30
J. A. Steele.....	18	666	33 30
W. E. Wood.....	13	666	33 30
W. J. Taylor.....	21	666	33 30

And in accordance with law, and an order of the Board of Trustees, made on the 16th day of July, 1870, so many shares of each parcel of said stock as may be necessary, will be sold at public auction at the office of the Company, Room 5, No. 302 Montgomery street, San Francisco, Cal. on Wednesday the 17th day of September, 1870, at the hour of 1 o'clock P. M., of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

WM. H. WATSON, Secretary.
8v21

Nevada Land and Mining Company.—Location of Works: Steptoe, Johnson & Latham, Antelope and Clifton Districts, Elko County, State of Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the eleventh day of August, 1870, an assessment of two (2) cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary, at his office, Room 5, No. 302 Montgomery street, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on Tuesday, the thirteenth day of September, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the third day of October, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

WM. H. WATSON, Secretary.
Office, Room 5, No. 302 Montgomery street, San Francisco, California. au13.

Noonday Silver Mining Company.—Location of Works: White Pine Mining District, White Pine County, Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the twentieth day of July, 1870, an assessment of twenty (20) cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary, at the office of the Company, Room 21, Hayward's Building, 419 California street, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on the twenty-fourth day of August, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Tuesday, the thirteenth day of September, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

CHAS. E. ELLIOT, Secretary.
Office, Room 21, Hayward's Building, 419 California street, San Francisco, California. jy23.

Pinto Silver Mining Company.—Location of Works: Silverado, Pinto District, White Pine County, Nevada.

Notice is hereby given that the annual meeting of the shareholders of the above named Company, will be held on Wednesday, the 7th day of September, at 7 1/2 o'clock P. M., at the office of the Company, 426 Montgomery Street, San Francisco, for the election of Trustees to serve the ensuing year, and for the transaction of other business.

D. B. ARROWSMITH, Secretary,
Office 426, Montgomery Street, San Francisco. 8v213t

Pinto Mining Company, Location of Works: "Silverado," Pinto District, White Pine County, Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the twenty-second day of July, 1870, an assessment of ten (10) cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, at 426 Montgomery street, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on the twenty-fifth day of August, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Thursday, the fifteenth day of September, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

D. B. ARROWSMITH, Secretary.
Office, 426 Montgomery street. jy30.

New Advertisements.

NOTICE.
To the Readers of the
SCIENTIFIC PRESS

Special attention is called to the

FURNITURE WAREHOUSES

OF

George O. Whitney & Co.,

Nos. 315, 317, 319 and 321
PINE STREET, SAN FRANCISCO.

The largest and most complete stock on the Pacific Coast. At Wholesale and Retail. 8v213m

SAN FRANCISCO
GLASS WORKS.

NEWMAN & DUVAL, Proprietors.
Office and Works, foot of Fourth Street.

These Works will be in full operation on or about the 12th of September. Orders for all varieties of Green and Black Hollow-ware, Glass; such as Demijohns, Carboys, Soda, Wine and Brandy Bottles, etc., etc., will receive prompt attention. Private Moulds made to order from \$10 to \$30. 2v21-4t

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Greatly Improved and Enlarged,
Infallible

Government Counterfeit Detector,

at Sight.

The only infallible method of detecting counterfeit and altered Banknotes,

WITH
Genuine designs from the original Government plates, by authority from the U. S. Treasury Department, and the American National, and Continental Bank Note Cos., New York, and Boston.

Banking and Counting House Edition.....\$6.00
Pocket Edition..... 3.50

Sent by mail on receipt of price. Agents Wanted; send for Descriptive Circular to

LABAN HEATH & Co.,
30 Hanover Street, Boston Mass.

HEATH'S PATENT

Combination Micro-Telescopic Glass,

Capable of three Changes.

I. As a Compound Microscope, magnifying
1000 diameters.

II. As a Double lense magnifier, for Seeds
and Banknotes.

III. As a Field Glass of moderate power.

Forwarded by mail on receipt of \$5. Agents Wanted.
Send for Descriptive Circular to

LABAN HEATH & CO.,
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PUBLISHERS OF THE MINING AND SCIENTIFIC PRESS. Principal Agents west of the Mississippi—Established 1850. Our appointments are substantial, reliable and complete, for securing patents in the U. S. and EVERY COUNTRY IN THE WORLD where patents are allowed. Our business is large and our exceedingly successful practice justifies the assertion that Pacific Coast inventors can invariably secure their rights a great deal quicker, and more *perfectly*, through us, than by any other solicitors—and at favorable rates. Illustrated pamphlets, containing a digest of

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No. 414 Clay Street,

Below Sansome, San Francisco.



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EVERY VARIETY OF

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Business Men, Corporations,



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Branches of Industry,

EXECUTED IN THE

BEST MANNER,

AT REASONABLE PRICES.

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Executed correctly and with dispatch.



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"Live and Let Live,"

Is a good old adage, and we shall adopt it as our own. We do not pretend to do work at "less than cost," as some people advertise to do; but we do claim to do all kinds of printing as cheap as it can be done on this Coast—and we believe as cheap as it is done in Chicago. Customers, in the country or city, are invited to call in person at our office, or send their orders by mail or express, and they will be fairly dealt with.

SPAULDING & BARTO.

Scientific Press Office,
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THE BEST PUMP for Doler Feeders, Breweries, Sugar Houses, Turners, Mining and Fire purposes, etc., is Blake's Patent PUMP. It is simple, compact and portable. It needs no expert to run it, and will start at any point. It is warranted to perform under all circumstances. Send for a circular. BERRY & PLACE, Agents, 112 & 114 Cal. St., S. F.

San Francisco Metal Market.

PRICES FOR INVOICES.

Jobbing prices rule from ten to fifteen per cent. higher than the following quotations.

THURSDAY, August 18, 1870.

IRON.—Duty: Pig, \$9 per ton; Railroad, 100 lbs., 1 1/4 cts; Sheet, polished, 3c; common, 1 1/2 cts; Pipe, 1 1/2 cts; Galvanized, 2 1/2 cts.

Scotch and Eng. Pig Iron, 30 ton, \$31 00 @ \$32 00

White Pig, 30 ton, 28 00 @ 30 00

Refined Bar, bad assortment, 30 lb., 03 —

Refined Bar, good assortment, 30 lb., 04 —

Boiler, No. 1 to 4, 04 1/2 @ —

Plate, No. 5 to 9, — @ 04 1/2

Sheet, No. 10 to 13, 04 1/2 @ 05

Sheet, No. 14 to 20, 05 @ 05 1/2

Sheet, No. 24 to 27, 05 @ 06 1/2

COPPER.—Duty: Sheathing, 3 1/2 cts; Pig and Bar, 2 1/2 cts.

Sheathing, 30 lb., — @ 26

Sheathing, Yellow, — @ 21

Sheathing, Old Yellow, — @ 11

Composition Nails, — @ 22

Composition Bolts, — @ 22

TIN PLATES.—Duty: 25 cts. ad valorem.

Plates, Charcoal, 1X, 30 box, 12 00 @ —

Plates, 10 Charcoal, 10 00 @ 10 50

Roofing Plates, 10 00 @ 10 50

Banca Tin, Slabs, 30 lb., — @ 42

STEEL.—English Cast Steel, 30 lb., — @ 15

QUICKSILVER, 30 lb., — @ 65

LEAD.—Pig, 30 lb., 7 1/2 @ 8

Sheet, — @ —

Pipe, — @ —

Bar, — @ 9

ZINC.—Sheets, 30 lb., 10 1/2 @ 11

BORAX, — @ 35 @ 38

Machinists and Foundries.

FULTON

Foundry and Iron Works.

HINKLEY & CO.,

MANUFACTURERS OF

STEAM ENGINES,

Quartz, Flour and Saw Mills,

Hayes' Improved Steam Pump, Brodie's Improved Crusher, Mining Pumps, Amalgamators, and all kinds of Machinery.

N. E. corner of Tehama and Fremont streets, above Howard street, San Francisco.

3-qy

THE RISDON

Iron and Locomotive Works.

INCORPORATED.....APRIL 30, 1868.

CAPITAL.....\$1,000,000.

Corner of Beale and Howard Streets,

SAN FRANCISCO.

Steam Engine Builders, Boiler Makers, Machinists, Foundrymen, and Manufacturers of Car Wheels equal to the best imported, and guaranteed equal to Eastern Wheels.

Directors: Wm. Alvord, Lloyd Travis, Joseph Shorser, Chas. E. McLane, S. F. Butterworth, John N. Risdon, Wm. Norris.

JOHN N. RISDON.....President.

JOSEPH SHORSER.....Vice President and Superintendent.

LEWIS R. MEAD.....Secretary.

21-v17-qv

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Sacramento.

WILLIAMS, ROOT & NEILSON,

MANUFACTURERS OF

STEAM ENGINES, BOILERS,

CROSS' PATENT BOILER FEEDER AND SEDIMENT COLLECTOR,

WILCOX'S PATENT WATER LIFTERS,

Dunbar's Patent Self-Adjusting Steam Piston

PACKING, for new and old Cylinders.

And all kinds of Mining Machinery.

Front Street, between N and O streets,

16-v1

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No. 125 First street, opposite Minna,

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ALL KINDS OF Brass, Composition, Zinc, and Babbitt Metal Castings, Brass Ship Work of all kinds, Spikes, Sheathing Nails, Rudder Braces, Hinges, Ship and Steamboat Bolts and Oings of superior tone. All kinds of Cocks and Valves, Hydraulic Pipes and Nozzles, and Hose Couplings and Connections of all sizes and patterns, furnished with dispatch.

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High and Low Pressure Boilers Built.

SHEET IRON WORK, ETC., ETC.

Repairing promptly attended to.

17-v20-6m

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9-v19-qy

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Which I will offer at very low rates. Also,

MORSE'S TWIST DRILLS.

AND CHUCKS OF ALL KINDS.

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3-v21

ESTABLISHED 1851.

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Mining Machinery of Every Description,

And all other classes of work generally done at first-class establishments, and executed by us at the lowest prices, and of the best quality.

Particular attention paid to Jobbing Work and Repairs.

N. B.—Sole Agents for sale of HUNTOON'S CELEBRATED PATENT GOVERNOR.

18-v20-3m

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McAFEE, SPIERS & CO.,

BOILER MAKERS

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Howard st, between Fremont and Beale, San Francisco.

Floer or Tubular Boilers, with plain circular or spiral courses. Upright Flue or Tubular Boilers, Locomotive and Marine Boilers, and Wrought Iron Tanks of every description.

Hydraulic Pipe supplied at reasonable rates. In ordering, give the quantity of water to be supplied, height of the fall, and total length of pipe, so as to enable the firm to determine the diameter of the pipe and thickness of iron to be used.

Repairs.—Boilers, Smoke Stacks, Pipes, etc., put in repair with promptness.

To Boiler Makers and Machinists in the Interior.—The firm is prepared to furnish estimates of Boilers, supply new Heads, drilled and punched, and attend to the selection and forwarding of Iron for Boilers, Pipes and other purposes.

Plans, Drawings and Specifications.—The firm is prepared to make out Plans and Specifications, receive estimates, and superintend the Erection of any Machinery that may be entrusted to their care.

To Inventors.—The firm is prepared to assist in developing the plans of those who have the ideas but not the practical experience necessary to put the same in form, by making Drawings of their inventions, giving them the benefit of their practical knowledge in the construction of Machinery, and attending to the manufacture and introduction of their inventions.

16-v16

MACHINERY

— AT —

GREATLY REDUCED RATES.

Miners' Foundry & Machine Works,

235 to 245 FIRST STREET,

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This Establishment is now working upon the

CO-OPERATIVE PLAN,

And are thereby enabled to manufacture

MACHINERY, CASTINGS & BOILERS

AT EASTERN PRICES.

And better adapted to the wants of the Pacific States.

Ascertain our prices before purchasing.

8-v20-q

NELSON & DOBLE,

AGENTS FOR

Thomas Firth & Sons' Cast Steel.

MANUFACTURERS OF

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10-v14-q

THOMPSON BROTHERS,

EUREKA FOUNDRY,

and 131 Beale street, between Mission and Howard

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LIGHT AND HEAVY CASTINGS,

of every description, manufactured 24-v16-q

The Merchants' Exchange Bank

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No. 418 CALIFORNIA STREET.

25-v20-qy

GIANT CEMENT.

GIANT CEMENT.

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Directions accompany each bottle.

4-v21-1m

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He can be consulted until the 10th of September, as follows: At the Auzeiras House, San Jose, from the 1st to the 31st of July; at 22 Kearny street, San Francisco, from the 1st to the 5th of August; at the Yosemite House, Stockton, from the 6th to the 31st of August; and again at 22 Kearny street, San Francisco, from the 1st to the 10th of September.

Card from Wm. Hoskins, Notary Public, Oakland.

Dr. Aborn.—I take pleasure in bearing testimony to your skill and treatment for Catarrh and Bronchial Affection, having been under your treatment the past ten weeks, and find myself nearly cured. As you are about leaving for San Jose, I cheerfully recommend you to all similarly afflicted.

Oakland, June 3, 1870.

WM. HOSKINS.

No Painful Operations.

Dr. Aborn does not subject his patients to any painful or unpleasant operations. His treatment is mild, and safe for the most delicate child. The afflicted are hereby informed, that after the first visit, for many of the diseases which he cures, especially, they can take the treatment home and use it until cured, without pain or interruption to their usual avocations.

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1-v21-2m

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7-v21-2t

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THE GRAND

Horticultural, Agricultural and Pomological

EXHIBITION

OF THE

MECHANICS' INSTITUTE,

Will open on MONDAY, AUGUST 29, 1870, and continue for FIVE DAYS, at the

Pavilion Building,

On Union Square, San Francisco.

The Exhibition will be of FRUIT, FLOWERS, PLANTS, CEREALS, WINES, FERNS, SHRUBS, VEGETABLES, And all that relates to the Flora of California. Every facility will be extended to Exhibitors, and CASH PREMIUMS To the amount Two Thousand Dollars Will be awarded to Competitors in the Products of the Soil.

THE SOCIETY'S Gold Medal will be awarded for CALIFORNIA WINES. THE PAVILION will be appropriately decorated, and in the evening, in addition to the Floral and Pomological display, there will be Music by the best attainable FULL BAND, and Instrumental Solos. The Exhibition will be visited by many of the representatives of the leading Horticultural and Agricultural journals of the Eastern States, now on a visit to California to inspect its Fruits, Flowers and Agricultural resources. ADVISORY COMMITTEE: DR. EZRA CARR, Professor of Agriculture and Horticulture, State University. S. W. SHAW, President Fruit Growers' Association. J. S. HITTLE, Author Resources of California. E. J. WEEKS, President Bay Dist. Ag. Society. J. L. SANFORD, Napa. Mr. HASKELL, Marysville. A. J. MOULDER, Secy. Board of Regents. It is intended that this Exhibition shall be the feature of the season, and everything will be done to make it an agreeable and attractive entertainment to the visitor.

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New York Metal Market.

[CORRECTED WEEKLY FROM THE AMERICAN ARTISAN.]

New York City, Saturday, Aug. 6, 1870.

Pig, Scotch, No 1 (cash), per ton..	\$43 50	@	\$36 50
Pig, American, No. 1 (cash).....	32 00	@	33 00
Pig, American, No. 2.....	30 00	@	31 00
Swedish, ordinary sizes.....	115 00	@	125 00
Common.....	72 00	@	80 00
Refined.....	77 50	@	95 00
Rods—blue.....	85 00	@	120 00
Hoop.....	105 00	@	145 00
Scroll.....	87 50	@	115 00
Nail-roads, per lb.....	6 1/2	@	7 1/2
Spring.....	7 1/2	@	—
Tire.....	7 1/2	@	—

STEEL.

Bars, best cast, warranted, per lb...	16 1/2	@	17 1/2
Sheet, best cast.....	15	@	—
Sheet, second quality.....	14	@	—
Sheet, third quality.....	13	@	—
Saw-plates, circular.....	27	@	—
Double-shear, warranted.....	23	@	—
Single-shear.....	19	@	—
Montague & Co. (cast bars).....	18	@	—
Machinery, round.....	11	@	—
German, best.....	14	@	—
German, good.....	12	@	—
German, eagle.....	10	@	—
Blister, warranted.....	10	@	—
Blister, common.....	15	@	—
Jessop & Sons', common.....	17	@	—
Double-refined.....	26 1/2	@	—
Stone-ax shapes.....	26 1/2	@	—

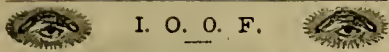
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Scientific Press

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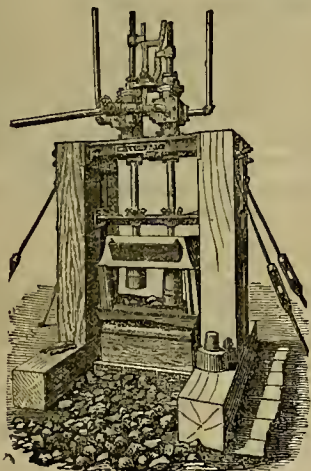
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Machinery.

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Patent Steam Stamp Mill.



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For Durability, Efficiency,

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The Wilson Steam Stamp Mill is the only Steam Mill that has had the severe ordeal of practical working, and proved itself eminently successful. It is now in operation in several of the Eastern States and Territories, and gaining an obvious popularity. The whole machine is so simple as to be readily understood by the most ordinary minds. In fact, its simplicity is its durability. The expense of crushing rock or cement with this Mill is less than one-half the expense of any other Stamp Mill, and less than one-half the cost. For further particulars inquire of

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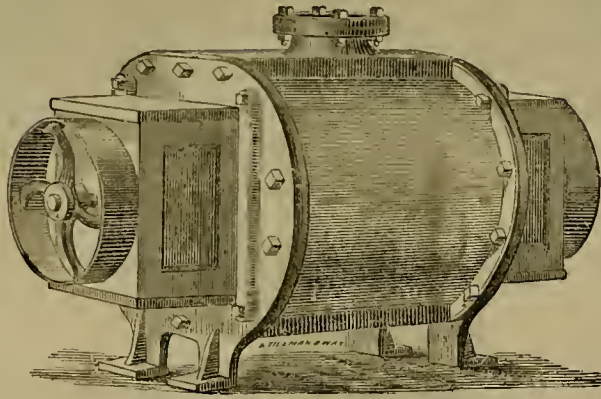
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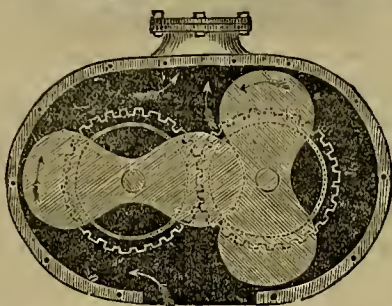
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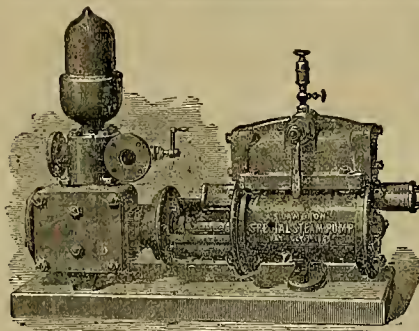
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They are constructed so as to apply steam directly into the pulp, or with steam bottoms, as desired.

This Amalgamator Operates as Follows:

The pan being filled, the motion of the muller forces the pulp to the center, where it is drawn down through the aperture and between the grinding surfaces. Thence it is thrown to the periphery into the quicksilver. The curved plates again draw it to the center, where it passes down, and to the circumference as before. Thus it is constantly passing in a regular flow between the grinding surfaces and into the quicksilver, until the ore is reduced to an impalpable powder, and the metal amalgamated.

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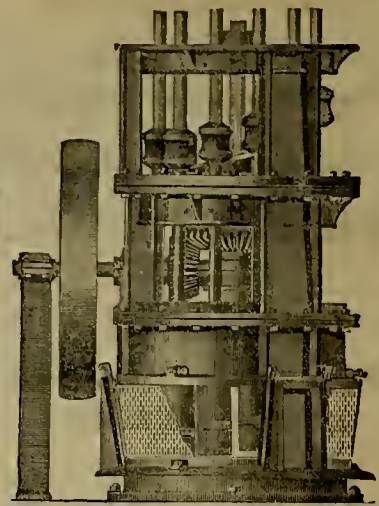
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NEW VOLUME, JULY 1, 1870.

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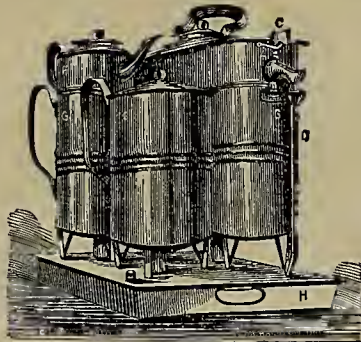
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Capital Stock.....	\$1,000,000 00
Amount in excess of Capital available to pay Losses and Dividends.....	696,854 80

ASSETS IN GOLD.

Loans on Real Estate and Collaterals worth \$2,420,000.....	1,056,996 21
Cash in Banks.....	132,240 67
United States and other Stocks owned by the Company.....	210,400 00
Real Estate: Company's property, corner California and Leidesdorff streets....	146,000 00
Other Assets.....	150,217 92
Total Assets in Gold.....	\$1,696,854 80

Losses paid promptly in Gold on Adjustment.

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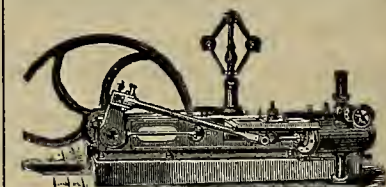


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SCIENTIFIC PRESS.

AN ILLUSTRATED JOURNAL OF SCIENTIFIC AND INDUSTRIAL PROGRESS,
Mining, Farming and Mechanic Arts.

BY DEWEY & CO.,
Patent Solicitors.

San Francisco, Saturday, August 27, 1870.

VOLUME XXI.
Number 9.

Pumps.

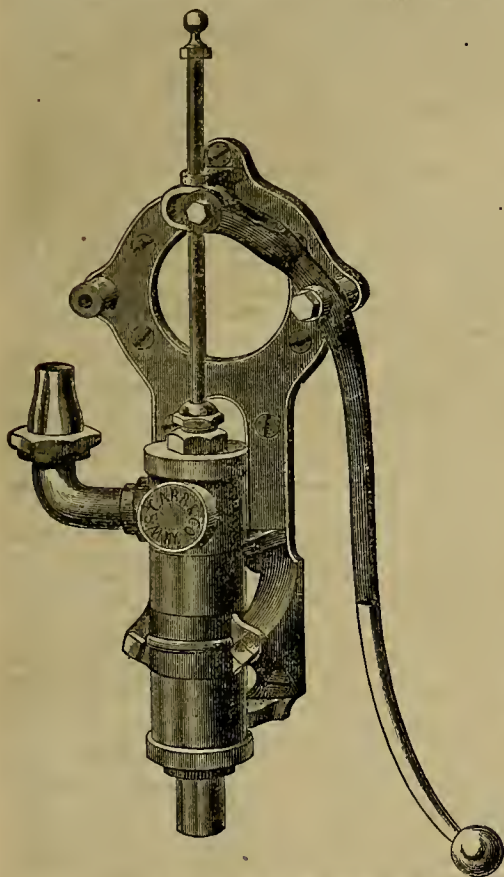
The general principles governing the construction of pumps have long been understood and acted upon, but there is still very considerable room for improvement in the special arrangements of the parts, for the purpose of ensuring efficiency and durability combined with simplicity and consequent cheapness. Hence it is that so many new pumps are continually being

the valves for the purpose of cleaning or repairing, it is necessary only to remove the bolts, K, K, which hold together the parts. The division, *n*, Fig. 1, separates the induction ways to the front and back end of the pump, as they extend into the box, *e*. By this arrangement the same stroke of the piston is both forcing and drawing water. The stuffing-box for the piston rod, *m*, Fig. 2, is made with cup-leathers, 2 and 3, set facing each other and within the movable

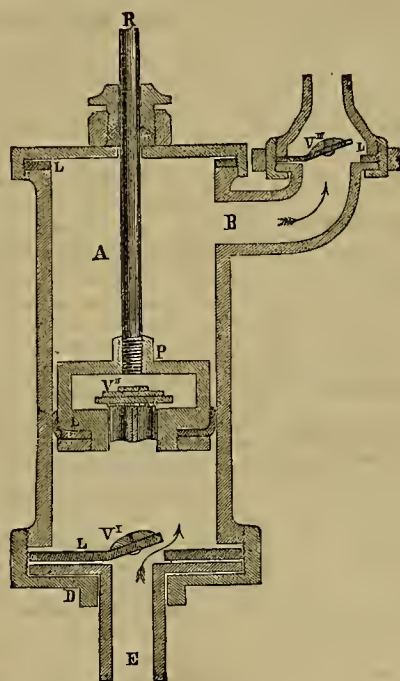
within the ring, 4, inside of which is inserted, moreover, a slight packing of elastic material, such as cotton waste. The packing at *a* is similar, only the position of the cup-leathers is inverted, as this is the moving part. There are other points for which we have not room. Our readers can judge of the pumps from the illustrations, and can obtain any further information desired, by applying to the manufacturers, Wm. S. Carr & Co., 106 Center Street, N. Y.,

Cheyenne, and a sojourn among the mountains. If our experience in Colorado can be taken as an indication of what their's will be, they may expect to have an excellent time and to meet with a hospitality which is unsurpassed elsewhere.

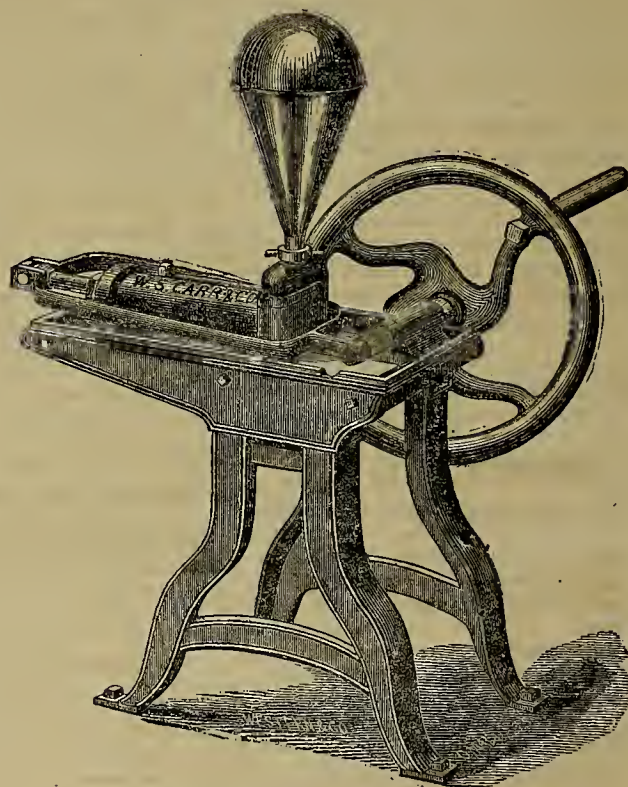
The completion of this road is an important date for the territory. The route passes through a part of the country which offers many inducements for the settler. Towns and cities will spring up rapidly,



A.—SINGLE ACTION LIFT AND FORCE PUMP.



B.—SECTION OF CYLINDER OF THE SAME.

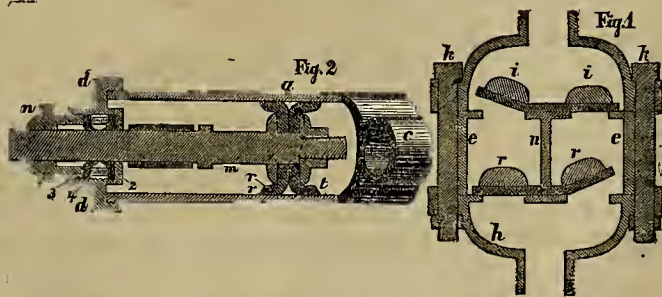


C.—DOUBLE ACTING HOUSE AND SHIP PUMP.

placed before the public, and as the benefit of having good pumps is well recognized, it is always of interest to know of the late inventions. We accordingly make room this week for illustrations of a number of neat devices of this kind. A represents a single action lift and force pump, the construction of which is shown clearly in B. Here, it may be added, L, L, are leather packings, and the valves are cut from leather and loaded with brass, which keeps the leather in its natural state and does not harden it as did lead ones formerly used. C shows a double action house and ship pump, with horizontal cylinder, bedded into an iron frame and on legs, to be operated either with power or hand. Such a pump is particularly adapted for locations where there is a likelihood of rough usage, or where large quantities of water are required, as in factories, etc. The last cut (D) shows a cross-section of the valve-box in Fig. 1, and a longitudinal section of the cylinder in Fig. 2. To get at

ring, 4. The flanges of these leathers coming at the ends of the rings, are confined by the screw-cap, *n*, so that leakage along the outside circumference of the packing is effectually prevented. This device secures, as it were, a double set of valves, preventing ingress of air and egress of water. The cup leathers are protected from injury by standing towards each other

THE KANSAS PACIFIC RAILROAD is to be opened for regular business on the 1st of September. The completion of the road is to be celebrated by an excursion from St Louis to Denver, in which about a hundred persons of prominence will participate. The party is to start next Tuesday. The trip will occupy ten or twelve days and will include a buffalo hunt, a visit to



D.—LONGITUDINAL AND CROSS SECTIONS OF CYLINDER AND VALVE BOX.

and with all her great natural advantages for farming, stock raising and mining, we shall be surprised if the population of Colorado does not increase most rapidly. Already colonies are selecting this as one of the most favorable spots in which to settle, and foreign capital is being invested in the mines and lands. Now that the markets are brought so much nearer by two competing roads, we may expect a very great progress.

DENVER AND BOULDER VALLEY R. R.—This proposed road is the absorbing topic at Boulder, Colorado, according to the *News* of that place. The county is to vote whether or no \$100,000 in bonds shall be subscribed towards aiding the enterprise. Colorado is certainly progressing.

THE lecture before the Mechanics' Institute, last Saturday evening, was on "Climatic Influence," and was delivered by Dr. I. Rowell.

Communications.

IN THIS DEPARTMENT we invite the FREE DISCUSSION of all proper subjects—correspondents alone being responsible for the ideas they advance.

Notes of Travel in Placer County.

[Continued from page 122.]

Ophir and its Mines.

This little oamp (Ophir) is also surrounded by a very large number of good average quartz lodes. There are two quartz mills. One, a 5-stamp mill, owned by C. D. Pugh, has a capacity of crushing about 10 tons in 24 hours. Water is the motive power. The Empire mill is situated about one half mile north of Ophir, has 10 stamps, and a capacity of crushing 20 tons per day. It is owned by J. McFadden, who in person superintends it. He is at present doing only custom work, but will shortly build a mill on the Shipley ledge, a ledge that has been thoroughly prospected, averages \$14 to the ton, and has well defined walls from 2 to 4 feet apart. The Empire Mill ledges, 6 or 8 in number, are not now being worked, but are all equal, if not superior, to the Shipley. The St. Patrick mine, formerly owned by C. F. Eaton, was last week sold to Messrs. Gashweiler, Cronise & Lee, of San Francisco, for \$15,000, considered here a very small figure for it; they threw out at one blast, a few weeks since, \$5,000. Their shaft, is down 135 feet; ledge, 20 inches in thickness; the rock has run from \$50 to \$400 per ton (mill process). This mine is situated only a short distance from the Empire mill. About one mile south is the Reconstruction mine, owned by Scott & Co., at Dutch Ravine, who have a well defined ledge, a foot thick, which is averaging \$30 to the ton. Wm. Green's ledge, about one mile N. E. of Ophir, is considered the best in this country. It is about 30 inches wide and very rich. The fact that it is not for sale, and the amount of red tape necessary to obtain an audience with the proprietor, are sufficient evidence of that fact. I could get no particulars. Simons & Co. had 21 tons of rock crushed (from their claim in the Ophir district) a few days since, at the Empire mill, which averaged \$26 per ton. About 2 miles north from Ophir and 3½ miles west of Auburn, are situated the Buckeye company's ledges, 6 in number. This Company was incorporated under this name on the 18th of July last; but the mine has been successfully worked by Messrs. Lyon & Spear, of Auburn, for the last 15 years. There used to be a mill and an arrastra on the ground, but some months ago it was hurned down. Mr. Fred Jones is the Supt. He was considered one of Grass Valley's best quartz miners, and the confidence that he has in the mines has given an impetus to prospecting here that will accomplish wonders ere long. The Buckeye ledges run east & west, are about 4200 feet in length, and from outside to outside of the 6 ledges is 300 feet. Work has been done on these for a length of about 2300 ft. and a depth of 20 to 70 feet. One of the ledges, called the Buckeye, is 3 ft. wide and has yielded from \$10 to \$100 per ton. This rock is highly sulphuretted, the sulphurets assaying about \$200 per ton. The Elizabeth and Middle ledges, branches of the Buckeye, have yielded from \$14 to \$40 per ton. They have a good 16-foot water wheel with hoisting works and pump connected with the shaft. The expense of water for running this wheel night and day per week is about \$12. The Bear River Ditch runs near the mines with a good mill sight. There is water sufficient to run a 20-stamp mill, at an expense of about \$50 per week. Before leaving this quartz region, I must mention the Crater Hill ledges, 3 in number, owned by Messrs. Spear & Lyon of Auburn. These ledges, a few years ago, were thoroughly prospected, and all the rock taken out averaged \$50 per ton. Shafts were sunk from 40 to 70 ft. deep at that time. They are not now being worked for the lack of capital to build a mill.

L. P. Mc.

Eureka District, Nevada.

[Continued from page 122.]

New York and Secret Canons.

New York Cañon was prospected some few years ago, but only a few claims were located, and these being principally on base ore, not much work was done. Of course there were many claims to be found by the energetic prospector. Mr. W. C. Smith and others, who were convinced they could find something, secured a ledge, the May Flower, in the cañon, about two and a half miles from Eureka. Their vein is five to six feet wide, and their shaft is down some twenty feet. The mine contains very rich galena and looks well. There are several other mines in the cañon. The furnaces are buying ores of the "poor miners," who cannot afford to build smelting works themselves, and thus many are enabled to make a living.

Secret Cañon, known now as Vanderbilt, is about eight miles south of Eureka and in the same mining district. Here, as your readers undoubtedly know, is the famous Paige and Corwin mine, which I visited in company with Mr. Brown. The ledge varies from eight inches to four feet in width. The shaft is down 150 feet. Their ore is very rich, sometimes bringing from \$800 to \$1,000 per ton. They shipped 332 sacks to your city, which assayed, according to certificates which I have seen, \$397.25 in silver and \$38.86 in gold. The ore is decomposed and appears to hold fahl ore with horn silver, the latter sometimes beautifully crystallized. They have twelve men employed in sending the ore to San Francisco. The freight charges are \$30 to Palisade, and \$16 to San Francisco; total, \$46 per ton. The Eureka smelting works buy large quantities of the screenings, which are screened through fine sieves. There is not a mill nor a furnace in this cañon as yet, which is hard on the boys.

J. J. Basye & Co. have a fine location, about one mile from the town. The shaft is down 75 feet. One hundred tons of ore yielded about \$98 per ton.

The Bromide Hill M. Co. of this district have some ten claims, among which may be mentioned the Gem of Nevada, the Excelior and the Bromide. These all look well and show good ore.

The Hodgdon mine, on Hodgdon Hill, about one-half mile from the town of Vanderbilt, was taken up by H. A. Hodgdon, A. P. Hodgdon, E. A. Hodgdon and E. Colline. A shaft has been sunk 30 feet, an open cut run in on the side of the large deposit, and a large amount of work done generally. The vein is upwards of eight feet wide in many places, but would average, perhaps, only four feet. It is a most promising location. The superintendent, Mr. H. A. Hodgdon, informs me that last Fall they had a large quantity of ore worked, which yielded \$150 to the ton.

There are many other mines in this new camp, but time forbids my visiting each one. Responsible parties speak very favorably of the place. The Calico, the Stockton and some others, I did see, and liked their appearance. Messrs. Bertrand, Gaddes and Curtis are among the owners of splendid locations.

Spring Valley.

This small district is located ten miles to the southwest of Eureka, and contains some good mines. The formation is principally limestone, with some granite intermixed. The first ledge we came to was the Reeve and Berry, which has quite a reputation. The ledge changes continually, but seems to be from ten to twelve feet wide, and can be traced a long distance. They have a cut some twenty-two feet long on the face. The ore, which contains sulphurets, holds a large amount of silver, and some lots have been worked at the Austin mill and paid well.

There are other good locations as the

Murray, Mayott, North Star, etc., splendid specimens of ore from which have been showed me, and some very high essays.

Concluding Remarks.

The number of teams, which continually arrive at Palisade loaded with bars of argentiferous metal from the districts I have spoken of, testifies to their great importance. Most of the lead, I hear, is consigned to Newark, New Jersey, to be refined and separated. I am informed by gentlemen here that it costs \$15 for separating the lead and silver, and \$7 extra for extracting the gold, if there is any in the bullion. The reduction works allow \$1.29 per ounce for the silver, and 6½ to 7 cents per pound for the lead. The amounts smelted at Eureka I have previously mentioned.

I have already spoken at sufficient length of the great resources of the district,—the immense bodies of ore, the stone for building and lining furnaces, provided so near at hand by Nature, the agricultural capabilities of the surrounding region, etc. You know that after a series of excitements, such as have previously occurred, it takes an extra good camp to stir up people. I think this place is good enough to create quite a stir at any time.

A branch railroad to White Pine is urgently needed. This is most certain, and I hope and believe that the people will put one through. I likewise believe that the best and natural point for its junction with the Central Pacific is at Palisade.

W. H. M.

Eureka, July 10, 1870.

The Burro Mines.

We have received a communication concerning the article on these mines, in the Press of July 30th, from "Timothy," of Taylorville, Placer Co. We are obliged to condense as much as possible, and hence take up only the main points of the letter. Our correspondent makes the following statements, which are contradictory, he thinks, to corresponding statements made or implied in the article in question as to the location of the mines:—1st, the location, three miles from Leidersdorf's Wells, is not in the Burro Mountains, which are, at the nearest point, 25 miles distant; 2d, the Rio Grande is 175 miles distant; 3d, he has been all over these mountains, barometer in hand, and has never reached an altitude of 6,000 feet; 4th, there is not sufficient water in the neighborhood to subsist a command of 20 men. He has seen the float rock spoken of and "believes the mines are there," but would like, he afterwards says, if any mines have been discovered, to know where, as he has been all over the Burro Mountains. He has obtained in that range, gold and also copper.

The same authority from whom the previous article was obtained, makes reply, in substance, as follows: Calling the mines the "Burro Mountain" mines, is accepting the general name given by the miners. The mines are not in the Burro Mountains proper, but in the Pyramid range; but the title, Burro Mts., is often used in a general way for all of these ranges. The distance to the Burro Mountains proper from the Wells agrees with that to the "higher range," given in the article. The distance to the Rio Grande is greater than stated previously. It is given as 120 to 140 miles, perhaps more. The saw-mills are on the Membres River, at the distance previously stated. The altitude given was merely guessed at. There is sufficient water there, although our correspondent might not have found it.

In addition, two stage lines are now running to Ralston, one via Tucson, and one via Santa Fe. The stakes of the Southern Pacific Railroad do run through the town, whatever its altitude may be. Several thousand persons have visited the locality since the discovery; several thousand claims have been located; an application

has been made for a post-office; contracts have been made for the erection of mills; letters are being constantly received, etc., etc.

The special correspondent of the S. F. Bulletin, writing from Ralston City, under date of May 22d, gives the following corroborative statements: "The mines lie just three miles south of the Overland Mail and Stage Road, and are at the extreme northern end of the Pyramid range, where they lose themselves in the open, level country, 45 miles east of Camp Bowie, 70 miles southeast of Camp Bayard; by the sinuous road east of Tucson, 150; and west of Mesilla on the Rio Grande, 120."

If "Timothy" has the altitudes of Camp Bowie and other prominent points, we should be glad to have him give them to us. We are unable to obtain them here.

Colorado Progressive.

We think that it is almost the unanimous opinion of those who have visited Colorado, that while the mining interests have a bright future before them, the milling system has not been all that it ought to be.

We rejoice, therefore, when we find a local paper with sense and pluck enough to openly point out the defects,—usually a most thankless task. We commend the public spirit of the Colorado Herald. The paper deserves much praise for its action. By plainly showing up the enormous waste of precious metal, the careless, unprogressive method of milling, it does this territory an immense benefit, and any slight errors it may make while so doing are of comparative unimportance. Colorado has, all things considered, done very fairly, but such action will make it do better. The Herald shows that, at the lowest possible estimates, less than one half of the gold and silver is obtained from the ores in Gilpin county. Here certainly is room for improvement.

The concentration of ores is also a most important matter for Colorado, and has been recognized as such in some parts of the territory. The Herald, very properly, takes a stand on this subject. It also advocates especially Krom's Air Concentrator. Our opinion with regard to this machine has not been fully formed, as we have hitherto had no figures given, although we have seen the device do good work on one occasion. We give the summary of the results obtained in a number of experiments, according to the Herald.

The first column gives the kind of ore treated, the second, its assay value per ton, the third, the value per ton of the concentrated ore or "headings," and the fourth, that of the refuse or "tailings":

Kind of Ore.	Value of Ore.	Headings.	Tailings.
1. Tailings.....	\$1.00.....	\$ 6.85.....	\$1.75
2. Ore.....	27.50.....	75.00.....	7.25
3. Ore.....	35.00.....	83.43.....	13.72
4. Ore.....	25.37.....	94.93.....	10.99
5. Ore.....	12.50.....	37.50.....	3.62
6. Ore.....	45.66.....	163.42.....	9.05
7. Ore.....	18.80.....	110.13.....	4.27
8. Machine Tailings.....	1.99.....	2.25.....	2.56
9. ".....	8.62.....	9.28.....	7.28
10. ".....	4.27.....	2.07.....	3.23
11. ".....	9.05.....	.....	.....
12. ".....	.....	.....	.....

Average value of 6 lots of ore.....	\$27.76
Average value of 6 lots of headings.....	105.26
Average value of 6 lots of tailings.....	8.15
TAILINGS.	
Average value of 6 lots of machine tailings.....	\$9.44
Average value of 6 lots of tailings.....	2.35

From ten to fifteen tons of ore were run through the machine, the lots being sent by the owners of different mines to be experimented on. The results are very favorable, although the first tailings from the machine evidently ought to be re-worked. The Herald thinks that, with a proper establishment and good crushing machinery, the whole cost of treatment would not exceed \$3 per ton.

We have read with interest the Herald's article, and, although we find them at times rather diffuse, and might not agree with the writer on all points, yet such a praiseworthy spirit has been evinced that we are willing to go a little out of our way to call attention to the course of the paper. We note, in this connection, that Mr. Stetefeldt has taken a lot of ore from Central City to chloridize in his furnace and then to experiment with by the chlorination process and by amalgamation. All these experiments are just what Colorado needs;—that the people there are really becoming alive to their short-comings, is one of the best signs of the times.

Mechanical Progress.

ICE-MAKING APPARATUS AT OXFORD.—Messrs. Siddeley exhibited a refrigerator which *The Engineer* declares was the greatest success of the Show. We quote from that journal: "These machines make use of the cold caused by the evaporation of ether in vacuo to produce ice. The chief faults of most refrigerators are, that constant attendance is required to regulate the supply of ether; and, that the loss by evaporation is the most serious item in the outlay. The first of these is obviated in Mr. Siddeley's machine by an ether regulator, with a peculiar arrangement of ball valve which retains the ether vapor, permitting only the condensed liquid to pass. With regard to the second, Messrs. Siddeley have had a machine similar to that exhibited at work in Liverpool night and day for more than eighteen months; the consumption of ether during this time has not exceeded the value of ten shillings. The refrigerator is a circular vessel, filled with circular tubes placed horizontally, through which a constant current of brine is pumped. The body of the vessel contains ether, which is drawn from it in a vaporous form by the ether pumps, which by this means reduce the temperature of the brine. The latter is pumped into the ice-box, and after having passed round the copper ice-moulds which contain the water to be frozen, flows back into the refrigerator. The ether, after being evaporated, passes into the condenser, a rectangular open vessel containing flattened tubes, between which flows a current of fresh water. It is by this means condensed, and after passing through the regulator above mentioned it returns to the refrigerator."

FIRE PROOF ENAMEL.—The N. Y. *Iron Age*, of Aug. 8th, has seen "a test specimen of a new enamel, pasted upon a piece of Gorman clay, which has remained intact in a fire completely melting the best American fire-brick, and partially the German clay, after an exposure of 48 hours."

IMPROVEMENT IN FLAT WIRE ROPES.—The *Colliery Guardian* makes mention of a rope recently patented by James Edge.—"The invention consists in so interlacing the sewing or tying wires, by which the several strands are secured together to form the flat rope, that the said wires are entirely inside the rope. Instead of the wires passing around the strands, forming the edge of the rope as usual, they pass under the adjacent strands, then across the rope in the interior thereof to the opposite edge and so on in a zig-zag direction through the whole length of the rope. In this way the interlaced wires are not exposed to friction, and the rope is without the uneven edge of the ordinary manufacture."

IMPROVEMENT IN GAS MANUFACTURE.—The *American Gas Light Journal* describes a new gas process, which it says is destined to come rapidly into use. It is now in operation in Saratoga, N. Y. At present crude naphtha is used. We quote: "Briefly, the oil or naphtha is put into a still and gradually converted into vapor by a steam coil. The vapor is thence conducted into a peculiarly constructed superheater, placed inside a clay or iron retort, set and heated in the usual way. There is one bench of three, each retort provided with a superheater. The vapor enters the rear of the retorts from the superheater, where it is instantly converted into a fixed gas, and passes into the standpipes, and so on to the gasholder in the usual way, excepting that no washing, scrubbing or purification is necessary; a simple tank and condensing coil being all. One bench of three will produce 5,000 cubic feet of gas per hour, prepared for distribution, of not less than 20-candle power, equal to 120,000 cubic feet per day of 24 hours. One bench of five will easily produce 200,000 cubic feet per day. The expense of labor is reduced to a minimum; only an engineer and one fireman being necessary. The entire process is so nearly automatic, that the manual labor actually required is a pastime, compared to the old process. There is no charging and discharging of retorts, with the hurry and din, and heat and steam, and sulphurous fumes. No troublesome stoppage of stand-pipes, or scaling and decarbonizing of retorts. No laborious and disagreeable purifying process. There are no bad odors, smoke or soot. Even the retort-house is so tidy, cleanly and quiet, that one could breakfast in it with a relish."

ANOTHER BULLET.—THE "TURTLESET" BULLET, externally resembling the Minnie ball, is a cylinder of lead with a conical head. On unscrewing the ball about midway there is discovered a cavity which is filled with dynamite powder, having an explosive force six times as great as ordinary gunpowder.—*Railroad Register*.

THE RUDDICK ENGINE.—This is illustrated and briefly described in the *Gas Light Journal*. Within the cylinder, are two piston heads rigidly connected by two pairs of rods. The connecting rod is attached at one end to one of these piston heads, and at the other to the crank, which plays in the space between the two pairs of rods aforesaid. All the parts so far named, are inside of the cylinder. The valve stem outside, is moved by a short arm properly attached to the crank shaft, between the two steam chests, one at each end of the cylinder. The advantages claimed are extreme simplicity, and great economy in space and weight.

FRENCH ARMY TELEGRAPH.—We find the following in the Paris correspondence of the *Engineer*: "The batteries are cased in felt and fitted with bungs, and sawdust is employed to contain the necessary salts and acids. The apparatus used is that of Morse, and it is placed in a box with the galvanometer and a lightning conductor to protect the operator during storms. The conductors are covered with gutta-percha, so that they may be laid on damp grass or even in water. The telegraph carriage is formed in two compartments, that in front, being like the *coupé* of a railway carriage, serves for an office, while in the after part it carries the reel of wire. In the office there is a table which supports the instrument, two accumulators, one for the batteries and the other for the signal bells, and a seat with places for two persons. The reel is supported by its axle in two parallel iron bars in the back compartment, so that the conductor is given out as the carriage proceeds on its way."

ELASTIC RAILWAY WHEELS.—The *Mechanics' Magazine* notices, without clearly describing, the invention of George Smith, of Belfast, Ireland, by which it is claimed the "hammering" of rigid car wheels upon the rigid rail is effectually done away with, and the disagreeable jolting, as also the wear and tear, prevented. We quote a short paragraph: "These improvements are obtained by suspending the axle from the top of the wheel by means of an elastic steel or iron hoop, which allows for any inequality in the rails, while at the same time, the tire is free to revolve independently of the body of the wheel."

THE INDIA RUBBER TIRE.—With reference to Thompsons' road steamer, the question now seems to be, whether the india rubber wheel tires will be durable enough to warrant the expense of their manufacture. At the Oxford Show, the flexible steel chain, with which they have for some time past been protected, was one day at the request of the judges, left off; and the strain being accidentally thrown for a moment upon one wheel, the tire suddenly snapped across, disabling the engine.

PITTSBURG AND SHEFFIELD.—The London *Ironmonger* says: "The Pittsburgh steel, both cast and rolled, is fully up to the mark of the best English—in fact, it is not only supplanting our produce, but in every shape of tool it is being largely exported to the European Continent. American bolts and hinges excel ours, and medium American cutlery of all kinds is cheaper and better than any manufactured here. We trust that our Sheffield houses will look to their laurels."

ERICSSON ON SOLAR HEAT.—London *Engineering* is publishing a series of articles by Capt. E. Ericsson on this subject. The first article is accompanied with a cut of his solar calorimeter. Our readers have seen some of the figures and estimates which Capt. Ericsson has made to show the possibility of utilizing the solar heat as a motor. We shall return to the subject when his solar engine comes under consideration.

Scientific Progress.

MUSCULAR CURRENTS.—Following, are some detached paragraphs from a communication by Becquerel to the French Academy some months since, from which we have before quoted. "The muscular current, is that which is produced when a non-oxidizable metallic conductor is put in contact, by one of its extremities, with the surface of a muscle of an animal recently killed, and by the other with a transverse section of the same muscle; this current passes from the interior of the latter to its surface. * * In a muscle in which two transverse sections have been made, it is recognized, by a very delicate galvanometer, that if a metallic connection is made between a point of a natural or artificial longitudinal section and a point of one of the two artificial transverse sections, a current passes from the longitudinal to the transverse section, or, within the muscle, from the transverse to the longitudinal section."

* * M. du Bois Reymond sought to explain the muscular current on the hypothesis that the muscular fibres are composed of minute plates superimposed one upon the other so as to form a voltaic pile. Matteucci has combated this hypothesis with the good reason, calling attention to the well known fact that when such a pile is divided the two surfaces opposed possess opposite electricities, while, if a muscle be divided, the two surfaces exhibit electricity of the same character. M. Liebig has decided in favor of the chemical origin of the muscular current. He thinks that in the muscle there is an acid liquid whose elements are imbibed and brought in contact with the serous fluid of the blood (alkaline). He supposes that the electric current is developed within the muscle in the same way as it is in the voltaic cell, charged with solution of potassa and nitric acid. Matteucci justly observes that, admitting the existence of the two liquids in the muscle, this does not explain the production and the constant direction of the muscular current from the interior to the exterior, since a third conducting body is necessary in order to establish it. M. Hermann admits the chemical origin of the muscular current. His experiments were designed to show that the exterior section of the muscle which is exposed to the air, and by consequence to the action of oxygen, is in a state of more active decomposition than the interior of the muscle. * * Numerous experiments have convinced me that the current has a physico-chemical origin."

* * I said at the outset that the cause of the irritability of the tissues during life, and for some time after, is unknown, and that the attempts thus far made to refer them to an electric origin, have proved fruitless. * * It is not necessary always to consider the electro-capillary currents as primitive forces of living bodies, since these only act when the bodies are created—their organs formed. These are the effects which become the causes of respiration and nutrition of the tissues. These phenomena cease with life, when the tissues lose irritability; the pores are then obstructed by the coagulation of the blood; the electro-capillary phenomena cease; all the organic elements are then released to the action of the chemical forces which end by destroying every trace of organization."

VOLUMETRIC DETERMINATION OF CHLORIDE OF IRON.—A. C. Oudemans, jr., proposes the following method for the analysis of chloride of iron that may contain a considerable excess of hydrochloric acid. Add to the iron solution one or two drops of a solution of the oxide of copper, and thereupon sulphocyanide of sodium until the liquid becomes dark red. A graduated solution of hyposulphite of soda is then cautiously admitted from a burette until the color disappears. The author assumes that the copper salt is first reduced by the hyposulphite of soda, and that the suboxide of copper then reduces the salt of iron. —*Jour. Ap. Chemistry*.

TRANSPARENCY OF GALENA.—L. Henry mentions the discovery by him, that galena in thin laminae is transparent. The light transmitted is, according to him, of a brownish-yellow color. Several other minerals of similar chemical composition, the sulphides of Arsenic and of Mercury (auripigment and cinnabar) had been known to possess this property, but neither possess metallic lustre, so that to the eye there is nothing to betray their metallic character. With Galena, the case is different, its lustre is characteristically metallic, and is one of its distinguishing properties.

POLLEN IN DIFFERENTIATION OF SPECIES.

The *Bowdoin Scientific Review* gives an abstract of a paper by Chas. Bailey in the *Microscopical Journal*, on the aid which will probably be furnished by the pollen in distinguishing allied species of plants. The author notes four points in one or the other of which the pollen grains may differ,—form, dimensions, markings, and color. In regard to the first-named, we quote: "It has long been noticed that certain types of pollen are characteristic of the natural order to which the plants which produce them belong, as, for instance, the peculiar pitted polyhedral pollen of the *Caryophyllaceae*, the spherical spiny pollen of the *Malvaceae*, the large triangular pollen of the *Onagraceae*, the peculiar pollen of the *Coniferae*, or the elliptical pollen of the *Liliaceae*, and other monocotyledonous orders; in fact, most orders possess a type sufficiently marked to be characteristic of each. This statement, however, must be accepted with limitations; the *Compositae*, for instance, have three or more well-marked types, represented by the beautifully sculptured pollen of the *Chalcid*, the minute oval spiny pollen of the *Asters*, *Calendulas*, *Cacalias*, etc., and another form wholly destitute of spines, as in the *Centaurea scabiosa*. There are, besides, other natural orders where similar variety occurs. But differences of form are met with in plants of the same genus, by which the one species or the other is readily marked off by its pollen; thus the pollen-grain of *Anemone sulphurea* is roundish, but that of *Anemone montana* is elliptic; the pollen of *Aronicum Duronicum* is much more elongate than that of *A. scorpioides*; and while the grains of *Ranunculus phitontis* are round and yellow, those of *R. platanifolius* are elliptic, white and smaller."

THE COMINO LIGHT.—"It would be a curious triumph of science if we are to succeed in the manufacture of illuminating gas by carbonizing the hydrogen, and thus dispensing with the old methods of the distillation of bituminous coals. This consumption is not at all improbable, and the time is not far distant when coal will be distilled for its benzole, naphthalene, anthracene, and tar, and not as a source of illuminating gas. The synthetical method of putting hydrogen and carbon together in just the proper proportions to give us the purest and strongest light, will probably take the lead of any other process now practiced. As soon as we have oxygen and hydrogen in unlimited quantities and at reasonable rates, we shall have two most important agents added to our stock, and this result appears likely to be attained before the lapse of many months."—*Jour. of Applied Chemistry*.

CHLORINE ON ALCOHOL IN SUNLIGHT.—G. Streit and B. Franz passed a current of dry chlorine gas into absolute alcohol with a view to the preparation of chloral. The current of gas being lively, the temperature of the alcohol rose soon to 155° F., where it remained constant. During this time a beam of sunlight accidentally struck the flask which contained the alcohol. An immediate detonation took place, which continued under the influence of the light, the gas bubbles exploding with a weak report and a flash of light as soon as they entered the alcohol. The light reached in several cases two or three inches up into the connection tube. The alcohol blackened at the same time, depositing after a while a black powder, probably carbon.

ANTHRACENE.—This hydro-carbon is obtained from the dense portions of coal tar, by repeated distillation, pressure, recrystallization from benzene and sublimation. If the anthracene has not its proper melting point of 210° to 213° it must be recrystallized until it melts at this temperature. Thus obtained, it is in crystals, to which a bright yellow coloration tenaciously clings. They can be freed of this however, by sublimation at the lowest possible temperature and subsequent washing with ether; or by bleaching a solution in hot benzene by direct sunlight. In the last case the anthracene separates on cooling in colorless crystals, of a superb blue fluorescence. These crystals are tabular, smaller or larger according to the degree of purity, and belong to the monoclinic system. If colored at all yellow—the coloring substance is chrysogene—the beautiful blue fluorescence above alluded to, is not seen upon them. Anthracene is soluble with difficulty in alcohol and ether, easily in oiling benzene. It melts at 213°, and distills 360°. —*Jour. Frank. Institute*.

Mining Summary.

The following information is gleaned mostly from journals published in the interior, in close proximity to the mines mentioned.

California.

ALPINE COUNTY.

STRUCK IT.—*Miner*, Aug. 13th: The Schenectady struck the Tarshish ledge in their lower tunnel on Wednesday at a distance from the month, five feet from the point laid down by survey—850 feet. The lode is identical with that in the upper works. A drift is to be run along the casing northerly and connection made by winze with the upper works.

LEVIATHAN.—After investigation of matters, the London owners, Dorset and Parkins, came to the conclusion this week that change would be healthy. They paid off all hands and are considering, in connection with Prof. Rickard, the course to be pursued.

MORNING STAR.—Rumor has it again that the mine will start up with a full force.

The *Chronicle* learns that the lower tunnel in the Leviathan will be run 300 feet further by contract.

AMADOR COUNTY.

NEW MINE.—*Dispatch*, 20th: We learn that a quartz mine has been discovered east of the Mahoney, near Sutter Creek, by a party of Austrian miners. They have a shaft down 50 feet, with favorable indications of a rich lead.

KENNEDY.—*Ledger*, 20th: The company have their shaft down two hundred feet, and are running through a vein seven feet wide, very rich in gold and sulphurets.

BIG YIELD.—The Marklee mine, cleaned up ninety-seven tons of quartz from which they took over seven thousand dollars. The vein is now five feet wide, and the shaft down two hundred and ten feet.

CALAVERAS COUNTY.

ITEMS.—*Chronicle*, 20th: Mining in Lower Rich Gulch is pushed forward with vim; Palomo and Alexander mills never stop except for repairs; Garland's chlorination works will be ready in a few days. Monitor District quartz and gravel, claims are vigorously worked. Paul & Co. are sanguine. Gleason, at the Junction, has run his incline 220 feet; the bedrock is hard. Shaw's hydraulic is "tearing things." Stockton ridge holds out, but begins to look weak. Brackett & Co. are taking out good pay; the gravel cement has to be crushed before washing. The Union Shaft claim is good for \$5 per day to the hand for years. Lewis Bro. mill will be completed in a few days. Burr mill, at Railroad, is constantly employed on custom work. Chilenois struck rich diggings above Whiskey Slide last week. The mill of the French Co., at Rich Gulch Flat, has shut down for repairs.

MACHINEERY.—The engine, boiler, pumps and hoisting gear formerly at the Palomo, are being removed to the Tische mine in Mosquito Gulch. A recent crushing of rock from this mine yielded \$92 per ton.

EL DORADO COUNTY.

QUARTZ.—*Placerville Democrat*, 20th: E. B. Morey has opened a new lead, northwest of Grizzly Flat, and last week cleaned up \$850 from 30 tons of rock. The lead is two to four feet in width. Mr. M. was offered \$2,500 for his claim before he crushed any rock, and now refuses \$4,000.

EL DORADO.—*Cor.* of same: The failure of the "Eureka Ditch," which annually occurs at this season, has dried up placer mining. Whatever surface mining has been done so far is merely prospecting, at an expense of 60 per cent. of the returns, owing to the exorbitant charges of the ditch companies.

INYO COUNTY.

KEARSE.—*Independent*, 15th: We visited the mill last week. Everything is in complete order. They are running but one-half the battery—five stamps—while waiting for quicksilver. Pans and eatlers are abating with bright amalgam, the strainer was full, and any quantity of the stuff was lying around, waiting for the retort. In the Summit mine, two hands are drifting in a 20-inch streak of pay ore. In the main mine of the Co., two are drifting at a depth of 1,000 feet. In all, some 17 hands are employed.

BULLION.—*Kearse.*—The Co. shipped, per Wells, Fargo & Co., last week, 4,350 ounces.

BULLION.—*Belshaw.*—Belshaw, at Cerro Gordo, is running out daily 100 to 120 bars. Since starting up on this run he has piled up 1,215 bars of lead, weighing 109,350 pounds.

ECLIPSE.—The mine is actively worked. Everything is being placed in order for the reception of the steam-stamp mill, started some time since from England.

DEEP SPRING MINE.—We were shown,

a lump of fine hullion weighing 250 ounces, the proceeds of two tons of ore from the San Juan mine. A. B. Paul is operating there with his new Electric process with a fair prospect of success.

PLACER COUNTY.

ST. PATRICK.—*Herald*, 20th: We learn that a new engine arrived at the claim on Wednesday, to be placed in connection with complete hoisting works, and that work will be pushed vigorously by the new owners.

DENY IT.—The two men charged with finding the 106 lb. nugget containing 97 lbs. pure gold, called on Thursday and denied the soft impeachment.

STRUCK THE LEAD.—A short time ago the Buckeye mine, near Ophir, was incorporated; stock, \$100,000. The work was commenced in an old shaft. We learn that at a depth of seventy feet the workmen have struck what is supposed to be the main ledge, which shows rich in gold.

PARAGON.—This mine, the famous Dewey claim, is now worked 3,500 feet from the mouth of the tunnel. The deposit is a body of dark cement, one hundred feet from the bed rock, and two to three hundred feet below the top of the ridge which it crosses northwesterly from the Middle Fork of the American, at Bath—toward or beyond Shirt Tail Cañon. For an average width of three hundred feet it is uniform in thickness, about four feet. For the full distance worked it has an exactly horizontal position. The pay is so regular that before making one of the fortnightly clean-ups, the number of car-loads taken out being known, the owners can estimate within a fraction the return. The Paragon is now held by two persons, Messrs. Wheeler & Breese, who work a splendid 20-stamp mill for crushing their cement. For four years the monthly yield has been scarcely ever more than one or two hundred dollars under or over \$9,000, or from \$50,000 to \$60,000 per annum clear profit.

PLUMAS COUNTY.

ITEMS.—*Quincy National*, Aug. 20th: McNeely & McBeth, at the head of Rich Gulch, cleaned up \$1,200 for one month's work. Bryan & Boston, near Marion Flat on North Fork, are working 14 men. Their claim pays \$15 per day to the hand. Orton, Gusette & Bruer at Cariboo, have struck the old Emigrant Lead and have big prospects. Joe Hickman has ground enough stripped to last two years. Benham & Co., at the mouth of Butt Creek on the North Fork are cutting a race to drain the bar and are making good wages while doing so. The old Dutch Hill Co., are doing well. Above 12 Mile Bar, Merseur, York & Co. have about got their river claim drained. They have been trying for five years. Sheerer & Co.'s claims at Ding Bat Flat have paid well, so have the claims of Cap. Corser at Rich Gulch.

UNION.—We understand that further developments show this newly discovered ledge to be of immense value. The lode is fourteen feet wide, and shows free gold all through.

NEVADA COUNTY.

PENNSYLVANIA.—*Gazette*, Aug. 19th: The mill commenced crushing rock from the mine on Wednesday, after having been idle for years. We understand that the company have out over 100 tons.

EUREKA.—*Grass Valley Union*, 17th: This mine had no other melting yesterday. The yield for eleven days, including Saturday, was \$27,000. This does not include any returns from sulphurets.

MUTUAL.—Same of 18th: This mine, near Graniteville, is on what was formerly known as the Jim Ledger and is proving a success. We saw yesterday a lot of gold, valued at \$5,000, taken out in twenty-one days by five stamps. The Mutual has been doing this thing for a year or two.

ALLISON RANCH MINE.—Same of 19th: The manager has determined to put up a new five stamp mill.

GREENHORN.—Same of 21st: Seventy-four tons of rock have been crushed, and the yield was \$2,023.35, or 28.90 per ton. The mill, owing to the scarcity of water, has only been run five hours a day, and there is now on dump 60 tons of rock. The shaft is down 70 feet below the tunnel, and in the bottom the ledge is six feet thick.

DRIFTING IN GRAVEL.—*Transcript*, 21st: Edmonds & Lord, near Washington, finding the low water season too short to work the gravel in the bed of the South Yuba, have concluded to drift it out. It is very hard and very little water seeps through. Large prospects have been obtained on the bed rock. They first sunk a shaft on the bank of the river to a depth a little below the bed rock, and run a tunnel thence to a point under the middle of the stream, when they raised up into the gravel which they have just reached.

BED ROCK TUNNELS.—Same of 23d: Two

will be commenced at Blue Tent this week, one by Kellum & Co., in the South Yuba claims, and the other by the Last Chance.

SAN DIEGO COUNTY.

JULIAN MINES.—*Union*, 18th: The new discovery, the Helvetia, has attracted great attention. The rock is said to be very rich. The McMechan mill, now crushing some of it, is running steadily. The Cotton mill is also running without intermission. They commence to-morrow on 100 tons of rock from the Owens mine.

SIERRA COUNTY.

GOODYEAR'S BAR.—*Cor.* of *Messenger*, 20th: Ross and Reynolds, of Rantededler, are progressing finely with their claim. Killbride & Co. are doing well. Tym & White have flumed the river at the lower extremity of Texas Bar. They have rigged up pump and derrick and will be on the bed-rock in a few days. Craig & Hulmes are hammering away in the Old Exchange. Perry & Thomas have resumed work in the Empire.

GOOD TAKE.—The other day some Chinamen found in the Middle Fork of the Yuba, a chunk of gold valued at \$180.

SAN BERNARDINO COUNTY.

CLARK DISTRICT.—*Guardian*, Aug. 13th: A large amount of property has changed hands, and there will be a large population in a few weeks. The mines are in the northeastern part of this county, 75 miles from Camp Cady.

Same of 20th, says: The Pinte Co. has been organized with a capital of \$5,000,000, for working some of the rich mines of Clarke District. The ores yield thousands of dollars per ton. Last week 90 sacks were shipped to San Francisco for reduction. At present there are only 300 miners, but numbers from White Pine and other places are flocking thither. The region is modestly well watered and timbered. Johnny Moss has made arrangements in San Francisco for a mill.

SISKIYOU COUNTY.

PATTERSON CREEK.—*Yreka Union*, Aug. 17th: The Creek is attracting much attention. John Stewart, Dick Churchill, Dick Gamble and others, have claims there. It is believed that there will be a hundred miners there the coming winter.

PIT RIVER.—On Monday Mr. Cottrell, informed us that there is considerable excitement in regard to the newly discovered mines, but gives it as his opinion that they will not prove of much value.

TRINITY COUNTY.

QUARTZ.—*Journal*, 20th: Several specimens of gold-bearing quartz have been during the past week, taken from ledges in this vicinity. One piece from Brown's mountain, contained gold which could be seen with the naked eye.

GOING AHEAD.—The trial shaft is down thirty feet.

Arizona.

ITEMS.—*Prescott Miner*, Aug. 6th: In the placer mines at Big Bug, the rain has increased the water in the creek, and miners are taking out \$4 to \$10 per day. The Eureka ten stamp mill in Walker District, was sold to C. C. Bean. It will commence crushing as soon as it can be repaired. They are running arastras in the Bradshaw District, with good results.

Colorado.

ITEMS.—*Central City Register*, Aug. 17th: The Reduction Works of Cash, Rockwell & Co., in Chase Gulch, are a complete success, and are running to their full capacity. The new Smelting works above Black Hawk, are approaching completion. The Gregory second lode, is being peopled with miners. Three cords of Stubtail ore yielded in Mather's mill, 19 ounces. Mr. Beach has leased the North Star Co's mine on the Illinois lode. Rollins & Co. showed us \$70 in gulch gold from their claims on North Clear Creek. They are making a half ounce per day to the man.

ITEMS.—*Herald*, 17th: Prof. Hill paid six hundred and thirty dollars for a ton of "Guthrie" ore, the other day. Specimens of Cariboo ore, recently assayed gave \$9,000 per ton. Sukey Lode Co., Summit county, have been making silver for the last four weeks. Their capacity is three tons per day—the ore averages 36 ounces per ton—and they can treat it at a small profit. On the Prize lode, the shaft is 325 feet deep, and a drift has been started from the bottom, which in the first 12 feet has yielded three cords of the best stamp mill ore and eight tons of solid smelting ore.

CLEAR CREEK.—William Brown, discoverer of the Brown Lode, has found a large deposit of three hundred ounce ore, and claims it as an eastern extension. The vein is 18 inches wide. F. X. Fitzpatrick is taking out big pay. The Womack & Seaton claim, continues to yield very rich ore.

The second class is worth \$150 per ton. Stewart's new works have started up.

GRAND ISLAND DISTRICT.—The last "big thing" was discovered a few days since, back of Cariboo City, by Wm. Warner. The surface quartz assayed \$1500 to the ton, but that taken out yesterday is richer than any previously found in the district. This lead created quite an excitement. At a depth of seven feet the pay vein is twelve inches wide, with six inches almost wholly composed of brittle silver.

The Cariboo mine is improving. The last load from the drift gave \$300 to the ton. The crevice has widened to 2-1-2 feet.

Spencer, Morkhart and Fairburn have sunk the Unexpected lode 27 feet, and are taking ore from the "Columbia." Mr. Cutter will put up smelting works at once. The Boulder County lode has a 2-1-2 foot crevice, one side of which is rich in gold, and the other richer in silver. As a greater depth is reached, the gold seems to be running out, and the silver increasing. In much of the ore gold has been found associated with large flakes of silver. The highest assay yet obtained is \$12,000 per ton. No ore has yet been treated, for want of a wagon road from the mine. The road is now completed. Fuller's 850 feet has been hauled to Cutter for \$8,000; Conger's for \$20,000. The crevice on the Trojan is 2-1-2 to 4 feet wide, and shows both gold and silver like the Boulder, of which it is thought to be an extension. The Sovereign People lode at a depth of 18 feet has a pay vein 17 inches wide, which will yield \$300 per ton. Nat. Edwards is working an extension of this. John Baker has discovered several valuable lodes in the district.

Idaho.

SNAKE RIVER MINES.—*Statesman*, 16th: There is a report of new mines at the foot of the Big cañon, above the Owyhee ferry. Several parties started for that place last week, and more are going.

PLACERVILLE.—*Cor.* of *Chronicle*, 17th: Water has become so scarce in this part of the basin, that all mining has ceased except in the beds of creeks. Granite Creek is the best quartz camp in the northern mines. Sufficient quartz has already been discovered to support the entire basin, and discoveries are made each week of quartz as rich as can be found anywhere.

Montana.

PILGRIM BAR.—*Helena Gazette*, Aug. 15: Boss Blair made a clean up on Sunday of \$3,500 as the result of a seven days' run. Holcombe, Beery & Co. cleaned up \$4,000 for a week's run; and Catching & Co. made a "right smart" clean-up. Water is decreasing.

ITEMS.—Miners at Boulder are all at work. Bohm & Co. had a gold brick of one thousand ounces cast yesterday. The shipments of this firm for July amounted to \$248,730. Tom. Pounds and Frank Green made a clean-up on Carpenter's bar, near Blackfoot City, this week, of \$10,000, from their bed-rock flume. A miners' meeting, at Oro Fino, appointed a committee to demand of the flume company in Tucker's Gulch that they turn back into its natural channel the water of Oro Fino.

CEDAR CREEK MINES.—In Sunrise Gulch twenty claims average \$7 a day to the hand. Forty claims have been recorded. In Bear Gulch, six strings of elucies are running. They get 25 cents to the pan. In Freeze-out Gulch, three dollars and twenty-five cents has been obtained from a single pan of dirt on discovery, and twelve to forty-five on Nos. 15 and 16 above. The gulch is one and one-half mile in length. Snow Shoe, Prospect and Freeze out all head together. Prospect Gulch is paying over wages. On Snow Shoe, claim No. 9 has paid \$200 per day, with four men at work. In Lost Gulch, six companies are running drains. Burmeister, Sweeney & Co. are 18 feet down with their drain, and are sinking a shaft. They have obtained 50 cents out of one pan and \$1.10 out of another.

ROCKER CITY.—*Cor.* of *New Northwest* 12th: Nothing has occurred except the arrival of several hundred Chinese, who have bought or leased nearly all the ground in the gulch. Wolverton & Co. sold out for \$4,500, C. Hawkins for \$800, and several others at high rates. There are now only three companies of whites, and some few hauling dirt from dry diggings.

HIGHLAND.—Knahe, assayer, says the ore of Beck & Patton assayed only \$410.93 per ton. The higher figures reported were for a bullion assay.

SILVER BOW.—Geo. McCausland, Mike Moran, Levi Russell and Chas. Warren, in the gulch two and a half miles below Silver, sunk a shaft, struck bed-rock at ten feet, and got \$2.20 to the pan on bed-rock.

They will commence sluicing next week. About 4,000 feet of the gulch has been taken up already.

GERMAN GULCH.—There are 60 men working. The water is falling, and all are now cleaning bed-rock with groundsluices.

PIKE'S PEAK.—Last week there were 11 hydraulic heads running, averaging \$900 each. The Rock Creek Lake ditch is carrying 1,600 inches of water. Dan Morris & Co. were shut off water on the lower bar last week. Timberlake, Hagan & Co. are taking out \$900 per week. The yield has been about the same all season. Walker, on Saturday, sold a one-sixth interest to Mr. Brown, of Cedar, for \$4,000.

New Mexico.

BURRO MINES.—The San Diego Union of Aug. 18th, notes the return of D. O. McCarthy, Agent of the San Diego and Arizona Mining Co. He located 14,000 feet for the Co. which makes a total of 22,600. The claims have all been duly recorded. Shafts six feet deep and five feet wide have already been sunk on eleven of the claims. He also took up 2,000 acres of splendid agricultural land on the Gila, 30 miles from the mines, claimed the water in the river, located "Aztec" town site, two miles square, and organized the Gila River Railroad, Canal and Town Company, with a capital stock of one million dollars. The country is well supplied with timber. The mining region is represented as wonderfully rich.

The *Alta* of the 17th, gives extracts from a Ralston letter of July 22d. The writer says he is sinking an engine shaft on the Harpending mine, and found a seam of silver ore rich in free gold. Some Mexicans have erected small furnaces. Rich veins sixty miles north are reported. No trouble from Indians yet. *Town growing fast, but mines dull.*

The *Alta* of same date also gives a Ralston despatch of 10th, via Santa Fe 15th, from M. L. Powers, Supt. to Harpending & Co., stating that the district laws have been fully complied with in regard to their mines.

Nevada.

COPE DISTRICT.

ITEMS.—*Elko Independent*, Aug. 17th: Potosi rock, Bull Run, assays \$163 per ton in silver. Bullion from Cope this week, shipped through Wells, Fargo & Co., amounts to \$3,100. Total from June 4th, \$55,641. Same, of 20th, says: The Railroad Co. shipped, for Livingston & Co., 40 sacks of ore from the Blue Jacket mine. Eder & Co. shipped four tons from the Potosi and three tons from Mountain City.

BULL RUN.—The Porter ledge is famous. The company is taking out ore, and considerable quantities have been shipped to be worked. Seventy-five sacks went down last week.

BRUNO.—*Chronicle*, 18th: Mr. Rodgers has presented us pieces of ore from the Crysolopolis and Mountain King. These average specimens from the dump appear to bear a large proportion of silver.

HUMBOLDT.

PUEBLA.—*Register*, 20th: Mr. Weir intends to put up smelting works soon.

GALENA.—The Butte mine is looking better than ever. The Co. take out 20 to 30 tons of shipping ore daily. Avalanches have been leased to San Francisco parties, who have erected steam hoisting works, and as soon as the shaft and tunnel is clear of water will put on 40 men. The White mine is idle. Mr. Knowles, who has a lease of the mine, has gone to San Francisco to purchase an engine. The Bena Vista started up a few days ago, and Wednesday cut a fine body of ore.

BATTLE MOUNTAIN.—*Telegram*, August 21st: The Co. shipped to-day by railroad, two cars of copper ore for Liverpool.

A portion of the Little Giant mine was sold yesterday to a party in San Francisco for five thousand dollars.

OREANA.—*Telegram*, 23d: Two smelting furnaces are running successfully at last. Two more will be started in a few days.

REESE RIVER.

BELMONT.—*Reveille*, 15th: The 10-stamp mill built at Northumberland a year ago has been bought by Mr. Canfield, who intends to erect it at Belmont.

BULLION.—Same, of 17th: Six bars, weighing 360 pounds, value, \$4,867, received here from Belmont last evening to be shipped.

MONTEZUMA.—Same, of 18th: The Faulkner mill, on the road to Yankee Blade, has been purchased by Dawley and McGlew, for Montezuma district.

MINERAL HILL.—*Elko Independent*, 17th: The new quartz mill at Manhattan will be running by the 20th. It cost \$70,000, and is one of the most complete in this State.

About 2,000 tons of ore are on hand, expected to go \$300 to the ton.

WASHOE.

CHOLLAR POTOSI.—*Gold Hill News*, Aug. 20th: Daily yield 300 tons, two-thirds from the Belvidere section, balance from the north end of Blue Wing. Average assays, \$67. This mine shows the greatest amount of high grade surface ore at the present time of any on the Comstock.

YELLOW JACKET.—Daily yield 225 tons, from the 800 and 900-foot levels, of excellent grade.

SIERRA NEVADA.—This continues yielding handsomely from the north portion, and the mill runs well. Receipts for July, \$13,000.

HALE & NONCROSS.—Daily yield 225 tons, from the lowest level. The drift south of the shaft, in 100 feet, shows poorer ore. A raise commenced 50 feet south of the shaft to connect with the level above for air, is in good ore.

OCCIDENTAL.—The new mill will be ready to start next week.

SAVAGE.—Daily yield, 70 tons, from the lowest level. The bullion receipts show this to be lower in grade than that of last week.

IMPEDIAL-EMPIRE.—The cross-cut west at the 1,200-foot level shows barren. The ore in the winze is good, with spots of extra richness.

VIRGINIA CONSOLIDATED.—West drift from the 500-foot station of the new shaft in 585 feet. The rock is much harder. Five tons rich ore, sacked, was hauled to Reno, for treatment.

CROWN POINT.—Daily yield 50 tons, mostly low-grade ore from the upper levels.

GOULD & CURRY.—A body of ore developed within the last few days near the south line, promises well. The daily yield is 40 tons. Receipts for July, \$36,385 02.

OPHIN.—Considerable low grade ore found in the old upper mine.

BELCHER.—A small but good seam found in the 152-foot level drifting north.

SACRAMENTO AND MEREDITH.—The new mill is kept steadily running.

KENTUCK.—Daily yield 35 tons, from the upper levels, of low grade. Receipts for July, \$9,465 79.

CALEDONIA.—Hoisting through the Uncle Sam shaft will commence to-morrow or next day.

HOPE.—Daily yield 40 tons, milling \$25 per ton. Both mine and mills working well.

SEQUESTERED BLECHER.—*Enterprise*, 21st: The ore now averages \$27 per ton. Eight hundred tons accumulated on the dump.

SURRO TUNNEL.—The tunnel was in yesterday 1,450 feet. It is still in very hard porphyry. About eight inches of water flowing from the month.

VIRGINIA CITY.—*Telegram*, 22d: The gross yield for the past month in the Chollar-Potosi foots up \$140,020.

Telegram, 23d: Work was discontinued yesterday at the Kentucky Mine.

The Occidental was started up for the first time at noon to-day.

WHITE PINE.

ITEMS.—*News*: South Aurora is looking finely. A portion of the force has been dismissed, but work goes on. Big Smoky mill, which has been undergoing repairs, started up on the 17th. The Oasis mill at Shermantown, now the property of the Eberhardt and Aurora Co., started up on the 19th, crushing ore from the Aurora Consolidated. The mill is of 5 stamps, and in complete order. One bar bullion, value \$1,774, from Silver Wave mine, and two bars from Pioche, value \$2,500, were shipped to San Francisco on the 19th. Tom. Robinson discovered the McPachin mine near Monte Christo mill. It is 8 to 10 feet wide and assays of the ore show \$70 in silver per ton and \$20 in gold. Two men in one week placed on dump 20 tons. Six bags Ely ore shipped to L. L. Robinson, San Francisco, on the 18th, worth \$6,432. Mine owners held a meeting on the 19th, to consider the question of grading the price of hire in accordance to the worth of the laborer, instead of paying all alike for a day's work.

PLEMONT.—At the Big Smoky mill, we noticed the working of another lot of ore from this ledge. The weight was 2,800 pounds, and the pulp assay \$161 in silver and \$37.50 in gold. It was quarried by two men in nine days, and six to eight tons that will yield \$75, and fifteen to twenty ton that will yield \$20 left upon the dump.

FREIBERG DISTRICT.—Timmerman & Bassett have brought in 1,400 lbs. base bullion. Freiberg is 140 miles southeast from Hamilton, upon the road to Pahranaagat. There are six or eight companies working paying mines. Timmerman & Bassett have the only reduction works in the district. The Shonte ledge has been stripped 30 feet,

disclosing a continuous body of ore containing 50 per cent. lead and assaying in silver \$200 to \$2,000 the ton.

EUREKA.—The *Sentinel* of the 20th says houses are still going up. Goodwin's new furnace is almost completed. The furnace of the Consolidated Co. is progressing. The Macuevin and Dunne furnace is to be running in twenty days. The excavation for the new mill of Carpenter & Co. has been commenced, and parties are here with the intention of purchasing a site for a 20 stamp mill. The Littercup furnace is producing large quantities of rich bullion.

Grass Valley telegram, Aug. 24th.—The Hope Gravel Mining Co. struck a lead of very rich gravel last night on Alta hill. The gravel is in the new ground, is two feet and a half thick, and has been run in 25 feet. It prospects fifty cents to the pan. \$1,500 was taken out yesterday.

Lower California.

NEW SAN DIEGO.—*Telegram*, Aug. 24th. Gold dust is being brought in daily from the Lower California placer mines. The district extends over a large strip of the mesa lands and foot hills adjoining the San Rafael Valley. About \$2,000 worth of gold dust have reached this city during the past week.

Land Office Fees for Mining Claims.

DEPARTMENT OF THE INTERIOR.
General Land Office, July 25th, 1870.

Gentlemen: Information has been called for as to the fees to which Registers and Receivers are entitled for services in acting upon mining claims. The following is therefore communicated for the government for all concerned:

In the 15th Section of the Act of Congress approved July 9, 1850, "to amend an act granting the right of way to ditch and canal owners over the public lands, and for other purposes" it is declared "That Registers and Receivers shall receive the same fees for services under this Act as are provided by law for like services under other Acts of Congress."

Now, the mining Act is substantially a pre-emption law, as the occupant, under the local customs of miners, is the only person privileged to purchase, and an application for a patent under the mining statute assimilates to a declaratory statement in the case of entries under the general pre-emption law.

It is, therefore, proper to apply the provisions, as to the fees in general pre-emption cases, to the special pre-emptions under the Mining Act. Hence Registers and Receivers in the States of California, Oregon and Nevada, and in the Territories of Washington, Colorado, New Mexico, Arizona, Idaho and Montana, are entitled to charge applicants for mining patents, at the date of filing the diagrams or making the application, the sum of three dollars, being one dollar and fifty cents each to the Register and Receiver.

For taking testimony, either in the form of affidavits or in writing out the answers of witnesses, they are allowed a joint charge of twenty-two and one-half cents per hundred words, these being the fees specified in the Act of Congress approved 21st of March, 1851, "Amendatory of the Homestead Law, and for other purposes" (U. S. Statutes, vol. 13, p. 35,) which we assimilate to services as to mining claims.

Then the claimant has to pay the expense of surveying the claim and making a plat thereof, the cost of the publication of the notice in the newspaper, and five dollars per acre for the surface ground embraced by the survey.

Such are the items of expense incident to obtaining a patent for a mining claim, so far as the United States or its officers are concerned.

From the foregoing, it will be seen that the fees payable to the Register and Receiver by the mining applicant are:

1st.—\$1.50 to each for filing diagram and application.
2d.—22½ cents per hundred words for reducing testimony to writing, under the principle laid down in the 4th and 6th sections of the Homestead Act of March 21, 1851, should the applicant desire it taken down by these officers instead of by themselves or other persons in the presence of the land officers.

The other payments required of applicants for mining patents are:

3d.—To the Receiver, the sum of \$5 and \$2.50 per acre respectively, for lode and placer claims, is shown by the final survey, and
4th.—A deposit in favor of the U. S. Treasurer according to existing instructions, of the amount estimated by the Surveyor General to cover the actual expenses of survey, plat, and cost of publication of notice.

These are the only charges, fees, or emoluments which, by law or regulations, the Register and Receiver have any right to exact from the mining applicant, and none other must be charged or received under any circumstances.

You are requested to acknowledge the receipt of this communication, and to be strictly governed by the terms mentioned therein.

Very respectfully, your obedient servant,
JOSE B. WILSON, Commissioner.

Important Land Reclamation Enterprises.

The *Yolo Democrat* publishes a petition addressed to the Supervisors of Yolo county for the formation of a Land Reclamation District, embracing about 74,000 acres of swamp and overflowed lands in Yolo and Colusa counties. This step has been taken under the Act of 1868, providing for the reclamation of such lands. If the petition is granted, the land owners of the District described, of which there are over sixty known, besides several unknown, will ap-

point three Trustees to propose plans and estimates to carry out the project, in accordance with the provisions of the statute referred to. It is held that this land must be reclaimed, if at all, in one body; and that by a very moderate tax per acre, a perfect reclamation may be effected. In addition to the above we notice that another party of San Francisco people have located on a large piece of tule land near the mouth of Napa creek. They have been at work several weeks throwing up dykes, etc., required for the reclamation. Engaged in this labor are some fifty Chinamen, with white Superintendents. Over two miles of dykes have already been thrown up. This company have mapped out some 11,000 acres to reclaim. Not far distant there is another company making preparations to begin work soon. They have 13,000 acres located which they propose to reclaim.

New Incorporations.

The following have filed certificates with the County Clerk, San Francisco:

BANGEN G. & S. M. Co.—Aug. 16. Capital stock, \$75,000, in 1,500 shares. Trustees: L. Elkers, F. Dansonville, W. L. Campbell, J. J. Carter and J. A. Holdeu.

OAKLAND TRUST CO.—Capital stock, \$100,000, in 10,000 shares. Trustees: G. W. Dunn, B. F. Pendleton, J. P. Cogswell, G. C. Potter, R. G. Perkins, O. Lewis and B. Thompson.

HOLLY OAK PARK CO.—Napa Co. Aug. 23. Capital stock, \$100,000, in 1,000 shares. Trustees: A. T. Easler, Maurice Doro and W. A. Woodward.

WEHSE SAFETY BLASTING POWDER CO.—Aug. 24. Capital stock, \$250,000, in 25,000 shares. Trustees: G. Dussell, T. Lovy, C. Collischoon, P. J. Weber and A. Diland.

The following have been recorded in the Secretary of State's office, Sacramento:

GOLD RUN DITCH AND M. Co.—Placer Co. Aug. 10. Capital stock, \$121,000, in 121 shares. Trustees: W. J. S. S. Moore, J. B. Taylor, L. D. McClure and H. U. Brown.

ALBERTA CO.—Aug. 11. Object, real estate, fruit culture and wine making. Capital stock, \$150,000, in 1,500 shares. Directors: W. E. Brown, Dr. J. M. Frey, J. S. Friend, N. D. Bayon, Geo. W. Chesley, Wm. G. English and S. L. Wilson.

ST. PATRICK G. M. Co.—Placer county. Aug. 13. Capital stock, \$500,000, in 5,000 shares. Trustees: Geo. D. Roberts, W. H. Cronise, S. W. Lee, S. Hydenfeldt and J. W. Gashwiler.

YUBA GRAVEL M. Co.—Nevada county. Aug. 15. Capital stock, \$30,000, divided into 300 shares. Trustees: T. V. S. S. Moore, J. B. Taylor, L. D. McClure and H. U. Brown.

CENTRAL PACIFIC R. R. Co.—Aug. 22. Consolidation of the Central Pacific R. R., the California and Oregon R. R., the S. F. Oakland and Alameda R. R., and the San Joaquin Valley R. R., under the name of the Central Pacific Railroad Company.

ORASS VALLEY WATER CO.—Nevada County. Aug. 22. Capital stock, \$15,000, in 150 shares. Trustees: C. Conway, E. W. Roberts and L. P. Dorsey.

RURAL CALIFORNIA PUBLISHING CO.—Aug. 22. Capital stock, \$15,000, in 150 shares. Trustees: W. W. Hayne, W. R. Cluness and M. J. Kelly.

Meetings, Elections, Etc.

PACIFIC ROLLING MILL CO. Trustees: W. Alvord. (President), L. B. Benchley (Vice President), B. P. Bruener (Superintendent), D. O. Mills and A. Hayward. Secretary, S. I. C. Sweeney.

MEADOW VALLEY M. Co.—Trustees: F. L. A. Piche, H. A. Lyons, L. Maynard, I. Friedlander, T. Bell, L. L. Robinson, J. W. Gashwiler, D. Lako and M. Skelly.

Mining Shareholders' Directory—Meetings, Assessments and Dividends.

[Compiled weekly from advertisements in the *SCIENTIFIC PRESS* and other San Francisco journals.]

NAME, LOCATION, AMOUNT AND DATE OF ASSESSMENT.	DATE OF ASSESSMENT.	DELINQUENT OF ASSESSMENT.	DATE OF SALE.
Aurora Cons. W. P., July 7, \$5.	Aug. 10—Sept. 1	Alpha Cons. G. H., July 30, \$1.	Aug. 22—Sept. 20
Bronze Tunnel, W. P., Aug. 9, 10c.	Sept. 13—Oct. 3	Brush Creek, Sierra Co., Aug. 5, \$2.50.	Sept. 9—Sept. 29
Crown Point, G. H., \$3.	Sept. 6—Sept. 27	Consola, July 30, \$1.	Sept. 1—Sept. 17
Cons. Virginia, Storey, July 6, \$1.	Aug. 10—Sept. 1	Daney, Lyon Co., July 8, \$1.50.	Aug. 14—Aug. 30
Eagle, Sta. Barbara Co., July 27, \$20.	Sept. 19—Sept. 26	Empire, G. H., Aug. 4, \$6.	Sept. 8—Sept. 29
Excelsior, Argenta, June 23, 20c.	July 30—Aug. 20	Evening Star, No. 1, W. P., June 4, 5c.	Aug. 4—Aug. 24
Empress, G. H., Aug. 4, \$6.	Sept. 8—Sept. 26	Gould & Curry, July 14, \$12.50.	Aug. 18—Sept. 12
Hall & Van Dyke Cons., June 7, 50c.	July 23—Aug. 20	Julia, July 22, 75c.	Aug. 25—Sept. 12
Kincaid Flat, Trol. Co., July 20, \$2.50.	Aug. 24—Sept. 14	Latawana, W. P., Aug. 15, 15c.	Sept. 14—Oct. 3
Land Purchasers' Ass'n., Aug. 3.	Aug. 30—Sept. 26	Mountain City, Elko Co., July 14, 25c.	Aug. 29—Sept. 26
Noonday, W. P., July 20, 20c.	Aug. 24—Sept. 30	Nevada L. & M. W. P., Aug. 17, 1c.	Sept. 17—Oct. 3
North American Cons., July 16, 50c.	Aug. 17—Sept. 17	Oriental, Sierra Co., July 7, 25c.	Aug. 9—Aug. 30
Pinto, W. P., July 22, 10c.	Aug. 25—Sept. 15	Silver Vault T. & M., W. P., July 20, 5c.	Aug. 25—Sept. 15
Sophia Cons. 50c.	July 27—Aug. 25	Wheeler, Pine Grove, June 28, 50c.	July 30—Aug. 25

MEETINGS TO BE HELD.
Argenta, Aug. 20. Annual Meeting, Sept. 5.
I. X. E. Alpine Go. Annual Meeting, Sept. 5.
Pruto. Annual Meeting, Sept. 7.
Succor. Annual Meeting, Sept. 5.
LATEST DIVIDENDS.—(Within Three Months).
Eureka, div. \$7.50. Payable August, 1870.
Hale & Norcross, div. \$5. Payable August, 1870.
San Rafael div. 50c. Payable Aug. 10, 1870.
Union, div. \$1. Payable Aug. 10, 1870.
—*Advertised in this journal.

PATENTS ON THE PACIFIC COAST.—To those of our friends who desire to keep posted upon inventions upon the Pacific coast we say, subscribe for the *SCIENTIFIC PRESS*, published by Dewey & Co., San Francisco, Cal., at \$4 per year. The opening of the railway across the continent has given to all patents much higher value, and all interested will and the paper above alluded to a valuable resource.—*Mechanic and Inventor*, Detroit, Michigan.

Farming and Gardening.

COMMUNICATIONS for this department are solicited from all parts of the Pacific States and Territories.

The California Silk Manufacturing Company.

We present herewith a view of the building now in process of erection, on block No. 210, near corner of Tenth and Railroad Avenues, South San Francisco, for the California Silk Manufacturing Co., where the company owns six lots of land. The structure, when completed, will cover an area of 50x125 feet. It will be two stories high, substantially built and fitted up with the most approved machinery for the manufacture of machine twist; sewing, embroidery and saddler's silk; also floss and organzine for weavers', trimmers' and manufacturers' use, as well as every other kind of twisted or thrown silk which may be called for by the San Francisco trade. The manufacture of dress silk will be introduced in time, unless the full capacity of the machinery and capital can be fully or more profitably employed otherwise.

The company's office has been established at 125 Sansome Street. The incorporated capital is \$50,000, divided into 500 shares of \$100 each. Some of our most prominent and energetic business citizens are among the stockholders, and in fact hold a majority of the stock. It is estimated that not more than \$22,000 will be required to put the factory in readiness for operation, thus leaving more than half the capital or \$23,000 for active working capital.

The Officers of the Company

Are M. G. Kennedy, President; James Dale Johnston, Secretary; P. H. Burnett, (President of the Pacific Bank) Treasurer; Thomas H. Purves, Managing Director. The Trustees are Harvey F. William, Michael Fennell, C. J. Pillsbury, M. G. Kennedy and James Dale Johnston.

The enterprising originators of this new industry may well feel pleased with having overcome all the numerous obstacles which looked so formidable at the outset of the undertaking, and we trust the business will prove amply remunerative to recompense them most handsomely.

Progress of the Silk Business in California.

This is only the third year in which California has attempted the raising of silk worms and cocoons as a business. The first year it was a most complete success, although but very few engaged in it. The second year the business was undertaken on a larger scale, and several accidents and two or three mistakes, such as are always incident to all new enterprises, were encountered, but no feeling of discouragement was engendered; on the contrary, the experience gained was considered of the highest importance. This year, great success has attended the business thus far. The mulberry flourishes, the eggs have hatched well, the worms have been healthy, and the cocoons are large and fine. Breeders, as a general thing, however, are devoting all their choice cocoons to the production of eggs, for which the demand is very large.

This branch of business is so profitable that but few cocoons and only a little raw silk will be produced, until by the extension of the business this branch of supply has been fully satisfied. It may therefore be reasonably expected that at least four or five millions of dollars—a sum equal to half our wheat receipts—will have to be added to our exports in this direction before any considerable quantities of raw silk can be produced in California. Until then, our pioneer manufactory will have to depend mainly upon Japan for its supply of raw material.

No business in the state now promises better for the future than silk, and the impression is irresistible that it must soon become one of the chief sources of the wealth of the state. Still there is much to be learned in the production of reeled silk. Most of our growers are as yet but novices in the business, and we have but few experienced reelers, and others must be instructed.

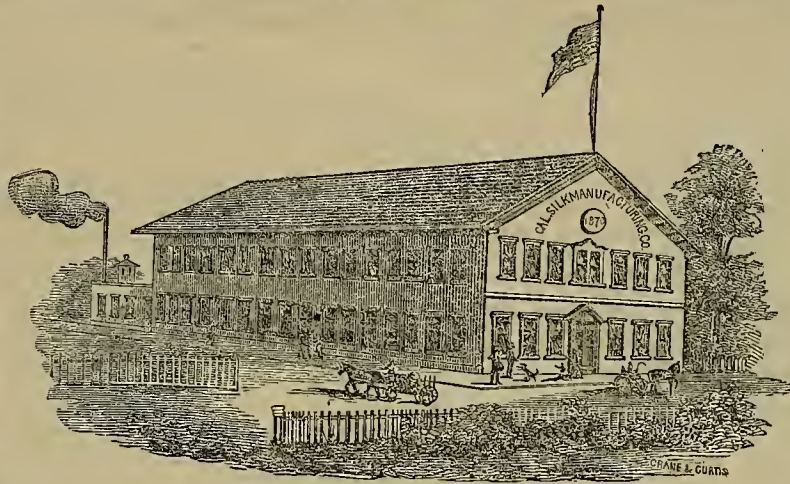
But little land or capital is required to embark in the business, while the cultivation of the mulberry is simple, and it will

grow almost anywhere. We have now an abundance of trees for propagation, which can be had at a fair price. The most of the work can be done with the cheapest kind of labor. The care of the trees and worm affords light and suitable employment for women and children, a class of our population, which is now almost destitute thereof. Silk culture will give variety to our crops; stimulate new branches of manufacture, and add vastly to our wealth at home and reputation abroad.

The business of producing the cocoons is one which may be profitably conducted on a small scale, and should form part of the occupation of our farmers generally throughout the state. Thousands of idle days may thus be turned to good account, and many thousands of idle hands may thus be provided with easy, agreeable and profitable employment.

The Future Silk Trade in California.

Europe now produces, in its raw state, silk to the annual value of \$75,000,000; while the production in Asia foots up to the enormous amount of \$141,000,000. France produces \$140,000,000 in value of manufactured silks, giving employment to half a million of adults. The result within the ready reach of California, with a population as dense as that of New England,



THE CALIFORNIA SILK FACTORY.

including the raw and manufactured goods, ought to reach an annual production at least of \$150,000,000 over and above home consumption; while every other branch of business would meet with a corresponding success.

There is no more remunerative business in the world than the production and manufacture of silk. All that is needed is the proper climate, population and capital. With the former we are abundantly blessed; population will flow in upon us as soon as our advantages are properly known abroad. As soon as we secure the population to produce the raw material and therewith the necessary skill, capital will seek employment without any special effort. Rich men without skill will not erect factories. What we now want is men of moderate means to take the initiative. Then the capital which is now swept from our banks to settle balances for silk importations from Europe and Asia, will find profitable employment at home. We trust the enterprise now being inaugurated will be but the beginning of what shall soon prove a successful effort to close up this ruinous drain upon our resources.

In view of the foregoing exhibit of the advantages of the California silk trade, the stock of the enterprising company now erecting their factory at South San Francisco, should be very acceptably received by our citizens and capitalists, and meet with a ready sale, the more especially as it is likely soon to command a rising premium.

A HEAVY COLT.—Mr. O. P. Moulton, of Harrisburg, writes us, under the date of Aug. 14th instant that he has a Rattler, Sucking Colt, (sired by R. Demark's Young Rattler,) which was then 4 months and 10 days old, and weighed 537½ pounds. The animal was weighed on the Warm Young Landing scales, in Alameda county. Can any one beat this weight?

BROOM CORN FOR THE EAST.—An experimental shipment of broom-corn for the East will be sent over the railroad in a few days. It is claimed that California-raised broom-corn is much superior to that grown in the Atlantic States.

Hints for Deep Cultivation.

While conversing a few days since, with Captain Grafton Hillman, who owns an extensive ranch about eight miles east of Stockton, and who entertains enlightened ideas of farming, the need of a more careful and thorough cultivation of our wheat fields came up, during which the Captain narrated the following incident, which he had employed to urge his enlightened ideas of farming upon the attention of a friend, whose ground he was at the time viewing. It appears that there had been a private road-way, which had been used by the public for several years, for a distance of half a mile through his neighbor's wheat field; but that year the road had been closed up, and the track plowed and sown with the rest of the field. The appearance of the growing grain upon this disused road was very striking. In the center of the track which had been trodden by the feet of the horses, the ground had never been much broken up, while upon each side, in the ruts, where the wheels had run, often cutting in

thorough cultivation. A careful record of the extra amount of expense thereby involved, and the increased yield realized would also enable him to arrive at a correct idea of the economic value of such cultivation. The cost of such or similar experiments are trifling; the benefits and information derivable therefrom are often of great value.

Palm Trees in Santa Clara.

In the court yard of Santa Clara College there are two fine fan palm trees, twelve years old, five feet in circumference and about seven feet to the first leaves, which are seven feet long. These plants appear to be at home in the open air. Their growth is step by step, just as the leaves are formed, and just fast enough to accommodate the new leaves, which always come out from the crown. Leaves over a year old lap down, and are removed.

There is also one *date palm* six years old, the crown of which is but a few inches high; the leaves are about four feet high. The plant makes a spreading, fern-like shrub, some seven feet over, and it bids fair to live and become a towering tree.

Olive and other Trees.

There are also at the above locality quite a number of olive trees, some 50 years old, which will average two feet through and twenty-five in height, with upright, half spreading branches. They are rather rough, straggling looking trees. This season the drouth and heat lighted the fruit, but they are said to be usually very prolific.

There are also pear and fig trees about the same age, rather rough looking, but healthy and fruitful.

Garden Profits.

Some idea may be formed of what good cultivation may do, from the following report of the product of a small patch of ground, in Newark, N. J. 90 feet by 60, owned and worked by Dr. Isaac P. Trimble, a well known horticultural writer and a thoroughly practical man. We give the general average of a season, substantially as reported by *Heath and Home*.

There are gathered, in their season, nearly all the vegetables known in that latitude, and several of the small and large fruits. He begins the year with salad and early peas, followed with raspberries of which he usually gathers a bushel; also a peck of gooseberries; a bushel of carrots; two months supply of blackberries; peas every day for three weeks; string beans daily for six weeks; beets two months; green corn ten weeks; Lima beans, two barrels; tomatoes and egg plants all summer; potatoes for a month; a bushel or more of green gage plums; five bushels of grapes, and not less than fifteen bushels of pears.

All this on about one eighth of an acre of ground, the value of which, in this market, would be somewhere about \$500 in gold. The doctor generally pays about \$20 per annum for labor and manure. He works the garden himself, mornings and evenings, going to New York every day to attend to business. His soil of course is excellent; but kept so by persistent, scientific and careful culture. Any man who owns a tract of equal extent near this city, with facilities for irrigation, may make as profitable use of his leisure as Dr. Trimble does.

CRANBERRIES IN GRASS VALLEY.—Mr. Marshall, a well known gardener in Grass Valley, whose garden is located on a piece of land some 200 feet above the level of Deer Creek, a few rods from which he is located, has an extensive bed of cranberries, now bearing fruit, fully half grown and doing well. Mr. Marshall does not irrigate his cranberries any more than he does his other vines or vegetables. The Grass Valley Union very pertinently asks: "If such things can be grown in the highlands of this vicinity what could be done in the marshes below?"

A Frenchman's View.

Bayard Taylor, in his last letter to the *New York Tribune*, describes a trip from the Salinas Valley to Gilroy. When at a point within twelve miles of the latter place he says: "The Los Angeles stage arrived, with two or three brown, dust-covered panting passengers, who considered the heat of San Juan a relief after that of the Salinas Valley. I took my seat beside them for the remaining twelve miles to Gilroy. One was a Frenchman from the Rhone, traveling in the interests of silk-culture, but also familiar with wine-growing. He scanned the country, as we advanced, with an eye to both forms of production. "Superbe!" he exclaimed, waving his hand over the valley, from Pacheco's Pass to the Coast Range! "incomparable! All this level land must be covered with mulberries—what do I say?—oranges, olives! Those mountains, to the very summits, will produce the finest wines in the world! Why, the whole population of France could be supported in California."

CULTIVATING TULE LANDS.—Much difficulty is encountered in cultivating these lands. Perkins, the seedsman, who cultivated eight acres on Sherman Island, according to the *Alta*, plowed four times, commencing with a depth of four inches, and going two inches deeper each time, so at last his plow cut down ten inches. After each plowing he let the land lie ten days to dry, then barrowed, gathered the loose tule and roots into shocks and burned them. This was in March and April, when the soil was damp, and the fire did not go beyond the shocks of dried roots and tule. The last plowing was done with two plows in a gang and a double team of horses. The land is in splendid condition, light, rich and clean. Those tule farmers who plowed only once last spring, have found out that they made a mistake. The crop is light and the tule has taken a new start, and threatens to be as hard to kill as before it was disturbed. Either burning or repeated plowing is indispensable.

WHEAT SHIPMENTS FROM OAKLAND.—Two ships have already been loaded from the Oakland wharf—the second one having completed her loading on Saturday last. The first ship loaded was the *Iron Crown*, for W. A. Halecomb & Co. of San Francisco. The wheat was received on ship board direct from the freight cars, thus involving the least possible handling and waste. The storage of wheat in this city, and the banding and rehandling consequent thereupon, greatly increases both the waste and cost—and all at the expense of the grower. Vallejo and Oakland have been made, by rail road facilities, the natural shipping points for the chief portion of the wheat product of the state, and will doubtless continue so for all future time.

A cargo of wheat was recently shipped from Vallejo to Oakland, instead of to this city, as usual, for transhipment to Liverpool. When wheat that cannot be shipped direct from Vallejo is sent to Oakland for foreign shipment, there must be something radically wrong in this city.

PROFITABLE HAY CROP.—The *Contra Costa Gazette* says that the Danekin Brothers have taken 240 tons of wheat hay from 60 acres of ground on their ranch, in the southern portion of Santa Clara, which they have sold in this city for \$16 per ton—netting, over and above expenses of plowing, seeding, cutting, shipping, etc., \$1,800, or \$20 per acre. In addition to this they are now employing the ground for pasturage, which will be worth to them some \$200 more.

SHEEP DYING.—A flock of sheep recently arrived from San Joaquin at some point near Haywards, and intended for slaughter for this market, have been attacked by some disease, of which 40 are said to have died in one day. Did the survivors find their way to the San Francisco market—and if so were they killed in a healthy condition?

What I Know of Farming—No. 33.

A Lesson of the Day.

Under the above head, Mr. Greeley gives some practical hints, touching present practices of farmers as affected, or indirectly affecting the character of our seasons. He first alludes to the common practice of denominating anything like exceptional seasons as "the hottest," "the coldest," "the driest," or "the wettest" season in so many years; when in fact there may have been several equally as exceptional seasons in any direction, within the time specified. Hardly anything is so easily forgotten as the extremes of temperature. Every summer has its "beated term" and its season of drouth, and nearly every winter has its "cold term."

As our country is more and more denuded of its primitive forests, drouths, longer and severer, must be expected. What our farmers have to do is to provide against them. "Those who plow deeply, fertilize bountifully, and cultivate thoroughly, need not fear them."

This latter fact has been abundantly shown in California the past season. We have yet to learn of the first instance where any one has materially suffered from drouth, who has cultivated his land as if in expectation of such an occurrence. We have instances all over the State, where luxuriant crops may now, or might have been seen a few weeks ago, with failure all about them—and yet both occupying lands in every way similar. Cultivation alone has made the difference.

Mr. Greeley speaks of the appearance of the crops in various portions of the Eastern and Middle States, where he has traveled the past season. He refers to fields of corn in the upper valley of the Hudson, which will not produce a bushel to the acre; and buckwheat blooming at an average height of four inches, that would not grow two inches higher; which, if properly cultivated, would yield 60 bushels of corn, and proportionally of grain—for this was not in a rocky, sterile region; but in a river interval of much natural fertility, which had been exhausted and not renewed. The great complaint was that they could not obtain fertilizers. In reply to the question,

"How shall we obtain fertilizers?"

and to the complaint that "We are poor; we can afford to keep but few cattle; Guano, Phosphate, Bones, Lime, &c., are beyond our means. Even if we could pay for them, the cost of transportation to our out-of-the-way nooks would be heavy. We cannot deal with our lands so bountifully as you do, but must be content to do as we can." To all of which Mr. Greeley makes answer as follows:

"No man ever lacked fertilizers who kept his eyes wide open and devoted two months of each Fall and Winter to collecting and preparing them. Wherever swamp muck may be had, wherever bogs exist or flags or rushes grow there are materials which, carted into the barnyard in Autumn or Winter, may be drawn out fertilizers in season for the corn-planting next Spring. Wherever a pond or slough dries up in Summer, or Autumn, there is material that may be profitably transformed into next year's grass or grain. In the absence of all these—and they are seldom very far from one who knows how to look for them—rank weeds of all sorts, if cut while green and tender, or forest leaves, gathered in the Fall, used for litter in the stable, and thence thrown into the yard, will serve an excellent purpose. Nay, more: I am confident that the farmer who lacks these, but has access to a bed or bank of simple clay, may cart 200 loads of it in November into an ordinary farm-yard, have it trampled into and mixed with his manure in the Winter, and draw it out in the Spring, excellently fitted to enrich his sandy or gravelly land, and insure him, in connection with deep and thorough culture, a generous yield of corn, even in such a season as the present. Dr. George B. Loring, the most successful farmer in Massachusetts, uses naked beach sand in abundance as litter for his 80 cows, mixes it with his manure throughout the Winter,

and draws out the compound to fertilize his clay meadows in the Spring, with most satisfactory results. Depend on it, no man need lack fertilizers who begins in season and is willing to work for them.

And yet once more:

From the hills which inclose this valley of the upper Hudson (and from ever so many other valleys as well), brooks and rivulets, copious in Spring, when their waters are surcharged and discolored by the richest juices of the uplands, pour down in frequent cascades and dance across the intervals to be lost in the river. There is scarcely an acre of that interval which might not be irrigated from these streams, at a very moderate outlay of work at the season when work is least pressing; the water thus held back by dams being allowed to flow thence gently and equably across the intervals, conveying not moisture only, but fertility also, to every plant growing thereon. I am confident that I passed many places on the upper Hudson, as well as on the Connecticut and Ammonoosuc, where 100 faithful days' work providing for irrigation would have given 100 bushels of grain, or 10 tons of hay, additional this year, and as much per annum hereafter, at a cost of not more than two days' work in each year hereafter.

Farmers, but above all farmers' sons, think of these things!"

Most of the above suggestions are quite as applicable to California as to the regions more especially referred to. Large values are sacrificed every year by the wasteful practice of burning the straw of our wheat fields. This practice, although strongly denounced by intelligent farmers, is still quite general. The objection that it will not decay is without foundation. One or two rainy seasons, at most, will effect its decomposition, if properly mixed with earth or muck; two or three will do the work, less properly, however, if merely thrown into heaps and left exposed to the weather. Of course a certain portion of the straw upon every farm should be stacked or boused for fodder and litter.

Mr. Greeley's suggestions about irrigation are capable of a wide application in this State. Already the construction of of comprehensive and extensive systems of canals have been suggested, and in some localities are being carried out. Many millions of dollars might thus be advantageously expended in this State. Let the farmers of California "think of these things!"

Raising Horses.

EDITORS SCIENTIFIC PRESS:—I wish, through your valuable paper, to make a few remarks on the subject of raising horses. The practice generally adopted in this country of raising the horse in large herds, necessitates another practice which, in itself, is cruel and pernicious. I refer to the practice of castrating when very young. The great majority of male colts are emasculated at the age of one and two years, and but very few, if any, at the age of three and four years, as should be the case with all, where the end sought is a good and serviceable animal.

It must be seen by any careful observer that very many of our gelding horses are lame from corns in the feet; and some so badly affected in that way as to render them almost entirely worthless. This is caused not so much from hard usage, as from want of strength and firmness in the hoof. It is well known, at least among medical men, that emasculation seriously interferes with the proper development of the bones, horns, hoofs, nails or claws, etc., of animals—that is to say, the shell of the horn or hoof; and where early emasculation is resorted to, the shell of the horn or hoof must of necessity be thin and weak, and of a soft, spongy texture, in consequence of the natural supply of sustenance being cut off before the animal is well advanced in his development.

Take, for instance, two male calves of the same breed; castrate the one at the age of two months, and the other at the age of, say two years, and see what a difference

there will be in their horns when full grown. The horns of the one castrated at the age of two years will be two or three times as heavy and strong—especially the shell—as that of the one castrated at the age of two months. This rule holds good with regard to the hoofs, nails or claws of all animals. Therefore, if a colt be emsonated when very young, or before he has attained the form of the stud, he will have, when fully grown, but a thin, light shell on the hoof, and that of a soft, spongy texture; and corns on the feet, after a very little use on hard roads and pavements, will be a natural consequence. Of course this rule would vary somewhat in different animals, as there is a great difference in the age at which they develop.

Nor is this all; for horses, when early emasculated, are rendered light and weak in the fore parts, as compared with that of a horse of the same breed, which has been emasculated, say at the age of four years, the two being full grown when compared, say seven years old. Moreover, being light and weak in the fore hams and shoulders, and therefore unable to stand the hardship that he might otherwise be able to do, the disease of the foot may, in some degree, be communicated to the fore limbs and shoulders, through the nerves.

A thorough-bred American colt should not be castrated younger than in the fall say October, after he is three years old. This gives him the advantage of the fall season in which the blood is most active in this particular, and it is nearly as well for him as though the operation was performed early in the spring, of the fourth year of his age; but it would be still better if he was allowed to run to the age of four or five years before being castrated. With Spanish horses, that develop very young, it is not necessary that they should run to so great an age.

Were my suggestions to be acted upon it would, with the practice of early training afford an opportunity to know something of the quality of the horse, and where he gave great promise, he could be kept for his blood; and we would have less geldings and more stallions, of the quality of Dexter, Topgallant, Rattler, Dutebman, etc. This must of itself be a very important desideratum. But I have extended this article to a greater length than I had intended. I had only hoped by introducing the subject, to elicit from some more able correspondent an article that would do the subject better justice. W.

San Francisco Market Rates.

Wholesale Prices.

THURSDAY EVENING, Aug 26th, 1870.	
Flour, Extra, 48 lbs.	\$5 50 @ \$6 00
Do. Superfine, 48 lbs.	4 50 @ 4 75
Corn Meal, 48 lbs.	2 25 @ 2 50
Wheat, 100 lbs.	1 40 @ 1 70
Oats, 100 lbs.	1 05 @ 1 35
Barley, 100 lbs.	1 00 @ 1 20
Beans, 100 lbs.	2 00 @ 2 50
Potatoes, 100 lbs.	1 00 @ 1 25
Hay, 100 lbs.	9 00 @ 10 00
Live Oak Wood, 100 lbs.	9 00 @ 10 00
Beef, extra, dressed, 100 lbs.	7 00 @ 7 50
Sheep, on foot, 100 lbs.	2 00 @ 2 50
Hogs, on foot, 100 lbs.	6 00 @ 6 50
Hogs, dressed, 100 lbs.	7 50 @ 8 00

ORCEERIES, ETC.

Sugar, crushed, 144 lbs.	14 1/2 @ 14 3/4
Do. Hawaiian, 144 lbs.	8 1/2 @ 11 1/2
Coffee, Costa Rica, 144 lbs.	— @ 20
Do. Rio, 144 lbs.	75 @ 1 00
Do. Green, 144 lbs.	60 @ 1 25
Hawaiian Rice, 144 lbs.	7 1/2 @ 8
China Rice, 144 lbs.	4 1/4 @ 5
Coast Oil, 144 lbs.	14 @ 17 1/2
Candles, 144 lbs.	20 @ 35
Overland Butter, 144 lbs.	30 @ 47 1/2
Butter, 144 lbs.	20 @ 25
Cheese, California, 144 lbs.	10 @ 18
Eggs, 1 dozen	40 @ 60
Ham and Bacon, 144 lbs.	15 @ 17
Shoulders, 144 lbs.	9 @ 10

Retail Prices.

Butter, California, fresh, 144 lbs.	45 @ 55
Do. Pickled, 144 lbs.	30 @ 40
Do. Oregon, 144 lbs.	20 @ 25
Cheese, 144 lbs.	20 @ 30
Honey, 144 lbs.	— @ 50
Eggs, 1 dozen	18 @ 20
Lard, 144 lbs.	22 @ 25
Ham and Bacon, 144 lbs.	1 00 @ 1 25
Grainberries, 144 lbs.	2 @ 3
Potatoes, 144 lbs.	2 @ 3
Onions, 144 lbs.	2 @ 3
Apples, No. 1, 144 lbs.	4 @ 5
Pears, Table, 144 lbs.	10 @ 12
Chickens, 144 lbs.	10 @ 15
Peaches, dried, 144 lbs.	10 @ 15
Oranges, 144 lbs.	— @ 1 00
Lemons, 144 lbs.	— @ 1 00
Chickens, 144 lbs.	75 @ 1 00
Turkeys, 144 lbs.	10 @ 15
Soup, Pale and C. O.	10 @ 12
Soap, Castile, 144 lbs.	15 @ 25

PULLING WHEAT.—Some of the burned soil on Sherman Island is so soft that a reaping machine cannot be run upon it, and Chinamen are employed to "pull" it, which is done at a cost of \$2 per acre.

Scientific Press.

W. B. EWER..... SENIOR EDITOR.

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San Francisco:

Saturday Morning, Aug. 27, 1870.

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Notices to Correspondents.

COMMUNICATION RECEIVED.—On Battle Mountain District, from D. W. Will be published next week.

T. RYAN.—Scott Bar.—Your note and the box of minerals are received. Will be noticed further at the first opportunity.

A Century Plant in Bloom to be Placed in the Fair!

Among the many attractions at the forthcoming Horticultural Exhibition at the Pavilion will be a *Century Plant* in full bloom! This plant has just come into flower in the garden of Gen. R. W. Kirkland, at Oakland, by whom it has been generously presented to the Mechanics Institute for the above purpose. This specimen of the *Agave Americana*, is a most magnificent one. It stands fully thirty feet high, and will require a four horse team for its transportation. It is most opportune and fitting that this giant of the floral kingdom, native and peculiar to the Pacific Coast, should thus be at hand to occupy the post of honor in the first grand floral exhibition ever undertaken on the Pacific Slope. It will form the chief feature of the Exhibition, and will be examined with much interest and curiosity by hundreds of Eastern and European visitors, who have never yet had the opportunity of seeing this most wonderful plant in bloom. In anticipation of the great interest which will be elicited by its exhibition, we have had a careful and accurate drawing taken of it, which our engraver is now at work transferring to wood to be presented to the readers of the SCIENTIFIC PRESS on Saturday of next week.

GUESTS.—Wm. H. Seward arrived in the State on the 24th inst., receiving a cordial greeting. General Sherman has been invited by the Society of Pioneers to visit the coast and participate in the celebration of Admission Day, the 9th of September.

FRENCH CANTALOPES is a species of melon which has recently been offered for sale in this city by Bullett & Co., of the Pacific Fruit Market. The seed was imported by themselves. The fruit presents a very rough and uninviting exterior, but the pulp is delicious.

Santa Clara College.

The 19th Annual Commencement of the Santa Clara College, which took place on Tuesday and Wednesday, the 9th and 10th instants, has been, as usual, highly spoken of. The exercises were of the highest and most pleasing order. Want of space has prevented us from publishing the account thereof, which has been furnished by our correspondent, who was present on the occasion; but we give, below, the portion of his letter which gives a description of the new and elegant hall in which the exercises were held, together with some account of the surroundings and general character of the Institution, which, for the past year, has had enrolled upon its books the very large number of 218 students.

The New and Elegant Hall,

which has recently been erected on the northeast corner of the college block, fronting upon both Alviso and Franklin streets, is a substantial and elegant structure, of three grand stories, which raise the building in towering prominence. The outside massive, Roman, Doric and Ionic finish, gives the building a classic appearance, quite in harmony with its object, and in pleasing contrast with the quaint old structure that constituted the old college.

The hall, including the orchestra, stage, main floor and gallery, occupies the two upper stories, and will seat from 3,000 to 4,000 persons. It is most admirably arranged, and although it does not attract the eye with gorgeous display, still leaves an impression of grandeur, neatness and beautiful adaptability, that remains a finished picture in the mind. The hall is ventilated on the most approved plan, and lighted with the recently invented pneumatic gas, which was illustrated and fully described in our issue of May 14th.

The entrances are ample, the stairways wide, and the large, double swinging doors will admit a stampede without interference. Nothing essential seems to have been overlooked in the design and construction of this truly fine edifice.

The massive strength and completeness of this structure gives one a confidence, in spite of threatening earthquakes, in its stability and durability.

A Dinner

with the "Fathers" of the institution, to which a few of its friends were invited, was accepted by your correspondent. It was a most substantial repast, both in edibles and in mirthful spirit. Dyspepsia must be a thing unknown, where every visage gleams with cheerful satisfaction over the bountiful food so relished by health.

The Buildings and their Surroundings.

Father Messea, who has been seventeen years connected with the College, kindly showed us through the buildings and grounds, and took pleasure in answering every question propounded by us.

The Library contains 10,000 volumes, all select and valuable works, historical, political, scientific, etc.; and is being constantly enlarged. A printing office and a telegraphic office are supplied with materials for practical work.

The Laboratory is very complete, and looks quite as much like a place of business as of study.

The Museum contains many interesting specimens of natural history, fossils, shells, minerals, insects, birds, etc., all divided into natural orders, and grouped with great care and taste. Several pianos are provided for students of music, and drawing is also taught.

The philosophical apparatus is very complete, containing many rare and expensive instruments—some of the most modern and best approved.

A scrupulous neatness was everywhere observable. Every duty is regulated by the tap of the bell, from the rising in the

morning till the retiring at night. During hours of intermission the boys are allowed full liberty on the commodious play grounds, where we saw them in the full enjoyment of the athletic sports, so worth the privilege of enjoying and remembering.

We were shown into a room where the clothing of each student is neatly put away upon shelves, numbered to correspond with the names. The laundry is in convenient proximity. Connected with it is a steam engine of 18-horse power, employed for laundry work, pumping water and sawing wood. The College grounds are tastefully laid out and many fine plants and trees are cultivated, a further notice of which may be found in another column, under the head of "Palm Trees in San Jose."

The college owns quite a fine orchard, vineyard, vegetable garden, and have a swimming pond and boat, artesian wells, etc. Indeed nothing that is conducive to health and convenience seems to be lacking. Ample provision is also made for the sick, and every needed comfort is provided. One of the finest views to be obtained of the Santa Clara Valley is from the cupola of the old College building. Wonderful valley! Beautiful beyond the power of description—where nature has lavished her richness and man has planted the standards of progress and civilization!

Common Schools.

The Santa Clara College is a credit alike to its founders and to the State. Such institutions are too few. But while we admire all that we see here of material and natural and moral worth, we must still claim the palm for our Common Schools, the real glory of our country and the honor of our people! The education of the masses is the strength of our civilization, the foundation of our national greatness, our liberty and our advancement. And the common schools of this region are models of excellence in every essential thing.

STEWART'S WORKS AT GEORGETOWN, COLORADO.—The following items with regard to the old and new works we condense from the *Colorado Register*. The old works consisted of six stamps, two reverberatory furnaces and the accompanying machinery. In 18 months, 78,028 ozs. of silver hullion were produced at a given coin value of \$75,004.90. The entire yield is said to have averaged 80 per cent of the fire assay. Capacity of works, 3 tons per day; charge for reducing ore, \$55 to \$60 per ton; capital invested, about \$35,000. Two Arrey shaft furnaces, for chloridizing, are now to be put up, one on Chicago Creek and one on Snake River, for the Chenango Co. Capacity of each, 20 tons daily; cost of treatment, not over \$15. The present price of working ore is about \$30 per ton, with a prospect of a still further reduction in prices.

On the 10th inst., as the result of flaws in the gearing, the cage in a coal mine near Pottsville, Pa., was dropped 225 feet, and with it 12 men. These were plunged into the sump and buried under the hoisting rope. Result: 10 dead and 2 badly wounded. The manufacturer of that defective gearing ought to be interviewed by state officials; likewise the proprietor of the colliery.

TELEGRAPH POSTS.—The wood of telegraph poles put up in Kentucky withstood the elements as follows: the chestnut rotted first, the cedar next gave way, while the locust, at the end of five years, was nearly sound.

ACKNOWLEDGEMENT.—We have received from the Salt Lake City Museum a box of specimens of minerals, cereals and home-made articles, together with several pamphlets. We shall speak at length concerning these next week. Our thanks to the sender.

Academy of Science.

The regular monthly meeting of the society was held on the 15th. Several names were proposed for membership, and a number of contributions to the cabinet were received. A number of pamphlets were also presented to the society.

Prof. M. A. Poey, Ex-Director of the Observatory of Havana, and also a member of the French Scientific Expedition to Mexico, made remarks on the periodical occurrence of physical phenomena, as storms, seasons of cold and heat, etc., dwelling more at length on meteoric showers and solar spots. He also advanced the theory that all moral phenomena, as well as physical, can be traced to similar causes and relations, and that seasons of crime are as regular and independent of human control as the yearly changes.

The Castle Peaks.

Prof. Whitney stated that, within the past fortnight, the Geological Survey had ascended three of the mountains known as "Castle Peak." One of these, known also as Fremont's Peak, is in Nevada county, four miles north of Summit Station. It is the most elevated peak between the Pyramid Peak group and Lassen Peak. It is part of the broken rim of a volcano and from it, to the north, one can look down into the former crater, at a depth of 600 to 800 feet below. To avoid confusion, this will be designated by surveyors hereafter as Mount Stanford.

The second Castle Peak is in Mono county, 12 miles S 10° W. of Bridgeport. This is about 12,000 feet high, and is a very conspicuous object. The name is not particularly appropriate, as the peak is rounded in outline, consisting of metamorphic slate. Its present name is retained, however, as it has become so firmly fixed, although evidently given originally under a mistaken idea that it was the point so named by Mr. Goddard.

The mountain really so named by Mr. G. H. Goddard, in 1854, is about 10 miles west of the last, and in Tuolumne county, at the head of the West Walker. Until now it has never been ascended. It is about 11,000 feet high, and, with its granite pinnacles, presents a very fine appearance. It is to be known, hereafter, as Tower Peak. The exact altitudes of these points have not yet been calculated, as all the observations have not been received.

Geology of Northern China.

Prof. Whitney read extracts from letters written by Baron Richthofen on the Loess formation in Northern China. This is most extensive, spreading in an almost continuous sheet of great thickness over the whole surface of the country, rising on the high plateaus or over the entire area of the Northern Province of China, and probably extending far into Central Asia. It is very porous and frequently intersected by small ramified tubes, evidently the spaces formerly occupied by rootlets, their walls being usually coated with a thin calcareous deposit. The formation is nowhere stratified, is in some places 1,500 feet thick, and contains in all parts an abundance of perfectly preserved shells of the genus *Helix*, and in many places the bones of land animals. The origin of this remarkable deposit affords an exceedingly interesting study, but will require very careful and detailed observations before a satisfactory conclusion can be arrived at.

INYO COUNTY, ships monthly, according to the *Independent*, about 200 tons of hullion to San Francisco, and receives back about the same weight of merchandise, at an aggregate cost of \$36,000 per month. This is, of course, a tremendous tax on her resources, even taking no account of the loss sustained, by the capital invested, by the amount of time consumed in the transportation. Naturally the *Independent* calls loudly for roads and railways.

ANOTHER TOWN BURNT DOWN. Canon City, Green County, Oregon, has been wholly destroyed by fire, which, originating in a restaurant, spread through the town so thoroughly, that only three buildings, according to the accounts, were left standing, while some seventy-five were burnt down. Such conflagrations are getting unpleasantly frequent this year. Earthquakes are fading out in comparison.

The Coming Horticultural Exhibition.

Active preparations are being made for the opening of the Great Horticultural, Agricultural and Pomological Exhibition, which will take place at the Pavilion, in this city, on Monday next. This exhibition has been undertaken under the auspices of the Mechanics' Institute, and will continue for five days. Heretofore the Institute has confined its exhibitions to departments of trade and manufactures. The innovation now proposed will certainly be an agreeable, if not a profitable, change, and we have no doubt this exhibition will be as creditable to the productions of our soil and climate, as former ones have been to our progress in mechanics and manufactures.

Let each individual of our agriculturalists of every class, run their eyes over the large and liberal premium list presented, and seriously consider two important points: 1st, whether one or more of these prizes are not worth taking, and 2d, whether it is not within his power to carry one or more of them off. A prize thus awarded has a two-fold value—its intrinsic worth and its influence on the future. A Mechanics' Institute prize or diploma, fully deserved and properly managed may revolutionize a business—may be made an over-present, an ever-active influence in behalf of the owner.

Extensive preparations are being made at the Pavilion to render the exhibition interesting, attractive and instructive. The large hall is being elegantly and appropriately decorated and festooned with evergreens, flags, mottoes, etc. Seats will be provided for 5,000 persons, while broad avenues, winding alleys and cosy retreats will be arranged in keeping with the character of the Exhibition. The Pavilion will be brilliantly illuminated, and the visitors will be entertained and delighted with the choicest music, both vocal and instrumental. It is intended that the entertainment alone, which will be daily and nightly presented, will be well and more than worth the cost of admission—\$2.50 for a season ticket, admitting a gentleman and lady; or \$1.50 for single season tickets.

WHEAT.—The farmers are generally disappointed at the small advance in wheat produced by the European war. What little advance has occurred is mostly taken up by increased freight. The disposition at first evinced to hold on, has very properly given way, and wheat is now rapidly coming forward. Every means of transportation is taxed to its utmost to move it to shipping points. The reduction in cost of transportation and shipment by the opening up of Vallecjo and Oakland is helping the farmers much, who are directly connected with these points. It is of no consequence to the State at large where wheat is landed, provided it is done cheaply, and the saving in expense inures to the benefit of the farmers.

THE WHEAT CROP.—Contrary to general expectation, and to the oft refuted observations of interested parties, some of whom predicted a falling off of two million cents, the receipts from wheat crop of the present year will be fully equal to that of the last. The small advance in the price and the superior character of the grain will more than make amends for the very small, if any diminution in, quantity produced. The wheat generally has been freer from cheat, oats, etc., than during any previous season. More care has also been taken in cleaning the wheat for market.

RECEIVED.—A programme of the Sheffield Scientific School, and a pamphlet, by Prof. Dana, on the "the Academic College and the Scientific College," also the "Practical Millwright and Miller." These will be noticed next week.

A New Boiler.

The engravings illustrate the principle adopted in the construction of the Whittle boiler, and the mode of their action, Fig. 1 showing the circulation of the water in a Cornish boiler, and Figs. 2 and 3 showing it in cylindrical boilers. The object of the invention is the prevention of incrustation, and increased safety and economy. This is accomplished by means of a rapid and perfect circulation of the water over the heated parts of the boiler, as shown in the engravings. The action of the boiler is based on the natural law of circulation of a fluid when exposed to different degrees of temperature, the hotter particles ascending while the cooler descend. It is obvious that if the whole fluid be of a uniform temperature, there will be no tendency to circulate. Thus, in a boiler of the ordinary

in a full stream when the water lies in a Cornish boiler had sunk as low as the level of the fire bars, thus keeping the fire flues completely covered, and the boiler as safe as though the water had been at the proper height.

We are informed that the Whittle Boiler Co. have had the boilers in use night and day for about 12 months; and the plates have been kept free from incrustation, it is said, when the boilers have worked eight to ten weeks with bad water and without blowing off during the whole time, while an immense amount of mud and chips was found in the casing. At some experiments at the Stowbridge Water Works with a plain cylindrical boiler, 35x6½ feet, 1,000 pounds of coal evaporated 7,500 pounds of water without, and 9,000 pounds (or one-fifth more) with the Whittle lining.—*Colliery Guardian.*

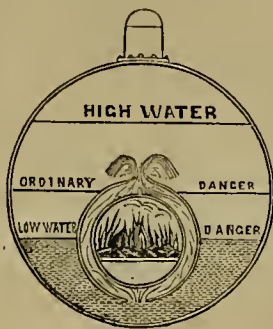


FIG. 1.

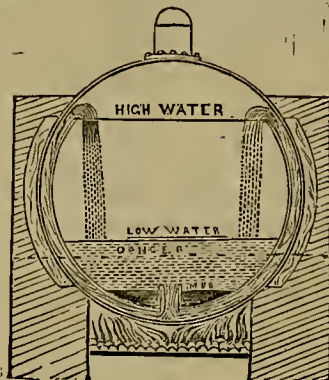
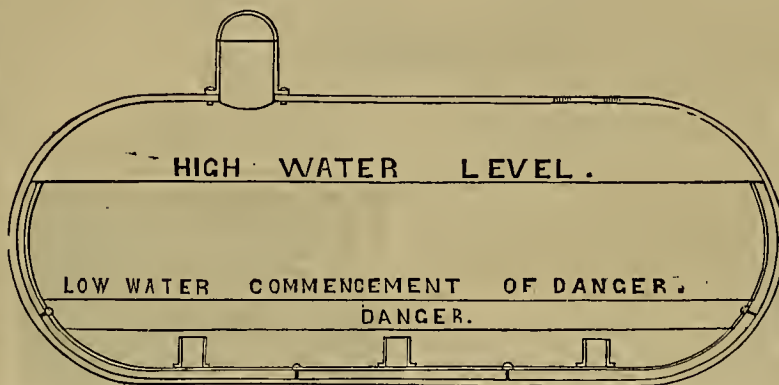


FIG. 2.



WHITTLE'S NEW BOILER LINING.—FIG. 3.

construction, although there may be, and undoubtedly is, ebullition, there is not circulation in the full sense of the term—only a disturbance of the particles caused by the passage of the steam globules. A great impediment is offered to the free passage of the steam, especially when the water is thickened with mud; and this causes the globules of steam to linger about the surface of the hot plates, and prevents the heat from being taken up by the water from them as fast as if steam were set free with greater facility, as is accomplished in the Whittle boiler.

In this the great body of water is contained in the inner casing and kept from actual boiling by the interposition of this casing between it and the boiler sides; thus the whole of the water is made to circulate in a thin stream over the hot plates in rapid and constant succession. Thus the steam globules are carried off as soon as they are formed, together with the mud-particles set free in the water by evaporation, and delivered on the surface of the water in the inner casing, where they quickly subside, and are kept from future contact with the boiler plates. Thus the formation of hard, scaly incrustation is prevented, and the water, as well as the boiler, remains comparatively clean, enabling steam to generate much more quickly and effecting a considerable saving of fuel. The mud in the collector is not disturbed, as the great body of water does not boil unless the steam be of very high pressure, and then it only simmers.

An important advantage claimed for the Whittle patent is that however low the water may be in the body of a boiler, an artificial level is maintained as high as the top of the flues, as shown in the engravings, in which the lines showing the height of the proper water level and the low water mark, are taken from actual practice; and it has been proved that the water is made to pour over the upper edge of the casing

GOPHER TRAP.—Mr. D. N. Phelps, of San Leandro, has invented a gopher trap, which is exceedingly simple, and, at the same time, efficient. The wily gopher passing unsuspectingly over a simple piece of wire is nipped and brought to an untimely end. The trap is ingeniously and cheaply constructed. Its trial has been very successful. A sample can be seen at this office.

On the 11th of this month, a party of eight or ten men were to commence the ascent of Long's Peak, Col., under the guidance of Mr. G. J. Evans, who acted as reporter for the *Boulder County News*. A copy of that paper and one of the *Scientific Press* were sent to be deposited in a tower, which was to be erected on the summit. The *Press* is always glad to take a trip in such good company.

We have received a copy of Heath's Infallible Counterfeit Detector at Sight, published by Laban Heath, Boston, Mass. With such testimonials as accompany it, we need say nothing further, except to advise those liable to have counterfeit bills passed on them, to provide themselves with the book.

Hax is selling in Nevada at \$20 per ton, cheaper than ever sold before in that market. Barley also is being sold in Nevada for \$1.60 per cental—the lowest it has ever been in that market.

A pane of glass seventeen feet high and ten feet wide, just set up in New York, is considered the largest in the country.

Patents and Inventions.

A Full List of Patents Issued to Pacific Coast Inventors.

[FROM OFFICIAL REPORTS TO DEWEY & CO., U. S. AND FOREIGN PATENT AGENTS, AND PUBLISHERS OF THE SCIENTIFIC PRESS.]

FOR THE WEEK ENDING AUGUST 14th.

BEVERAGE OR "CHAMPAONE MEAD."—Asher S. Taylor, San Francisco, Cal.

DESIGN PATENT.—HAND-STAMP.—Jules F. Pagcs, San Francisco, Cal.

NOTE.—Copies of U. S. and Foreign Patents furnished by DEWEY & CO., in the shortest time possible (by telegraph or otherwise), at the lowest rates. All patent business for Pacific coast inventors transacted with greater security and in much less time than by any other agency.

The New Patent Act.

AN ACT TO REVISE, CONSOLIDATE AND AMEND THE STATUTES RELATING TO PATENTS AND COPYRIGHTS.

APPROVED, JULY 8, 1870.

[CONTINUED FROM PAGE 129.]

SEC. 35. And be it further enacted, That any person who has an interest in an invention or discovery, whether as inventor, discoverer, or assigner, for which a patent was ordered to issue upon the payment of the final fee, but who has failed to make payment thereof within six months from the time at which it was passed and allowed, and notice thereof was sent to the applicant or his agent, shall have a right to make an application for a patent for such invention or discovery the same as in the case of an original application: Provided, That the second application be made within two years after the allowance of the original application. But no person shall be held responsible in damages for the manufacture or use of any article or thing for which a patent, as aforesaid, was ordered to issue, prior to the issue thereof: Provided, That when an application for a patent has been rejected or withdrawn, prior to the passage of this act, the applicant shall have six months from the date of such passage to renew his application, or to file a new one; and if he omits to do either, his application shall be held to have been abandoned; upon the hearing of such applications abandonment shall be considered as a question of fact.

SEC. 36. And be it further enacted, That every patent or any interest therein shall be assignable in law, by an instrument in writing; and the patentee or assignee or legal representative may in like manner, grant and convey an exclusive right under his patent to the whole or any specified part of the United States; and said assignment, grant, or conveyance shall be void as against any subsequent purchaser or mortgagee for a valuable consideration, without notice, unless it is recorded in the Patent Office within three months from the date thereof.

SEC. 37. And be it further enacted, That every person who may have purchased of the inventor, or with his knowledge and consent may have constructed, any newly invented or discovered machine, or other patentable article, prior to the application by the inventor or discoverer for a patent, or sold, or used one so constructed, shall have the right to use, and vend to others to be used, the specific thing so made or purchased, without liability therefor.

SEC. 38. And be it further enacted, That it shall be the duty of all patentees, and their assigns and legal representatives, and of all persons making or vending any patented article for or under them, to give sufficient notice to the public that the same is patented, either by fixing thereon the word "patented," together with the day and year the patent was granted; or when, from the character of the article, this cannot be done, by fixing to it or to the package wherein one or more of them is inclosed, a label containing the like notice; and in any suit for infringement, by the party falling so to mark, no damage shall be recovered by the plaintiff, except on proof that the defendant was duly notified of the infringement, and continued after such notice, to make, use, or vend the article so patented.

SEC. 39. And be it further enacted, That if any person shall, in any manner, mark upon any thing made, used, or sold by him for which he has not obtained a patent, the name or any imitation of the name of any person who has obtained a patent therefor, without the consent of such patentee or his assigns or legal representatives; or shall in any manner, mark upon or affix to any such patented article the word "patent" or "patented," or the words "letters-patent," or any word of like import, with intent to imitate or counterfeit the mark or device of the patentee, without having the license or consent of such patentee or his assigns or legal representatives; or shall, in any manner, mark upon or affix to any unpatented article the word "patent," or any word importing that the same is patented, for the purpose of deceiving the public, he shall be liable for every such offence to a penalty of not less than one hundred dollars, with costs; one moiety of said penalty to the person who shall sue for the same, and the other to the use of the United States; to be recovered by suit in any district court of the United States within whose jurisdiction such offence may have been committed.

SEC. 40. And be it further enacted, That any citizen of the United States, who shall have made any new invention or discovery, and shall desire further time to mature the same may, on payment of the duty required by law file in the Patent Office a caveat setting forth the design thereof and its distinguishing characteristics, and praying protection of his right until he shall have matured his invention; and such caveat shall be filed in the confidential archives of the office and preserved in secrecy, and shall be operative for the term of one year from the filing thereof and if application shall be made within the year by any other person for a patent with which such caveat would in any manner interfere, the Commissioner shall deposit the description, specification, drawings, and model of such application in like manner in the confidential archives of the office, and give notice thereof, by mail, to the person filing the caveat, who, if he would avail himself of his caveat, shall file his description, specification, drawings, and model within three months from the time of placing said notice in the post office in Washington, with the usual time required for transmitting it to the caveator added thereto, which time shall be indorsed on the notice. And an alien shall have the privilege herein granted, if he shall have resided in the United States one year next preceeding the filing of his caveat, and made oath of his intention to become a citizen.

Professional Cards.

JOHN GORMAN,
NOTARY PUBLIC.

COMMISSIONER FOR
Nevada, New York, Etc.
No. 612 MERCHANT STREET. 5v20-3m

JOHN ROACH, Optician,
Has removed from 522 Montgomery street to
540 Washington street,
East of Montgomery.
Surveying Instruments made, repaired and adjusted
22v17-3m

GILES H. GRAY. JAMES M. HAYEN.
GRAY & HAVEN,
ATTORNEYS AND COUNSELLORS AT LAW,
In Building of Pacific Insurance Co., N. E. corner Cal-
ifornia and Leidesdorf streets,
27v16 SAN FRANCISCO.

REMOVAL.

DR. BEERS, Dentist,
Has removed from Tucker's Building to
No. 109 Montgomery street, three doors
north, opposite the Occidental. 2v20-3m

Dr. J. H. PAINE, Dentist,
Wadsworth House, No. 225 Bush street,
between Cosmopolitan and Occidental
Hotels, San Francisco.

Business Cards.

A. H. JORDAN,
Architect, Designer and Draughtsman,
No. 430 Montgomery Street,
SAN FRANCISCO. 16v19-qy

Farmers and Mechanics
BANK OF SAVINGS,
No. 225 Sansome Street.
Interest paid on Deposits. Money Loaned on Real Estate.
H. DUTTON, President.
GEO. M. CONDEE Cashier. 19v16-3m

C. B. FETY,
SEAL ENGRAVER
AND LETTER CUTTER.
Seals, Brass Stamps, Steel Punches, etc. Orders by
express promptly attended to. No. 622 CLAY STREET,
bet. Kearny and Montgomery, San Francisco. 23v20-3m

PIERRE A. FORTIER,
Practical Optician
105½ Montgomery Street, up stairs.
The only manufacturer in the United States who can
make Glasses adapted to any imperfection of sight.
Prices very moderate. 24v20-3m

Trades and Manufactures.

NELSON & DOBLE,
AGENTS FOR
Thomas Firth & Sons' Cast Steel.

MANUFACTURERS OF
Sledges, Hammers, Stone Cutters', Black-
smiths' and Horse-Shoers' Tools.
13 and 15 Fremont street, near Market, San Francisco.
10v14qr

W. BARTLING. HENRY KIMBALL.
BARTLING & KIMBALL,
BOOK BINDERS,
Paper Rulers and Blank Book Manufacturers.
505 Clay street, (southwest cor. Sansome),
15v12-3m SAN FRANCISCO.

SAN FRANCISCO
PIONEER SCREEN WORKS,
JOHN W. QUICK,
No. 203 Fremont Street, near Howard.

Screen Punching of all kinds and qualities for Quarts,
Cement, Flour and Rice Mills, at Eastern prices. 10v20

SAN FRANCISCO MILL.
HOBBS, GILMORE & CO.,
Manufacturers of Boxes,
Market Street, bet. Beale and Main.
For sale—Mahogany, Spanish Cedar, and other Woods.

J. M. STOCKMAN,
Manufacturer of
PATTERNS AND MODELS,
(Over W. T. Garratt's Brass Foundry,
S. E. Corner of Mission and Fremont sts.,
16v14qr SAN FRANCISCO

THOMPSON BROTHERS,
EUREKA FOUNDRY,
and 131 Beale street, between Mission and Howard
San Francisco.
LIGHT AND HEAVY CASTINGS,
of every description, manufactured 24v16qr

THE SCIENTIFIC PRESS.—To the miner and farmer we
consider the Press the most valuable publication on the
Pacific Coast. Every number contains matter of inter-
est to the farmer and general reader; and to the miner
the Press is a sine qua non.—Inyo Independent

L. SCHUMANN,
PIONEER
Meerscham Pipe Manufacturer,



No. 341 KEARNEY STREET,
Between Bush and Pine streets, San Francisco.
The first and only Manufacture on the Pacific Coast.
MEERSCHAUM MOUNTED WITH SILVER. Meerscham
Pipes Boiled and Repaired. Amber Mouth-pieces Fitted.

AMERICAN MILLS,
M. BURKE, PROPRIETOR,
Nos. 30 and 32 California Street.
Joh work of all kinds in the Drug and Spice Line
promptly attended to.

SECOND DEPARTMENT.—Feed Ground. Corn Meal, Oat
Meal, Graham Flour, etc., constantly on hand. 7v206m

SAN FRANCISCO
CORDAGE COMPANY.
Manila Rope of all sizes. Also, Bale Rope and Whale
Line constantly on hand. Mining Ropes of any size
and length manufactured to order.
TUBBS & CO., Agents,
611 and 613 Front street.

THE GIANT
POWDER COMPANY.
BANDMANN, NIELSEN & CO.,
General Agents,
No. 210 Front Street, San Francisco. 25v19

THEODORE KALLENBERG,
Machinist, and Maker of Models
for Inventors.
All kinds of Dies, Stamps and Punches made. Also,
all kinds of Small Gearcut. Repairing done on very
reasonable terms, and in the best manner. No. 10
STEVENSON STREET, near First, Pioneer Mills. 25v19-3m

J. F. PAGES,
SEAL ENGRAVER,
AND LETTER CUTTER.
Brass and Steel Stamps and Dies, 608 Sacramento street,
San Francisco. Orders by express promptly attended to.

SAN FRANCISCO
GLASS WORKS.
NEWMAN & DUVAL, Proprietors.

Office and Works, foot of Fourth Street.
These Works will be in full operation on or about the
12th of September. Orders for all varieties of
Green and Black Hollow-ware, Glass, such as Demi-
johns, Carboys, Soda, Wine and Brandy Bottles, etc.,
etc., will receive prompt attention. Private Moulds
made to order from \$10 to \$30. 2v21-4t

VARNEY'S
PATENT AMALGAMATOR
These Machines Stand Unrivaled.

For rapidly pulverizing and amalgamating ores, they
have no equal. No effort has been, or will be, spared to
have them constructed in the most perfect manner, and of
the great number now in operation, not one has over-
required repairs. The constant and increasing demand for
them is sufficient evidence of their merits.
They are constructed so as to apply steam directly into
the pulp, or with steam bottoms, as desired.

This Amalgamator Operates as Follows:
The pan being filled, the motion of the muller forces the
ulp to the center, where it is drawn down through the ap-
erture and between the grinding surfaces. Thence it is
thrown to the periphery into the quicksilver. The curved
plates again draw it to the center, where it passes down,
and to the circumference as before. Thus it is constantly
passing in a regular flow between the grinding surfaces and
into the quicksilver, until the ore is reduced to an impalp-
able powder, and the metal amalgamated.
Settlers made on the same principle excel all others.—
They bring the pulp so constantly and perfectly in contact
with quicksilver, that the particles are rapidly and com-
pletely absorbed.
Mill men are invited to examine these pans and settlers for
themselves, at the office, 220 Fremont street,
1v1 SAN FRANCISCO.



AN OVER-DOCTORED WORLD.—All great physicians ad-
mit that the world is over-doctored with violent drugs.
In cases of indigestion, biliousness, constipation, wind,
colic, diarrhoea, and other casual or even chronic af-
fections of the stomach, liver, and bowels, all that is need-
ed to restore the regular action of the disordered organs,
is a dose or two of TARRANT'S EFFERVESCENT SELTZER
WATER, the most delicious and harmless febrifuge,
laxative and alterative, in the whole range of medicinal
remedies. It is sufficient for the strongest, cannot harm
the weakest, and immediately relieves the nausea which
ordinary cathartics aggravate.

SOLD BY ALL DRUGGISTS
FROM THE WEDD
Selling Ma-
chine—The
WHOLE WORLD
being judges as to
the BEST. Why?
Because the WEDD
Machines TO
work with
any material
VARIETY. Buy
the LATEST always. Call
and see S. E. Hear, 299
Kearney St. S. F. at

CONTINENTAL Life Insurance Co., 302 Mont-
gomery street, corner of Pine.

Railroads and Steamers.

Central Pacific Railroad.

Time Schedule, August 9, 1870.

EASTWARD.		Express Train Daily.	Passenger Train excepted	Mixed.*
San Francisco	Leave	8:00 A.M.	4:00 P.M.	7:00 P.M.
Oakland	Arrive	8:30 A.M.	4:30 P.M.	7:30 P.M.
San Jose	Leave	7:45 A.M.	4:35 P.M.	
Stockton	Arrive	7:55 P.M.	7:53 P.M.	
Sacramento	Leave	2:10 P.M.	9:30 P.M.	7:40 A.M.
Colfax	Arrive	4:00 P.M.		9:10 A.M.
Chico	Arrive	6:45 P.M.		1:15 P.M.
			Daily East of Sacramento	
Colfax	Leave	5:00 P.M.		4:00 P.M.
Reno	Leave	1:15 A.M.		5:45 A.M.
Winnemucca	Leave	9:10 A.M.		4:15 P.M.
Battle Mountain	Leave	1:25 P.M.		3:50 A.M.
Carlin	Leave	3:10 P.M.		10:40 A.M.
Elko	Leave	4:40 P.M.		12:30 P.M.
Kelton	Leave	1:40 P.M.		7:45 A.M.
Ogden	Arrive	6:00 A.M.		5:00 A.M.
WESTWARD.		Express Train Daily.	Passenger Train excepted	Mixed.*
Ogden	Leave	6:00 P.M.		5:00 P.M.
Kelton	Leave	10:42 P.M.		1:30 A.M.
Elko	Leave	8:45 A.M.		7:15 P.M.
Carlin	Leave	10:15 A.M.		9:45 P.M.
Battle Mountain	Leave	1:25 P.M.		3:50 A.M.
Winnemucca	Leave	4:05 P.M.		9:40 A.M.
Reno	Leave	1:00 A.M.		11:30 A.M.
Colfax	Leave	8:45 A.M.		12:50 A.M.
Chico	Leave	6:30 A.M.		10:80 A.M.
Marysville	Leave	9:10 A.M.		2:30 P.M.
Sacramento	Arrive	1:25 A.M.	7:00 A.M.	6:30 P.M.
Stockton	Leave	1:40 P.M.	8:38 A.M.	7:30 P.M.
San Jose	Arrive	5:35 P.M.	12:01 P.M.	
Oakland	Arrive	5:30 P.M.	12:02 P.M.	
San Francisco	Arrive	6:10 P.M.	12:40 P.M.	9:30 A.M.

P. M. A. M.	Local Trains.	A. M. P. M.
3:00	9:00 leave... SAN FRANCISCO... arrive	10:40 7:30
3:20	9:20 " " " " " " " " " " " "	11:20 7:05
4:40	11:05 " " " " " " " " " " " "	8:40 6:55
5:55	12:20 arrive... SAN JOSE... leave	7:45 4:55
From		From
SAN FRANCISCO.	OAKLAND.	BROOKLYN.
B 6:50 A. M.	B 5:40 A. M.	B 5:30 A. M.
D 8:00 " "	B 6:55 " "	B 6:45 " "
9:00 " "	8:00 " "	7:50 " "
D 10:00 " "	10:00 " "	9:50 " "
D 11:00 " "	11:00 " "	
2:00 P. M.	12:00 P. M.	11:50 " "
D 3:00 " "	2:00 P. M.	
4:00 " "	3:00 " "	2:50 P. M.
5:15 " "	4:00 " "	
6:30 " "	5:20 " "	5:10 " "
B 11:30 " "	6:55 " "	6:45 " "
From		From
SAN FRANCISCO.	ALABAMA.	DAYWARDS.
B 7:20 A. M.	B 5:35 A. M.	B 4:30 A. M.
E 9:00 " "	R 7:35 " "	B 7:00 " "
BC 9:30 " "	E 9:05 " "	E 8:30 " "
EC 11:30 " "	B 9:05 " "	B 9:00 " "
1:30 P. M.	E 11:55 " "	E 11:00 " "
4:30 " "	1:55 P. M.	
6:00 " "	4:35 " "	3:55 P. M.
	E 6:15 " "	
R Sundays excepted.		E Sundays only.
D To Oakland only.		C To Fruit Vale only.
A. N. TOWNE, Gen'l Sup't C. P. R. R.		T. H. GOODMAN, Gen'l Passenger Agent, Sacramento.

SHORT ROUTE.



The following time will take effect

Sunday... April 24, 1870.

GOING NORTH—DAILY (SUNDAYS EXCEPTED).

New World Leaves S. Francisco.	Trains Arrive at Calistoga.	Trains Arrive at Sacramento.	Trains Arrive at Marysville.
7:00 A. M.	11:45 A. M.	11:20 A. M.	1:00 P. M.
4:00 P. M.	7:15 P. M.	8:20 P. M.	9:30 P. M.

ON SUNDAYS.

8:30 A. M.	12:20 P. M.	12:45 P. M.	5:00 P. M.
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GOING SOUTH—DAILY (SUNDAYS EXCEPTED).

Train Leave Ma.	Trains Leave Calistoga.	Trains Leave Sacramento.	New World Arrives at S. Francisco
5:00 A. M.	6:45 A. M.	6:15 A. M.	10:30 P. M.
1:15 P. M.	2:15 P. M.	3:15 P. M.	7:50 P. M.

ON SUNDAYS.

10:15 A. M.	3:00 P. M.	2:30 P. M.	6:45 P. M.
-------------	------------	------------	------------

TICKETS for sale at 315 Montgomery street, or on board
steamer New World. R. S. MATTISON, Superintendent.
L. C. FOWLER, General Freight and Passenger Agent.
N. B.—Branch Office of Western Union Telegraph Com-
pany, Front and Vallejo street wharf.
Vallejo, April 24, 1870. 13v20-1y

REDUCTION IN FARE

FROM

San Francisco to New York

—AND—

BOSTON,

—VIA—

THE CHICAGO, BURLINGTON AND MIS-
SOURI RIVER RAILROAD.

NEW YORK.....\$139 00

BOSTON.....139 25

Ticket Office, No. 208 Montgomery Street.

24v20 SAM. A. LEWIS, Agent.

Pacific Mail Steamship Company.—For

NEW YORK, VIA PANAMA. PRICES GREATLY REDUCED.

Leave wharf corner of First and Braum streets punc-
tually at 11 o'clock A. M. on the 3d and 15th of each
month (except when either date falls on Sunday, then
on Saturday preceding), for PANAMA, connecting via
Panama Railroad, with one of the Company's splendid
steamers from ASPINWALL for NEW YORK.

August 18.....CONSTITUTION

Connecting with the Arizona

All steamers touch at Acapulco; the steamer of the 2d

is expected to touch at San Jose de Guatemala; steamer

of the 18th touches at Manzanilla.

For Japan and China.—Steamers leave on the
1st of every month, punctually at noon, for YOKO-
HAMA and HONGKONG, connecting at Yokohama with
the Company's Branch Line for SHANGHAI, via Higo
and Nagasaki.Sept. 1.—CHINA, Captain Freeman.
Apply at the Pacific Mail Steamship Company's office
corner Sacramento and Leidesdorf streets.
13v20 ELDRIDGE & IRWIN, Agents.

California Steam Navigation

COMPANY,

Steamer CAPITAL.....CAPT. E. A. POOLE

CHRYSOPOLIS.....CAPT. A. FOSTER.

YOSMITE.....CAPT. W. B. BROWLEY

CORNELIA.....CAPT. E. W. CONCKLIN.

JULIA.....CAPT. E. W. CONCKLIN.

Two of the above steamers leave BROADWAY WHARF

at 4 o'clock P. M. EVERY DAY (Sundays excepted), one

for Sacramento and one for Stockton, those for Sacra-
mento connecting with high-draft steamers for Marysville

Colusa, Chico, and Red Bluff.

Office of the Company, northeast corner of Front and

Jackson streets. B. M. HARTSHORNE,
13v12 President.

Metallurgy and Ores.

A. T. GREEN,
COMMISSION MERCHANT,

No. 3 Front Street San Francisco

Agent for SAMPLING, CRUSHING, ASSAYING and

SELLING OF ORES. Shipments received from miners,

and the entire business transacted with promptness and

accuracy. MERCHANDISE of all descriptions pur-
chased and shipped on Commission for Country Mer-
chants. Consignments of FERTILISERS received and

sold at the highest market prices.

Refers, by permission, to Jas. Linforth, of Linforth,

Kellogg & Co.; J. A. Hunt, Prest, Pacific Insurance Co.;

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Badger & Lindenberg; Taaffe & Co., and J. B. Roberts,

Esq. 23v20-3m

MORRIS & WHITE,

Practical Assayers and Metallurgists,

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Ore of all kinds worked by Pan Amalgamation, Chlori-
nation, or Smelting—guaranteeing to work as close to

the Fire-assay as any persons on the Pacific Coast.

Gold and Silver Ores and Sulphurets bought.

12v20-qy

CALIFORNIA ASSAY OFFICE,

(Successors to Geo. E. Rogers)

No. 512 CALIFORNIA STREET,

One door west of Montgomery.

H. H. LAWRENCE.....Manager.

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Analysis of Ores, Minerals, Waters, etc. 10v20

G. W. STRONG.

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G. W. STRONG & CO.,

Metallurgical Works,

No. 10 Stevenson Street, near First.

Ores worked and Tests made with care. Also, Assays

of Gold, Silver, Copper, Lead, Tin, and other Metals.

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Assayer and Metallurgical

CHEMIST,

No. 611 Commercial Street,

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SAN FRANCISCO, CAL. 7v21-3m

RODGERS, MEYER & CO.,

COMMISSION MERCHANTS,

ADVANCES MADE

On all kinds of Ores, and particular attention

PAID TO

CONSIGNMENTS OF GOODS.

4v16-3m

LESSONS IN ASSAYING.

Determination of Minerals and the use of the Blow-

Pipe, to those wishing to gain a knowledge of these

branches. Any person may learn to make the ordinary

assays in a few lessons. Address me at the Pacific

Chemical Works, 215 First street, or Box 1180, Pos

Office. (25v20) HENRY G. HANKS.

Notice to Miners and Others.

Letters Patent No. 53,194, granted March 13th, 1866,

secured to me the amalgamation of Metallic Ores in a

closed vessel by the action of Mercury, Mercurial fumes,

steam and agitation, the best being applied externally.

All persons using, making or selling any Amalgamator in

violation of my rights, are hereby requested to settle for

the past and arrange for the future, as legal proceedings

will be instituted to enforce my rights in the premises.

JOHN T. STAATS, PATENTEE,

No. 323 West 30th Street, New York.

5v21-10qr

Blake's Patent. THE BEST PUMP for Boilers

Feeders, Breweries, Sugar Houses,

Tanneries, Mining and Fire pur-

poses, etc. is Blake's

Our Agents.

OUR FRIENDS can do much in aid of our paper and the cause of practical knowledge and science, by assisting agents in their labors of canvassing, by lending their influence and encouraging favors. We intend to send none but worthy men.

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HAMILTON, Nev.—Thomas Starr.
CARSON CITY, Nev.—John G. Fox.
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BOISE CITY, Idaho—Larkin Bros.
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BLACK HAWK, C. T.—Harper M. Oranhood.
CENTRAL CITY, C. T.—Richards & Crane.
GEORGETOWN, C. T.—John A. Lafferty, Postmaster.
DENVER CITY, C. T.—Woolworth & Moffat.
GREENWICH, N. T.—Robert Deers.
OMAHA, N. T.—Barkalow & Brothers.
PHILADELPHIA, Pa.—Fittler, Quigg & Co.
LONDON—George Street, 30 Cornhill, E. O.
HUNTON & MENET, 41 Park Row, New York.
NEW YORK—H. D. Dumont, 73 and 75 Fulton street.
A. C. KNOX, City Soliciting and Collecting Agent.

The California Powder Works

NO. 314 CALIFORNIA STREET,
SAN FRANCISCO.

Manufacturers and have constantly on hand

**SPORTING,
MINING,
And BLASTING
POWDER,**

OF SUPERIOR QUALITY, FRESH FROM THE MILLS. It being constantly received and transported into the interior, is delivered to the consumer within a few days of the time of its manufacture, and is in every way superior to any other Powder in Market.

We have been awarded successively

Three Gold Medals

By the MECHANICS' INSTITUTE and the STATE AGRICULTURAL SOCIETY for the superiority of our products over all others.

We also call attention to our

HERCULES POWDER,

Which combines all the force of other strong explosives now in use, and the lifting force of the best blasting powder, thus making it vastly superior to any other compound now in use.

A circular containing a full description of this Powder can be obtained on application to our Office.

16v20-3m
JOHN F. LOHSE, Secretary.

HAYWARD & COLEMAN

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Illuminating, Lubricating,

—AND—

PAINT OILS,

CONSISTING OF

KEROSENE, LARD, SPERM, ELEPHANT, POLAR, TANNERS, NEATFOOT, BOILED AND RAW LINSEED, CASTOR AND CHINA NUT.

—ALSO—

Spirits of Turpentine and Alcohol.

Lamps and Lamp Stock!

An elegant and complete assortment.

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PATENT CANS.

5v17-1f
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California Bonzest,

A CALIFORNIA PATENT, manufactured in San Francisco. A Condiment

Rare, Rich and Spicy.

Very palatable, productive of digestion and health. An ANTI-SCORBUTIC, and sure preventive

Against Diseases incident to Sea Life.

A SPLENDID APPETISER.

TRY IT ONCE, and you will never be without it.

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ENGRAVING ON WOOD

DESIGNING AND ENGRAVING on wood and for electrotype cuts of every description, done by superior artists at the office of the SCIENTIFIC PRESS. Fine Cuts made for Book and Newspaper Illustrations, and for Fancy Labels for printing in various colors; Monograms, Seals, &c., etc. Prompt execution, and reasonable prices.

DEWEY & CO.,

No. 414 Olay street, S. F.

A NEW REMEDY.

As this Preparation of these plants, lately made public (Patented June 23, 1870), but long proven in Siskiyou county, Cal., owes its efficiency entirely to its remarkable power of INCREASING THE INSENSIBLE PERSPIRATION, or, in other words, the VAPORY EXHALATIONS from the millions of minute pores of the EXTENSIVE SKIN, from the crown of the head to the sole of the foot, it is all important that the direction to pass a sponge, or towel, dampened with salicatus water, under the clothing, twice a week, or oftener, be attended to.

Also, that when taken by LADIES, for IMPROVING THE COMPLEXION, for which it is very successful, that it should be in half doses, often repeated; and that one of the Pills of Citrate of Iron and Gum Myrrh, which are beneath the bottom label of each bottle, be taken at night, much aiding in restoring Color in the Cheeks and Lips. To CHILDREN also, give it "a little and often." It is agreeable to them any way, but especially if sweetened a bit; and it is admirably suited to their Diseases, which generally are those of the MUCOUS MEMBRANES.

FOR the irritated throats of PUBLIC SPEAKERS, Lawyers, Ministers, Teachers, and

FOR driving off threatened CONSUMPTION and Asthma, all Colds and Coughs;

FOR irritated Stomachs, from Bad Liquor, Alkali Water, Strong Coffee, Salicatus Bread;

FOR humors on the Skin, or MUDDY COMPLEXIONS, or, in a single sentence,

FOR all Diseases of the MUCOUS MEMBRANES, the Surest, and by far the MOST PLEASANT MEDICINE yet found, in its TASTE and EFFECT, is

DR. FURBER'S CORDIAL OF MOUNTAIN BALM

—AND—

OREGON GRAPE,

Two Plants, abounding on the base of, and on the Mountains surrounding

MOUNT SHASTA, CALIFORNIA,

For all the purposes of the various PREPARATIONS OF SALICATILLA, richer in quality and more efficient as a RESTORER OF GOOD BLOOD, and acting equally as surely,

ECCLESIASTICUS. XXXVIII.

—Verse. Fourth—

The Lord hath created medicines out of the Earth. And he that is wise, will not abhor them.

TRADE MARK.

and as well on the LUNGS as on the STOMACH, is superior to other COUGH MEDICINES, by bringing BOTH to bear with the stimulated action of the WHOLE SKIN in throwing off Disease of either.

FOR SALE AT SAN FRANCISCO BY

R. H. McDONALD & CO., Druggists.

INVALIDS of any of the classes named above will find this worthy of TRIAL. Its virtues, as above asserted, not being visionary, but improved from the SHASTA INDIANS' knowledge and use of these PLANTS for centuries back, made known by them to us.

Such an Invalid, residing at a distance, wishing to try it, had better procure a package of one-fourth of a dozen, which can be done by sending in letter to the above a \$5 greenback, and directing that the package should be sent by WELLS, FARGO & Co's Express to that office which is nearest to the invalid's residence, and that person will be sure to get it. 3v21-12tw

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In this useful and very important branch we challenge competition.

PROF. SERENI

Has obtained First Premiums at all the Fairs on this coast where his Penmanship was exhibited, and was awarded the MEDAL at the Seventh Industrial Exhibition of the Mechanics' Institute in 1869 over all competitors. His success as a Teacher is unequalled.

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The only place in the city where Telegraphing is taught by an experienced Operator.

We cordially invite the public to call and examine the merits of the College. Our Institute is patronized by the youth of fifteen and the man of fifty, where they receive instruction in Single and Double Entry Book-Keeping, Commercial Arithmetic, Commission Jobbing, Business and Ornamental Penmanship, Commercial Correspondence, Actual Business, Merchandising, Banking, Importing, Railroad, Steamboating, Mining, Real Estate, Brokerage and Exchange, Mechanical and Architectural Drawing, Telegraphy, Orthography, French, Spanish, Italian, German and English Grammar. No CLASS SYSTEM. Each student receives individual instruction. No Vacations.

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12v20-12f
VINSONHALER, JULIAN & CO.

THE FIREMAN'S

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Fire and Marine Insurance.

CAPITAL.....\$500,000 00
SURPLUS.....267,115 63
TOTAL ASSETS.....\$767,115 63

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13v20-3m

OCCIDENTAL Insurance Company

OF SAN FRANCISCO.

Cash Capital, - - - - - \$300,000

GOLD COIN

OFFICE, 436 CALIFORNIA STREET.

Fire and Marine Insurance.

All Losses paid in U. S. Gold Coin.

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Lamps, Lanterns

CUTLERY

—AND—

FANCY GOODS,

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24v20-3m

DESIGNS AND PLANS

—FOR THE—

NEW CITY HALL

—OF—

SAN FRANCISCO.

Office Board of City Hall Commissioners, southeast corner of Sacramento and Montgomery streets, San Francisco, June 22, 1870.

The Board of City Hall Commissioners hereby give notice that they will be prepared to receive at their office, on or before the FIRST DAY OF NOVEMBER NEXT, designs and plans for the new City Hall of San Francisco.

The Commissioners, in order to obtain the very best design and plan, invite the fullest competition among architects, and to this end have resolved to offer the following premiums:

First—For the design and plan selected and adopted.....\$2,500
Second—For the second best design and plan..... 2,000
Third—For the third best design and plan..... 1,500
Fourth—For the fourth best design and plan..... 1,000
Fifth—For the fifth best design and plan..... 500

The premiums payable in City Hall warrants.

As a guide to architects in the preparation of the designs and plans, the Commissioners have prepared a pamphlet containing full instructions and suggestions, as well as the terms and conditions upon which the premiums will be awarded.

Pamphlets can be had on application at the office of the Commissioners.

Any design or plan in which the requirements of the Board, as set forth in the printed instructions, have not been reasonably complied with, will be rejected from the competition.

P. H. CANAVAN, Chairman,
JOS. G. EASTLAND,
CHAS. E. McLANE,
City Hall Commissioners.

26v20-4m

One Per Cent. per Month

Allowed on Six Months' Deposits by the CALIFORNIA BUILDING, LOAN AND SAVINGS BANK, California street, one door from Sansome.

THOMAS MOONEY, President.
August 2, 1869. 6v19-1m

Reading for the Hour.

A Needle-Cannon.

The *Abend Post* of the 13th has the following from a correspondent:

The latest improvement in artillery is Von Dreyse's *Double Needle Cannon*. It is composed of two barrels, fixed parallel to each other on the gun carriage, which, in the middle, between them, holds an ammunition box. But one gunner is seated behind each of the cannons; a grasp and a jerk opens the hind part or breech; the gunners seize alternately, the one on the left with his left, and the one on the right with his right hand, the *cartouch* which lies ready between them and which is instantly replaced by another rolling up along the gun carriage from the ammunition box; they open the cannon, which admits of a circular motion upwards or downwards, to the right or the left; the gunner presses with his chest firmly forward in a fork attached to the breech, which, as well as the seat, is covered with leather. The cannon becomes fixed—a jerk—and the shot rolls forth without causing hardly any recoil; the gunner remains in his seat; immediately after, the thunder of the second cannon is heard, and then commences a perfect cannonade, the shot flying at the rate of 30 in a minute.

The cannons have a 3-pound or 6-pound bore, and are of truly gigantic power; a projectile thrown from a 6-pound rifled piece, at a trial of shooting superintended by Dreyse himself, traversed, at a distance of 3,000 paces, a forged plate of 3 inches in thickness and set fire to some woodwork behind.

The new invention is but known as yet to few, it having been kept secret. During the war of 1866, it was not sufficiently advanced to warrant its use. Since last year it has been ready for the destruction of an enemy—the French have been made acquainted with it.

SPARKS FROM A SEAR.—Mr. Joseph Segar, of Washington, a gentleman (?) who appears to have attempted to cowhide somebody and to have failed therein, has been puffing away in the *Star*. After blowing a very airy cloud of smoke, he remarks, "I trust I may be allowed to embrace this occasion to protest against the press in caricaturing, by ridiculous and sensational articles, honorable gentlemen who may find it indispensable to be involved in personal broils. It is unworthy of a decent press or of honorable gentlemen. If there shall be no reform in this matter, gentlemen of pride and honor will be compelled to apply the cowhide and the bludgeon to men of the press, as well as to other offenders." This pretentious cabbage-leaf segar hath an unpleasant odor.

THE LAVAS OF VESUVIUS are said to contain a greater variety of minerals than any others in the world as far as is known. Haüy mentions that, out of 380 simple minerals known to him, no less than 82 have been found on Vesuvius. Lyell thinks that these have not been thrown up in fragments from some older formation, through which the gaseous explosions have burst, but have been sublimed in the crevices of lava.

BELLS.—The largest bell in the world is in Moscow. It was cast in 1653, is 21 feet 4½ inches high, 22 feet 5½ inches in diameter where the clapper strikes, and is believed to weigh from 360,000 to 440,000 lbs. There is some considerable doubt as to whether it was ever rung. It was consecrated as a chapel in 1837, the entrance to the interior being through a large fracture near the mouth, the cause of which is disputed. The largest bell in America is that of Notre Dame Cathedral at Montreal, which weighs 29,000 lbs. The bell of Notre Dame Cathedral at Paris, cast in 1680, and that of the Parliament House in London, weigh each 30,000 lbs.

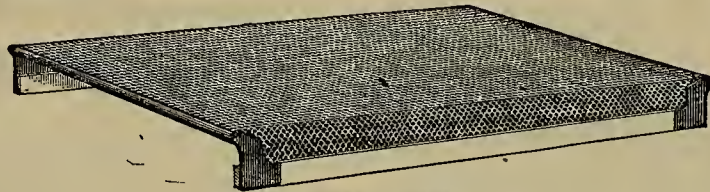
BLOSSOM ROCK.—Last Saturday an examination of Blossom Rock showed that the water was at least 24 feet deep at all points, so that Col. Von Schmidt has fulfilled his part of the contract.

An Iron Mattress.

Most likely all of our readers have heard of the man who lived somewhere and was condemned to sleep for years on a bed of projecting points of iron. And very likely our readers will think of this very man, when they see the heading of this article. Whether or no the inventor of the mattress here illustrated, had his soul stirred within him by the tale alluded to, and desired to patent an iron bed, which might put to shame the inventor of the story, we are uninformed, but we do know that his patent is quite as interesting as is the little history which has become so famous.

The iron mattress of to-day is a strong fabric of fine wire springs, so coiled and interwoven, by a curious process of double weaving, that, when stitched on a proper frame, it forms a comfortable, electric sleeping arrangement. The wire is tinned, to avoid rust and for the sake of a better appearance. It is clean, noiseless, durable and very elastic. It saves one mattress. On it can be placed a thick mattress for cold weather, or a thin covering for the warm season, or any article of the kind which the sleeper may desire.

The durability of the bed is stated to be very great and the fabric is guaranteed to be "nearly indestructible." It has a flexibility as of rubber cloth, and adapts itself to the form of the body to a marked degree. It is in use in many hospitals and other public institutions, where its cleanliness especially recommends it, and where its economy is also a very considerable point, while it is said to be equally or



WOVEN WIRE MATTRESS.

more comfortable for the patients than the common forms. For a hot climate, it would seem to be especially good.

There are several kinds and sizes made, for cribs, for hospital and private use, for the berths of steamers and of sleeping cars, (where we hope they may be extensively introduced) and for other purposes. We have not tried the mattress ourselves, but there are a number of persons who have and who pronounce it good. If our readers desire to hear more about it, they can do so by applying to George C. Perkins, Secretary Woven Wire Mattress Co., 59 Pearl street, Hartford, Conn.

IN MONTANA.—W. H. Murray, our agent is now in Montana, offering people there an excellent opportunity to subscribe for the *Press*.

SILK PREMIUM.—The Contra Costa Agricultural Society recognizes the importance of silk culture, by offering a special premium for the best domestic exhibit.

TELEGRAPHIC. The San Diego *Union* of the 18th says: The extension of the lines of the Western Union Telegraph Company was completed on Monday evening last, but the wires have not as yet been in working order. The operators are now on the line, to rectify the causes of delay, and it is believed that communication will be open in a few days. [The line is now being worked.—Ed.]

To Eastern Readers.

We fully believe that all the leading and intelligent seeking Mechanics, Manufacturers, Farmers and Miners in the Atlantic States, who venture to subscribe for the *SCIENTIFIC PRESS* in its present improved standard, will feel more than paid for their \$4 investment. We are adding new names for every issue from various parts of the Union.

Pushing Forward.

It is hardly necessary in commencing a new volume, as we do to-day, to remind our readers that we are constantly *pushing forward* in our efforts to improve the *SCIENTIFIC PRESS*. We have never relied upon promises of what we propose to do; but have always been able to point to what we have done in the past, as the best assurance of what is in store for the future.

At the opening of the present year we reduced the price of the paper from \$5 to \$4 per annum, believing that the modified condition of affairs on the Pacific slope, growing out of the opening of the Overland Railroad, and other facilities for more frequent intercourse with other portion of the world, fully warranted such a step. Our anticipations have been more than realized in the increase of subscriptions, so much so as to enable us to give an additional amount of reading matter by the presentation to our readers of a double-sheet the first issue of every month.

Illustrations.

We have also made such arrangements as are now enabling us to greatly increase the number, interest and variety of our illustrations. While this improved feature adds largely to the cost of publication, we feel confident the additional interest and value thereby given to our columns, will be duly appreciated by a discerning public.

The Miner, the Mechanic, the Inventor, the Farmer and the Naturalist, will all find something of constant and practical interest in this direction.

The Miner will always be presented with everything new in the way of reducing ores, whether by

mill process or by smelting.

All important improvements in Machinery will be promptly presented to the Mechanic, while the Inventor will be as regularly furnished with hints and stepping stones upon which others have mounted, and from which he in turn will be able to see still further and more clearly into the undiscovered future.

The ideas and instructions that we are here constantly placing before the Farmer will speak for themselves. If the reader will pardon us for a mere hint at the future, we venture the promise that no one thing that is new and of any real practical importance in the mechanics of Agriculture shall be omitted in that portion of our illustrative department.

The Naturalist too will now and then find something to interest and instruct; while the general reader is never forgotten.

How far we have succeeded in making the *SCIENTIFIC PRESS* acceptable to the public, we can only judge by the words of hearty commendation which we are constantly receiving, not only from our brethren of the press, but from numerous private letters, from the readiness with which our patrons pay up their annual subscription and from the rapid increase in the list of subscribers.

A reference to the index published in our last issue affords the best evidence of the wide field of research and instruction in which we are engaged. The present number affords ample evidence of the truth of what we have written, and to strangers our subscribers can fully attest that the present is but an average of our issues on the first of each month.

The carefully digested mining summary which we give each week; the chronicles of scientific and mechanical progress; the large and varied information on agricultural matters, and the many matters of general and special interest, together with

the numerous illustrations, in all the various departments, combines an amount of information which for value, interest and variety, will not suffer in comparison with any periodical of the day.

We trust that those for whom the *Press* is published will exert themselves to enlarge its sphere of usefulness by extending its circulation, and thus strengthening the hands of the publishers for still greater efforts, feeling satisfied that the benefit will be mutual. July 2d, 1870.

TO MINERS, MILLMEN AND METALLURGISTS. Kistler's new work on the Concentration of all kinds of Ores, and the Chlorination Process, for Gold-bearing Sulphurets, Arseniurets, and Gold and Silver Ores generally, is the best and most complete work issued. It contains 120 diagrams, illustrating machinery, etc., which alone are of the greatest value. Price, \$7.50, postage paid. Published by Dewey & Co., publishers of the *Scientific Press*, San Francisco.

OF COURSE.—San Francisco people have come to believe that there is only one place to get spectacles.—C. M. LEE'S.

DR. HARTMANN, Physician, Oculist and Medical Electrician, cures all diseases of the eye, such as Granulated Eye Lids, Inflammation of the Eye, Opacities of the cornea cured permanently. Also, Paralysis, Rheumatism and all Nervous and Chronic Diseases, and all Female Complaints. 128 Kearny street. 25-620.

A NEW ADVERTISING DONOR.—Everytime a lady who uses fragrant Sogoront opens her mouth, she advertizes the article. The state of her teeth is a certificate of its excellence. No spot darkens their surface, no impurity clings to them, the cushions in which they are set are rosy, and the breath that swells through them is sweet as the breeze of June.

"SPALDING'S GLUE" useful in every house.

HAVING had numerous applications to purchase the right to manufacture CHAMPAGNE MEAD (the great temperance drink), we will state that we are now prepared to sell State and County Rights on reasonable terms. KENYON, GASS & CO. 2421-3m

San Francisco, July 10, 1870

CO-OPERATIVE UNION STORE.—This is becoming one of the most useful institutions in the city, and the Mechanic and Laboring Man fully appreciate it. They are now enabled to buy their Groceries at 20 per cent. cheaper than ever before, and the very best articles in the market. The store is located at 115 Sutter street, Lick House Block.

PHOTOGRAPHY.—For Cabinet Photographs, or Enamelled Cards, of the very best quality, you must go to the NEW YORK GALLERY, Nos. 23 and 27 Third street, San Francisco. Every picture warranted to give satisfaction. 10v18 6m B. F. HOWLAND.

BOILER FELTING saves twenty-five per cent. of fuel, BERRY & PLACE'S MACHINERY DEPOT, No. 114 California street. 1v21-3m

BLOTTING TIN AND SOLDER WIRE, broom wire, piano covering wire, etc., manufactured by Joshua Gray, 437 Brannan street. 4v19-3m

THOMAS O'NEIL Ornamental Glass Cutter, No. 10 Stevenson street, up stairs. Stained, Ground and Ornamental Cut Glass to order on reasonable terms. 1v420

MARAVILLA COCOA. For Breakfast.—The *Globe* says: "Various importers and manufacturers have attempted to attain a reputation for their prepared Cocoas, but we doubt whether any thorough success has been achieved until Messrs. Taylor Brothers discovered the extraordinary qualities of 'Maravilla' Cocoa. Adapting their perfect system of preparation to this finest of all species of the Theobroma they have produced an article which supercedes every other Cocoa in the market. Entire solubility, a delicate aroma, and a rare concentration of the purest elements of nutrition, distinguish this Maravilla Cocoa above all others. For invalids and invalids we could not recommend a more agreeable or valuable beverage." Sold in packets only by all Grocers, of whom also may be had Taylor Brothers Original Homoeopathic Cocoa and Soluble Chocolate. Steam Mills—Brick Lane, London. 5v20-1y

A VALUABLE BOOK FOR INVENTORS AND ARTISANS.—Dewey & Co., publishers of the *SCIENTIFIC PRESS* and Patent Agents, have just issued a neat little volume of over five hundred well executed cuts of the principal mechanical movements known. These useful representations of the various appliances of power are related side by side with explanatory notes, which makes the subject clear to every reader. Such a book should be in the hands of every mechanic, and form part of every public school library. It is a handy book, and cheap enough for every farm, shop and factory. Sent to any address from the *SCIENTIFIC PRESS* office, postpaid, for \$1.—New Age.

Card

From the National (Elgin) Watch Co. The attention of Watch-buyers is called to the improved American Watches, manufactured by the National (Elgin) Watch Company of Elgin, Ill.

Ladies desirous of purchasing a handsome, strong and correct time piece will find the elegant Watch bearing the trade mark of "LADY ELGIN" to be all that they desire. Inquire of your jeweler for the LADY ELGIN.

The trade on the Pacific Coast supplied at factory prices by Levison Bros., 629 Washington Street, San Francisco, who have on hand at all times a full supply of all grades of movements, and material for repairing the same.

An illustrated pamphlet, entitled "Making Watches by Machinery," by the late Albert D. Richardson, will be forwarded free of charge by sending address to NATIONAL WATCH COMPANY,

159 and 161 Lake Street, Chicago; No. 1 Maiden Lane, New York;

Or LEVISON BROS., 8v213t 629 Washington Street, San Francisco, Cal.

QUARTZ MILL AMALGAMATING

PLATES, plated with fine silver in an improved manner, at the very lowest rates. The best American copper furnished and cut to order. Old plates bought or worked. Old plated goods, of all kinds, repaired and replated. Work guaranteed and at Eastern prices.—Articles can be sent and returned by Express, by CHAS. WEST, No. 139, 3d Street, S. F. AGENTS—MORRIS & WHITE, 30, Fremont, St. S. F.

San Francisco Metal Market.

PRICES FOR INVOICES.

Jobbing prices rule from ten to fifteen per cent. higher than the following quotations.

THURSDAY, August 25, 1870.	
IRON.—Duty: Pig, \$9 per ton; Railroad, 60c per 100 lbs.; Bar, 1 1/2c per lb; Sheet, polished, 3c per lb; common, 1 1/2c per lb; Plate, 1 1/2c per lb; Pipe, 1 1/2c per lb; Galvanized, 2 1/2c per lb.	
Scotch and Eng. Pig Iron, per ton... 23 00	@ 30 00
White Pig, per ton... 23 00	@ 30 00
Reinforced Bar, had assortment, per lb... 03	@ —
Refined Bar, good assortment, per lb... 04	@ —
Boiler, No. 1 to 4... 04 1/2	@ —
Plate, No. 5 to 9... 04 1/2	@ —
Sheet, No. 10 to 13... 04 1/2	@ —
Sheet, No. 14 to 20... 05	@ —
Sheet, No. 21 to 27... 05	@ —
COPPER.—Duty: Sheathing, 3 1/2c per lb; Pig and Bar, 2 1/2c per lb.	
Sheathing, per lb... 26	@ —
Sheathing, Yellow... 20	@ —
Sheathing, Old Yellow... 10	@ —
Composition Nails... 21	@ —
Composition Bolts... 22	@ —
Tin Plates.—Duty: 25 cent. ad valorem.	
Plates, Charcoal, IX, per box... 12 00	@ —
Plates, I C Charcoal... 10 00	@ 10 50
Roofing Plates... 10 00	@ 10 50
Banca Tin, Slabs, per lb... 42	@ —
STEEL.—English Cast Steel, per lb... 15	@ —
QUICKSILVER.—per lb... 70	@ —
LEAD.—Pig, per lb... 7 1/2	@ —
Sheet... 10	@ —
Pipe... 11	@ —
Bar... 9	@ —
ZINC.—Sheets, per lb... 10 1/2	@ —
BORAX... 35	@ —

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24v17-qv

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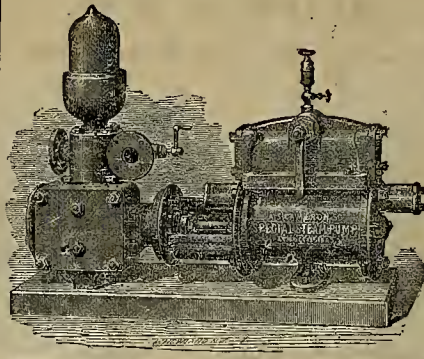
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THE GRAND
Horticultural, Agricultural and
Pomological
EXHIBITION
OF THE

MECHANICS' INSTITUTE,
Will open on MONDAY, AUGUST 29, 1870, and continue
for FIVE DAYS, at the

Pavilion Building,
On Union Square, San Francisco.

The Exhibition will be of
FRUITS, WINES, FLOWERS, FERNS, PLANTS, SHRUBS, CEREALS, and all that relates to the
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Every facility will be extended to Exhibitors, and

CASH PREMIUMS

To the amount of Two Thousand Dollars

Will be awarded to Competitors in the Products of the Soil.

THE SOCIETY'S Gold Medal will be awarded for CALIFORNIA WINES.

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It is intended that this Exhibition shall be THE feature of the season, and everything will be done to make it an agreeable and attractive entertainment to the visitor.

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[CORRECTED WEEKLY FROM THE AMERICAN ARTISAN.]

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Refined..... 57 50 @ 95 00

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Bars, best cast, warranted, per lb... 16 1/2 @ 17 1/2

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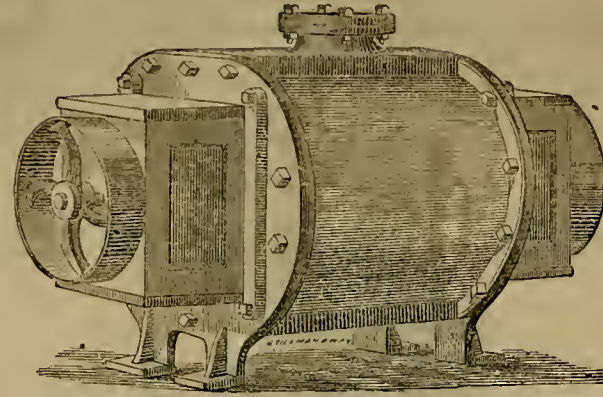
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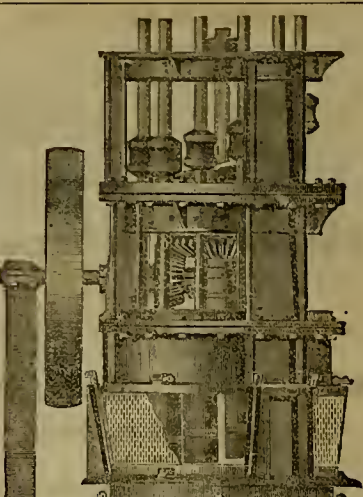
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SAUCE. The success of
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having caused certain
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are upon the wrapper, labels, stopper and
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Some of the foreign markets having
been supplied with a spurious Worcester-
shire Sauce, upon the wrapper and labels
of which the names of Lea and Perrins have been
forged, L. and P. give notice that they have furnished
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be infringed.

Ask for LEA & PERRINS' Sauce and see name on
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Wholesale and for export by the Proprietors, Worces-
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NEW VOLUME, JULY 1, 1870.

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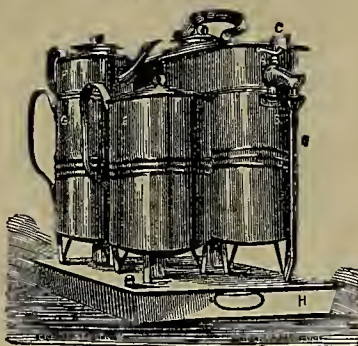
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
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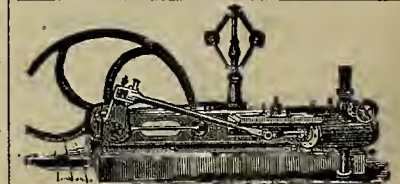


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NEW VOLUME.—The San Francisco SCIENTIFIC PRESS has entered its 21st volume, and is one of the most valuable journals published. Continuing, as it does, articles on every branch of home industry, the sciences, etc., the Press should find its way into every household in the land. The four dollars expended for a year's subscription to this journal may be repaid by the information gained by the perusal of only one number.—Alpine Chronicle.

SCIENTIFIC PRESS.

AN ILLUSTRATED JOURNAL OF SCIENTIFIC AND INDUSTRIAL PROGRESS,
Mining, Farming and Mechanic Arts.

BY DEWEY & CO.,
Patent Solicitors.

San Francisco, Saturday, September 3, 1870.

VOLUME XXI.
Number 10.

A New Roasting Furnace.

From Colorado there comes to us a new furnace for oxidizing and chloridizing ores. This is the invention of Mr. John P. Arey, of Georgetown, from whose patent, dated May 17, 1870, we get the following description. We are also happy to be able to present our readers with an illustration of the device, the first which has yet been given of this furnace.

A represents the shaft of the furnace, which is formed within the walls, F, rising in a zigzag manner from the chamber, D, for collecting the roasted ore, and terminating at the summit of the furnace, at which point the ore is fed into the shaft. The prominent angles, *i*, of the opposite sides of this shaft, from bottom to top thereof, are in (or nearly in) the same vertical plane, which is indicated by the dotted line in the drawing. Hence the ore, while falling in streams through the shaft, will be crossed and recrossed by the heated currents rising from the fire-place, C C; hence also these currents will circulate freely through the spaces on opposite sides of the descending streams of ore and uniformly heat the shaft throughout its length.

Leading out of the shaft, A, near its upper end, is an escape-flue, B, which may be of the serpentine form shown, or may be straight. This terminates in a dust chamber, E, at the base of the furnace, and communicates with the shaft, A, by the transverse passage, *a*.

Near the upper end of the shaft, A, and on one side, is a fire-chamber, G, the products of combustion from which pass into the shaft and thence through *a* into B, as indicated by arrows in the drawing. This auxiliary fire-place is preferably arranged over the short flue, *a*, but may be placed below or opposite to it, or in any other place where the heated products will be compelled to first enter the shaft before escaping into an outlet flue. The object of this fire-place is to make the ore cross the highly heated products therefrom, previous to being brought under the direct influence of the heated currents ascending from the lower part of the shaft, by which means the ore is brought to a condition for being more readily acted upon while falling through the shaft. Another advantage is that the flame from this fire-place, entering the shaft so near the common escape-flue, will pass into this flue along with the dust, which is either too light to pass below or which may be carried into the flue by the draft, and, mingling with the escaping heat and gases, will become thoroughly roasted before it reaches the dust chamber, E.

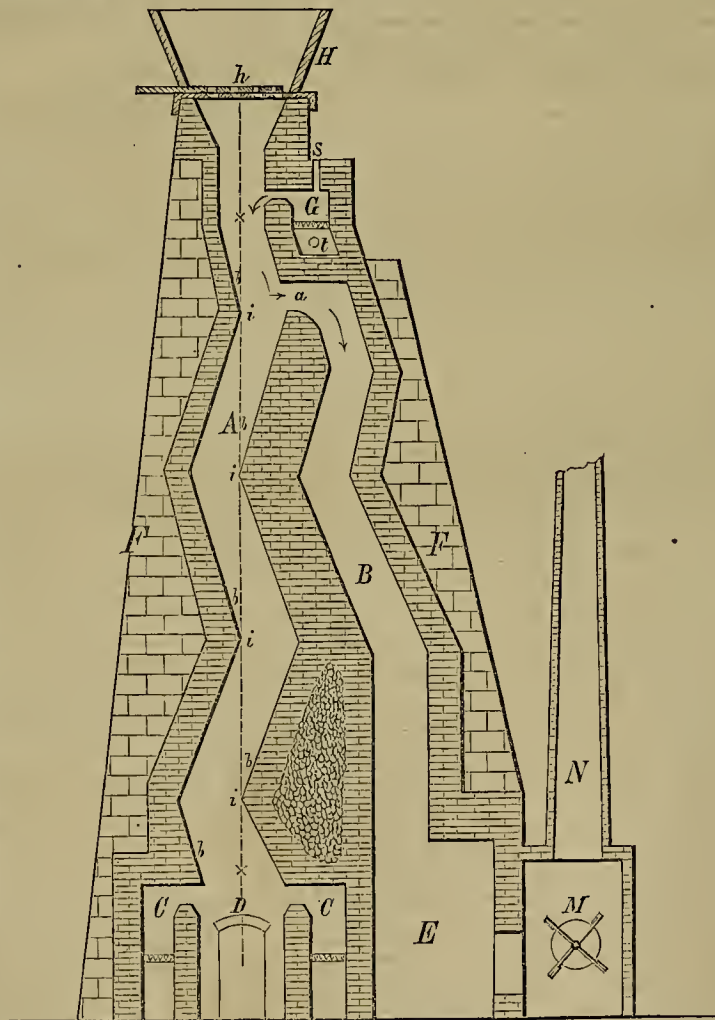
At the upper end of the shaft, A, there is a feeder, consisting of a hopper, H, having perforations or oblong slots through its bottom, and a corresponding perforated slide, *k*, so applied that, by giving it a reciprocating motion, the ore or substance to be treated will be regularly fed into the shaft. The slide can be adjusted so as to regulate the amount of material fed. Any other proper feeder may be used.

At the base of the chimney, N, there is a fan, M, which is rotated more quickly or slowly according to the force of draft required, and, to start the fire in the auxiliary fire-place, G, draught-dampers may be opened below and above the fire. These dampers are applied in practice opposite the passages, *s*, *t*.

Such is the best furnace for roasting ores. It has not been worked as yet and hence one cannot say just what the result will be. Yet high hopes are entertained of its success, and two furnaces are now in course of erection, one on Chicago Creek and one on Snake River.

shall await with great interest the results of running the two furnaces now being built.

The matter of having such furnaces as these is of great importance to our Coast. The Stetefeldt furnace has proved a success. But the high price charged for the right to use the furnace prevents many from having it. Hence everybody is still eager on the subject and all roasting furnaces are matters of paramount interest. If Colorado proves able to roast ores in this furnace more cheaply than has hitherto been done there, it will be a great advance for the territory, as well as for the whole land.



The Arey Patent Roasting Furnace.

We should be inclined to fear that some trouble might arise from the form of the shaft, and that the ore would collect on the planes marked *b* in the drawing, and render necessary a frequent cleaning of these places. Moreover, we are not quite clear as to the advantages of the auxiliary fire-place, G. Whether dropping the ore immediately into the great heat, which must exist between G and *a*, is the correct method and will not result in a partial smelting of the particles, might be a doubtful question. But these are points which will soon be made clear by practice. We

IMPORTS AND EXPORTS.—According to a telegram, in the August report of the Chief of the Bureau of Statistics, a full statement will be given of the imports for the fiscal year 1870. This shows a large increase of exports over the preceding year, although our imports still exceed the exports.

STEAM ENGINES.—The value of the steam engines exported from Great Britain, according to the *Berg. u. Huttenm. Zig*, was £1,417,270 for the first 10 months of 1867, £1,470,171, for the same time in 1868, and £1,429,499 for the corresponding period of 1869.

SUCCESSFUL TREATMENT.—The Colorado Register says that Cash, Rockwell & Co, in Chase Gulch, near Central City, are at last successful in their attempts to treat Colorado ores. They have tried the Plattner process, but found that the loss of precious metal was too great. After a series of experiments, lasting some 18 months, they have at last succeeded in getting a cheap process, by which the gold, silver and copper are all saved. In what this method consists, is not said, further than that it is closely allied to the French method of Bronpiere, and that the ore is crushed fine and roasted. We are going to look up the Bronpiere method, being obliged to confess to ignorance on the point. Is it a roasting, followed by chlorination according to Plattner and leaching according to Küstel and Hoffman?

THE San Diego County census has been completed. According to this, San Diego City has 2,301 inhabitants and 915 occupied houses, real estate valued at \$2,282,800, and personal estate valued at \$741,252. San Luis Rey, including Santa Margarita Valley and Los Flores, has 335 inhabitants, 81 dwellings, real estate valued at \$226,800, and personal estate valued at \$293,175. The Julian District contains 303 houses, 534 inhabitants, real estate worth \$108,095, and personal estate valued at \$88,409. Fort Yuma and Colorado River District has 17 houses (exclusive of military quarters), 102 inhabitants, and real estate valued at \$3,900. The total number of inhabitants in San Diego County, exclusive of Indians, is 4,787; of dwellings, 1,799. The total value of real estate is \$3,081,634.

THE BIG HORN EXPEDITION does not appear to have met with the success it expected. They were completely interdicted, says the Cheyenne Leader, from going on to the best lands for gold discovery, the Big Horn Mountains. At no place were paying prospects found as far as they went after leaving Sweetwater. Better prospects were found on Elk mountain, near the U. P. R. R., than at any other place. No Indians were seen. A part returned to Cheyenne, on the 24th of August.

LETTER-BOXES are soon to be placed in different parts of the city, attached to lamp posts, as at the East. The street-names are in many places attached to the lantern of the lamp, so that it is now possible for a stranger to find his way with much less trouble than formerly.

SCHOOL OF MINES.—The legislature of Colorado, at its last session, appropriated about thirty-nine hundred dollars for a building for a school of mines. The corner stone of that building was laid with religious ceremonies on Monday, August 15th, by Bishop Randall, in the presence of a large assembly of people. The Bishop delivered a pleasant address on the occasion.

QUICK WORK.—Two hundred and twenty tons of wheat, were put on board a ship at Oakland, the other day, in four hours time, and all through one port hole.

Communications.

IN THIS DEPARTMENT we invite the FREE DISCUSSION of all proper subjects—correspondents alone being responsible for the ideas they advance.

Notes of Travel in Placer County.

[Written for the Scientific Press.]

Forest Hill, its Mines, Scenery, etc.

Forest Hill is situated on the divide between the North and Middle Fork of the American river, and 22 miles northeast of Auburn Station. Although somewhat depopulated at present (on account of scarcity of water), it still contains about 250 enterprising inhabitants. The distance from Auburn Station is made in about five hours by Powell's stage line. For 15 miles of this distance there is the most beautiful view of any in the northern mines; to the southeast can be seen Georgetown, situated on the divide between the Middle and South Fork of the American, and on the northwest, Iowa Hill, on the range situated between the Middle and North Fork of the American River, and in the direction of Donner Lake, 75 miles of glorious scenery are open to your view.

The Mountain Co., superintended by C. Beckman (Forest Hill), have a tunnel in 2,600 feet, and a shaft down 90 feet. The mine is owned by a company of Germans, and employs, on an average, about thirty hands. They have a crushing mill, but make no use of it at present. Their average net proceeds, over expense, are \$1,000 per month. They work through the Baltimore tunnel. The Baltimore claims are very extensive and are owned by A. Hayward. Work was started on one of these (there are several) last fall, under the superintendence of P. Deidesheimer, but has been temporarily suspended; cause unknown.

The Jersey claim, owned by G. W. Reamer, is superintended by John Brown, and is now working seven men. This claim has paid exceedingly rich for many years, and although somewhat interrupted at present, its management has every confidence in a fortune being taken out in the next twelve months. The once immensely rich Jenny Lind claim is again being worked, with a good prospect of success. The Rough and Ready, pronounced worked out years ago, is about to be proven to the contrary by its present proprietors, Messrs. R. J. Glover and N. Hurtzig. Many other claims, of more or less note, on this ridge have a very extensive back channel, as yet almost untouched. The Mountain Co. only have worked such portion. All the claims on Forest Hill ridge extend through this back channel to the Devil's Cañon, but their tunnels all being too high, it will take big capital to open them down to the proper drainage. When this is done, success is certain. As a proof that the inhabitants here have a high appreciation of themselves and the place, I will state that they have the tallest liberty pole in the State, which is 220 feet high.

Neighboring Towns.

Yankee Jim's, at present almost depopulated, is situated three miles, a little south of west, from Forest Hill. Although millions of dollars have been taken out here, and thousands of men employed in doing it, if water is brought in here in any quantity (and with large capital this would be perfectly practicable), the same scenes will again occur. But two or three companies are now working, the principal one of which is Bradley & Co.

Todd's Valley is situated about three miles southeast of Forest Hill, and the same remarks made with regard to Yankee Jim's will apply here. Pond & Co. have a monopoly of its mines. The character of the pay dirt is cement gravel, but easily washed.

Bath, a small place situated one and a half miles farther up the divide, supports about 100 inhabitants. The pay here is found in a hard cement, which has to be thoroughly slacked before washing or crushing. The Paragon Mill Co. are the most successful, owning the principal lead and having a good mill for crushing. They work about 20 men night and day, and the dirt pays about ten dollars a day to the man.

Six and a half miles farther up the divide is Michigan Bluff. The character of the pay here is similar to that of Yankee Jim's and Todd's Valley—a slightly cemented, washed gravel, deep, paying from the top down. Hydraulic mining is the process of mining here, but, at present, water can be obtained only six or seven months in the year. They all live in hopes here of seeing Col. Von Schmidt's enterprise (of tapping Lake Tahoe) carried out, when, with plenty of water, the sound of the pick and shovel will be heard on every foot of this range. L. P. Mc.

Battle Mountain District.

[Written for the Scientific Press.]

EDITORS PRESS:—I have been a reader of your valuable journal several months, and have often sought it for the information it contains about mines and mining interests in all parts of this country. I notice, however, that but little is said about the mines in Battle Mountain District, Nevada. Having made rather a lengthy visit in this locality, and having become acquainted with the nature and qualities of many of its ledges, it seems rather strange that so valuable a section of mining country as this, should go so long a long time unnoticed and comparatively unknown. It may be that the shrewd proprietors of mining property here do not care to become notorious in their possessions, being satisfied with a good thing, and more disposed to quiet enjoyment than to noisy celebrity.

It will be no news to state that this camp is six miles by stage road from the station of the same name on the C. P. R. R. A good, but dusty road leads to it, and continues eight miles farther, by gentle ascent, to the town of Galena, in the same district. About half way between the two places, a little off from the road, you will see the Galena Smelting Works. They were commenced a few months since, and finished, as the proprietors supposed, to successful completion. Unfortunately, there was a difficulty somewhere beyond their intelligence, and almost a total failure was the result. But the experience so dearly bought convinced other parties that a favorable result could be obtained. In consequence, a stock company has been organized with ample means, other talent employed, and now all concerned have every reason to believe that a splendid success awaits their enterprise, and that the hopes of the new company will be soon realized. It is of the greatest importance to the prosperity of this district that such should be the case, as there are so many good ledges, both of copper and galena, to be worked, held by comparatively poor men, who have not the means to go through with the usual expensive mode of shipping their ores to distant places for reduction.

Further on the road towards Galena, you will find the "Butte," a silver mine of good reputation and splendid prospects. The cosy cottage and fine garden of its urbane superintendent, J. T. Maclean, Esq., are suggestive of wealth and permanency. It has been a self-sustaining mine from the beginning, and is owned by five gentlemen, none of whom have been called upon for a dollar to assist in its development. Several car loads of ore are shipped per week to the reducing works at Reno, Nevada, making very gratifying returns. It is in contemplation to erect a mill by which their low-grade ores can be reduced, thirty thousand dollars' worth of which, at least, now lie upon their dump.

Beyond Galena, farther up the cañon about three miles, is the famous copper mine belonging to an English Co., known as the "Battle Mountain Mining Co." It is truly a famous mine, and is, without doubt, one of the best pieces of mining property in this State. Their commencement was anything but encouraging. A shaft from 60 to 80 feet in depth was sunk without favorable results, but, having faith and perseverance, they continued to sink until an immense ledge was struck, producing ore forty, fifty and even seventy per cent. in richness. It is an incorporated company, fifty per cent. of its capital only having been called in. Its stock is now held at 113. D. W.

[To be continued.]

Rev. A. F. White, State Mineralogist of Nevada, came very near the end of his day by partaking of poisonous berries, a week ago.

Our Home Industries.

The Alvarado Beet Sugar Factory.

The impressions gained from a visit to this institution, were of a most favorable character. The general magnitude of the undertaking, the state of forwardness towards completion of the building and the placing of machinery, together with the cheerful confidence and well directed energy of the projectors, so appeared to an observer, as convinced me of the substantial nature of the enterprise.

Situate at the head of navigation, upon the north bank of the Alameda Creek, which comes winding among groves of trees from the cañon, several miles away, through which the Western Pacific Railroad passes eastward, it is most favorably located in the midst of cultivated fields, and beautiful landscapes.

The main building is 50 by 150 feet, 2½ stories, with a large tower, for the accommodation of certain portions of the refining works. The building contains numerous rooms, some of them closely sealed to prevent the escape of heat. There are also wings and sheds for various purposes. On the first floor there is an office, while on the second, in a secluded place, is a chemical laboratory and test room.

A wharf 60 feet long, to be extended 150 feet, rests upon piles that find a solid bottom at 12 feet, which shows the solidity of the foundation, or deposit beneath.

Over 250,000 feet of lumber is required in and about the buildings—instead of 78,000 as has been reported.

The Capacity of the Mill

Is 50 tons of beets for each 24 hours; and as the soil here will yield about 40 tons of sugar beets to the acre, only about 400 acres will be required to produce a sufficient quantity of beets to keep the mill busy the year round. There is that number of acres under cultivation this season, at a contracted price of \$3.50 per ton. This price, as low as it appears, will allow the producer about \$140 per acre. And if 8 per cent. of the gross weight of beets is sugar, a low estimate, each acre will yield about 5,000 lbs of sugar, while the factory will make 6,550 lbs daily, which at 8 cts. per lb. would be worth \$500. Allowing \$175 as cost of beets—the manufacturer will receive \$325 for a days work at these figures.

The Incorporation,

Including about a dozen stockholders, represents a subscribed capital of \$250,000, which will probably fall short of the expenditures necessary to the completion of the works.

The company own nearly 100 acres of land where the factory stands, purchased of Mr. E. H. Dyer, who has a fine residence nearby, and is one of the prime movers and owners in the sugar works. The land owned by the company is planted with beets. Mr. Dyer says that with a drilling machine, such as he uses, one man and two horses can sow ten acres of beets per day, and do it well; and that the cultivation, on land well prepared is not very expensive. I examined several fields of beets, and in every instance observed a fine and luxuriant growth. They can be planted at any season almost and be sure to grow, where a sufficient amount of moisture is present. But in early spring is the favorite time of sowing.

The Machinery

Of the sugar factory, except the centrifugals which are ordered from Germany, has all been made in San Francisco, by Booth & Co. Three Engines, one of 12 and two of 40 horse power each, will furnish the driving force, for the working of the machinery. The beets will be first taken by machinery into a

Wash Room

Some 50 feet square, where they will be thoroughly cleansed from all adhering dirt. They will then be elevated into the

second story, where

The Grater,

Will convert them into a fine pulp, which will be passed into another room upon the same level and submitted to the

Centrifugals,

Of which there are 10 large ones. These, by rapidly revolving, will force or strain out the juice. The refuse, dry pulp, is to be carted to the yards and fields for the live stock, which will be fed upon it. This is an item well worth the consideration of stock men.

From the centrifugals the juice will be passed into the

Defecating Pans

Where it will remain until it attains to 68 degrees of heat. It is then forced through "Montejucos" into the Saturation Apparatus in the tower of the building, where steam is made to act upon the juice. It passes thence, through five immense, long upright Filters made of boiler iron, and filled with animal or bone charcoal. From thence it goes into the Evaporating Pans, where it is boiled down to a syrup.

This Syrup is then transferred to a Vacuum Pan, where it will be boiled to the point of crystallization. The sugar, still in the syrup, will then be crystallized in pans, after which it is placed in Sugar Centrifugals, where it will be freed from the syrup, and both sugar and syrup be afterwards made ready for market.

The building was started about 4 months ago, and will be ready to commence operations sometime in September. Very little of the machinery was in place at the time of my visit, so that this description is dependent upon my understanding of another's explanations without seeing much myself.

Every process of heating will depend upon steam. The furnaces and boilers are works of considerable magnitude. A kiln is prepared, where the charcoal fouled by filtering, will be re-burned and purified from all absorbed particles. Some 75 tons of bone-coal will be required to do the filtering for this season.

As the factory will be run night and day, about 100 hands will be employed in and about the works.

The only successful Beet Sugar Manufactory ever started in the United States was the one operated by Messrs. Bonesteel and Otto, at Fond-du-Lac, Wisconsin.

The great promise of superior inducements and facilities offered in this state, caused these gentlemen to embark in this enterprise. Their ample experience in Europe and America, has given them perfect familiarity with the working of all the necessary details and complications incident to such business.

Mr. Otto received a diploma at the Paris Mineral Exhibition, in 1867, for the best sample of crystallized sugar manufactured from the beet. Mr. Bonesteel, showed me four grades of beet sugar, made by them at Fond-du-lac. Sample No. 1 was beautifully pure granulated crystals, not to be excelled by any. No. 2 was refined like crushed sugar, of pure white and sweetness. No. 3 was the color of light coffee sugar, with a slight beet flavor; while the 4th lot was of a clear brown, of lively appearance, but of rather decided beet taste.

Artesian Wells.

An artesian well of 7 inch bore, 205 feet deep, which stands at a temperature of 64 degrees, and will raise water of clear and excellent quality, some 12 feet above the surface, will supply the factory. Mr. Dyer has one at his house, but a short distance away, that is 270 feet deep and shows a temperature of 65½.

Several other wells have been bored in this vicinity which yield an abundance of very excellent water.

Conclusion.

A desire to give some correct information as to the importance and magnitude of this enterprise has induced your correspondent to take an interest in giving this detailed description. The undertaking is a most important one, and is backed by men that can hear to loose, but who are determined and can afford to win.

The successful working of this, will surely incite others to erect similar works. There are many thousand acres of land that will grow the sugar beet to perfection that need reclaiming, and which this, if a full success, will speedily bring into usefulness. The probable limit of the manufacture of sugar from beets in California, will be a supply of the article in sufficient abundance to reduce the price below a living profit. When this hopeful condition of things is reached, California will be the largest sugar producing district in the world!

S. H. HERRING.

Mechanical Progress.

SEPARATING THE METALS OF AN ALLOY. C. S. Eyster, of Colorado, has patented a new plan for doing this, which is based upon the different specific gravities of the metals constituting the alloy, and their consequent tendency to arrange themselves at different distances from the center of a cylinder in which they are rotated rapidly while in a state of fusion. His idea is, that when the rotation of the cylinder has been kept up long enough to allow the different metals thus to arrange themselves in concentric rings, the furnace underneath may be withdrawn, and the metals allowed to cool;—the rotation being, of course, continued until they become hard. They may then be separated by turning off in a lathe,—each in its order. It does not appear that the practicability of this plan has as yet been tested to any very great extent.

LAROE STEEL CASTING.—The Sheffield (England) *Telegraph* describes the recent casting of a block of steel weighing over fifteen tons, for a steam-packet screw-shaft, fifteen feet in length and four feet in diameter. "The work of melting the steel commenced about eight o'clock, in five hundred and forty-four crucibles—each containing sixty-four pounds—the total quantity thus being 34,816 pounds, or fifteen tons, three quarters, twelve pounds. About half-past twelve the work of casting commenced. With 544 crucibles to empty into one mould, the difficulty of procuring a steady flow of metal at an equal temperature was very great; but so admirable were the arrangements, and so enthusiastic the interest which the workmen individually took in the process, that in half an hour it was triumphantly accomplished, without the slightest accident. Silently the stream of workmen approached with the crucibles, and as silently retired in the opposite direction, till one could not resist the idea that he saw the result of military training. * * * Ten or twelve years ago, the correct casting of an ingot of fifteen cwt. of crucible steel was considered as great a triumph as that of fifteen tons now is. The weight of an ordinary crucible steel ingot is only about forty-five lbs. There were nearly 300 men engaged in the work of casting."

DOUBLE FURROW PLOW.—The *Engineer* of July 29th, illustrates a plow exhibited at the late Oxford Show by Ransome & Co. We quote a part of the description, which will give an idea of the manner in which the plow is lifted out of the ground; the great objection to this kind of plow having heretofore been the difficulty of doing this, on account of the great weight. "A handle somewhat similar to the reversing lever of a locomotive, will be seen between the plow stilt, and a pair of wheels between the beams. When at work, these wheels are in the air. They are mounted in a peculiarly formed frame, provided with a pair of tires. Just before the headland is reached the plowman throws forward the stilt lever, and by doing so brings down the tires, the points of which catch the ground, and as the horses proceed they are forced backwards, thereby bringing down the wheels, which take the weight of the plow and lift it out of the land without further exertions on the part of the plowman; by drawing back the stilt lever, the plow is dropped into work again."

POWER REQUIRED FOR CIRCULAR SAWS. The *Builder* says: "The size of saws has nothing to do with the power required; that is determined by the width of boards to be sawed. In sawing pine logs, generally, one-horse power will be sufficient to make one foot of inch boards per minute. This leaves the momentum of the fly wheel, etc., out of the question. The advantage gained by the use of fly wheels is great. A 24-horse power, with this aid, will saw as much lumber in twelve hours as a 48-horse power in the same time without it."

COPYING PRINTED MATTER.—A late patent is for a preparation, by means of which impressions may be taken of the printed portion of a bill of lading or other document, as well as of the portions which may have been written with copying ink; and this, too, months after the first impression. So says a Philadelphia paper.

SOMETHING NEW IN PHOTOGRAPHY.—M. Bazin,—says the *Mechanics' Magazine*,—has made the curious discovery that the short time now required for the exposure of a plate may be still further diminished one-third, by adopting the following plan: "M. Bazin makes four holes in the front of the camera, and fits them with glass colored by a solution of carmine in ammonia, behind which he places another piece of unpolished glass. These holes are uncovered at the same time as the lens, so that the red light falls upon the plate simultaneously with the image through the lens. According to the statement of the author, the blacks and high lights are by this means much softened and the half tones greatly improved. The same effect is said to be produced if the sensitized plate be exposed to red light either before or after the picture be taken; in the latter case, of course, before the image is developed. He finds no such effect produced by the use of glass of any other color."

DANK'S ROTARY PUDDLER.—The Cincinnati *Gazette* pronounces this an established success. Recent experiments, continued for several days, gave "a superior quality of iron or muck bar from a given quantity of metal; a larger yield than is possible in a hand furnace, averaging ten per cent.; an increased quantity puddled of fifty per cent.; a saving in coal of thirty per cent.; of labor the same, and a saving of repairs and materials; a saving in cost of construction, based on product of furnaces; an ability to work a quality of pig iron or old castings difficult to puddle in hand furnaces, and to produce puddled balls of any weight required. It can produce iron or steel at pleasure from puddled balls of sufficient weight to make a solid rail from a homogeneous bloom, of better quality and cheaper than by any other furnace."

COLD TANNING AND SILVERING.—A French iron master patents this process for tanning iron wire for cards and wire cloth. A solution is made as follows:—"To every twenty gallons of water add 6 lbs. of rye flour, and let it boil for half an hour; filter and add 112 lbs. pyrophosphate of soda, 34 lbs. crystallized salt of tin, 134 lbs. neutral protochloride of tin, and from 3 oz. to 4 oz. of sulphuric acid. When the salts are dissolved the solution is distributed in wooden vats, a little water being added to the first two or three. The wire is passed successively through the whole and through draw plates at intervals. For silvering he uses, in place of the salts of tin in the solution, cyanide of silver and cyanide of potassium."

IRON TELEGRAPH POLE.—The Philadelphia correspondent of the *Iron Age*, thus describes a new "telescopic tubular iron telegraph pole":—"The pole is made of the best wrought iron, in three tubular sections of 8 feet each for city use, and but two for country. These sections are connected by "reducing couplings," and are of the following diameters: At the bottom, two and a half inches; second section, two inches; and third, one and a half. The base attached is fifteen inches in diameter, with four lugs attached, each four inches square, with inch and a half holes at the extremity of each, for the purpose of dogging or keying in soft, marshy ground. The pole weighs including base but 125 lbs. Being telescopic, the upper sections sliding into the lower one, it occupies for transportation a space of only eight feet."

BLEACHING BY PERMANGANATES.—The manufacture of the permanganates being now comparatively inexpensive, they will doubtless come largely into use for bleaching purposes. The *Manufacturers' Review* thus describes the manner of using them:—"The tissues to be bleached are cleansed by hot water, and freed from grease in an alkaline bath. They are then immersed in a bath which contains a solution of permanganate of potash or soda, to which is added a salt, such as sulphate of magnesia. After immersion fifteen minutes, the goods are taken out and placed into baths which contain sulphurous acid. In these they are left till the covering of oxide of manganese formed is removed; they are then washed clean. If the color is not yet sufficiently white, they are again dipped into a bath of permanganate, washed, and again passed into a bath of sulphurous acid, concluding with another washing. The treatment is repeated till they are perfectly bleached. A bleaching bath, which contains, according to the nature of the fiber, 4—10 pounds of permanganate of potash or soda, suffices to bleach 200 pounds of cotton, flaxen or hempen tissue."

Scientific Progress.

SECRETION NOT MERE SEPARATION.—The cell is the histological unit which consists of nucleus and plasma. The function of the cell is secretion. We give here two or three detached paragraphs from a paper by J. Gedge, M. R. C. S., which we find in the *Bordeaux Scientific Review*:

"Formerly, secretion was regarded merely as separation. The blood was supposed to contain all the complex substances poured out by different glands, and it was simply the duty of the gland-cell to choose from the blood, as it flowed by, the particular substance that it was required to separate. Now, however, the gland-cell is known to fulfil a more important office. Formation rather than separation, would appear to be the function of the gland-cell. It would seem to attract the nutrient material in its vicinity, and with the unknown machinery to make use of chemical affinity to construct elaborate compounds. But we cannot gauge the action of a gland by merely analyzing the secretion poured out, for there can be little doubt that all glands compound for the blood as well as for their own secretion. * * The blood flows through the glands, bearing with it secretions from every tissue of the body. Is it difficult to understand how the resulting product of the ovum and spermatozoon may inherit the peculiarities of both parents? The notion is, I think, preferable to Mr. Darwin's modern theory of Pangenesis. * * Each nucleus would seem to be a battery, the construction of which we have at present no means of finding out. We see how forces can be correlated with its force, and we are thus able to study its affections; but we know no more of its construction than of that combination of matter which sustains chemical action, furnishing heat and magnetism in the earth's centre. Thermo-electricity and the hypothesis of Grothuss start us with ideas of what goes on during the incubation of an egg, but fall short of furnishing us with a parallel phenomenon. Physiologists boast of our being able to construct such organic secretions as alcohol, oil, and urea, but this is quite beside the question. The day may come when the chemist in his laboratory may out of stones make bread, but I see no reason to think that he will even in that day do it with other than the comparatively clumsy apparatus with which he has constructed his alcohol and urica."

GEOGRAPHICAL DISTRIBUTION OF RACES. At a late meeting of the Ethnological Society in London, Prof. Huxley read a paper upon the "chief modifications of mankind and their geographical distribution." He described five distinct types,—as follows: 1. The *Australoid*, with slender limbs, dark brown skin, black wavy hair, strong brow-ridges, and long skull; this type is found throughout Australia, among the hill tribes of the Dekhan in India, and formerly in the Valley of the Nile. 2. The *Negroid*, with dark skin, black frizzled hair, and long skull; a group which includes the Negroes and Bushmen of Africa, and the Negritos of New Guinea, Tasmania, &c. 3. The *Xanthochroic*, with fair skin and blue eyes, distributed through Iceland, Eastern Britain, Scandinavia, North and Central Germany, and extending through Eastern Europe into Asia, as far as Northwest India, and found also in the North of Africa. 4. The *Melanochroic*, a type with dark complexion, occupying an area situated between the Xanthochroic and Australoid peoples; and 5. The *Mongoloid*, a large and somewhat ill-defined group extending throughout Central and Northern Asia, the two Americas and Polynesia.

LIQUEFACTION OF ROCKS.—"Pressure prevents fusion, when it is, as in most instances, a process of expansion, but favors solution, which is, with few exceptions, a process of contraction. Now since I place the seat of volcanic action in a region where solution, rather than simple fusion, is the cause of liquidity, I am led to consider pressure as one of the efficient causes of the liquefaction of rocks, and to regard its diminution as leading to solidification."—Prof. T. Sterry Hunt.

TO OBTAIN OZONE.—Behind the short flame of a Bunsen burner a large beaker is placed, with the opening to the flame, and a current of air, by means of a tube, is blown through the flame into the mouth of the glass. This, after a few seconds, is covered with a glass plate, on removing which the characteristic odor of ozone will be perceptible.—*Gas Light Journal*.

ARTIFICIAL COAL MAKING.—"M. Baroulier invented an apparatus in which vegetable matters enclosed in moist clay and powerfully compressed, were to be exposed to temperatures of 200 degs. to 300 degs. kept up for some time, in which the organic matters combine, and form a substance analogous to coal, lignite, or peat. As his apparatus, without being absolutely airtight, offers an impediment to the escape of vapours and gases, it follows that the decomposition of the organic matters is effected in a space which is saturated with moisture, and under a pressure which impedes the desiccation of the elements of which they are composed. These circumstances are very nearly the same as those of nature during the geological epochs in which coal and lignite have been formed. Operating in this manner then with the sawdust of woods of various kinds, M. Baroulier has obtained matters whose appearance and properties sometimes remind one of bright coal, and sometimes of a dull coal, which is met with in different kinds of fossil combustibles; and stems and leaves of plants laid between beds of clay in the same conditions are transformed into a layer of coal very similar to that which is met with in coal schist."—*La Houille*.

REGION OF THE SNAKE AND COLUMBIA RIVERS.—The following paragraph is from a lecture delivered by R. W. Raymond, before the Geographical Society of New York:—"The characteristic formation of the Snake and the Columbia above the Cascades is basaltic—the product of vast lava overflows. The sublime group of mountains in Oregon and Washington, which includes Hood, Adams, St. Helen's, Rainier, and Baker, with others scarcely less magnificent, is volcanic. Some of these peaks have been in active eruption within recent years; and all are known to have been so at some former period. But we have not to look for volcanic craters as the centres of the great lava floods which covered so much of Northern California, Oregon, Washington, and Idaho. These craters are scattered along a distance of five hundred miles in the Cascade and Sierra ranges, but it seems probable that a line connects them, upon which the eruptions of melted lava took place abundantly, repeatedly, but perhaps more silently than is apt to be the case with the explosive phenomena of volcanoes. A plutonic dyke may be traced along the sierra, and is asserted to have been observed in a considerable sectional exposure in one of the deep side cañons of the western slope."

MINING TOOLS FROM SINAI.—W. Boyd Dawkins, F. R. S., at a late meeting of the Manchester Philosophical Society, exhibited some flint mining tools brought by M. Baerman from the turquoise mines of the promontory of Sinai. These mines were worked by the Egyptians from the third to the thirteenth of the dynasties mentioned by Manetho. Ample evidence was brought forward to show that these stone hammers and chisels were used for breaking up the rock by the miners. Hieroglyphic inscriptions in the neighborhood, relative to these mines, were also evidently cut with similar tools.

CHEMICAL AGENCY OF LIGHT AND HEAT DISSIMILAR.—"A series of experiments on the relations of oxalic acid to metallic oxides, induced Doehereiner to draw the inference that the chemical influence of light is very rarely analogous to that of heat, and that it is *sui generis*; that the one determines a contraction, the other an expansion, of the matter, and that the reductive action of light is a consequence of the contractive force of that agent, while the effect by which heat promotes combustion and almost every kind of chemical penetration, is the result of the dilatation of the matter occasioned by it. The cause of that opposition of effect is unknown, and we can scarcely hope to discover it, when we reflect with what facility light is transformed into heat, and *vice versa*."—Prof. Wurtz.

DISTINCTION BETWEEN ANIMALS AND VEGETABLES.—Professor Rolleston, of Oxford, in his late book on "Forms of Animal Life," gives a new criterion by which to distinguish animals from vegetables. He says that in the case of all animals the embryo absorbs its yolk from the inside, which in vegetables the germ of the seed is surrounded by its albumen. This is a fore-shadowing of the way in which the adult animal or plant absorbs its food; the former places it within itself for digestion and assimilation, while the latter takes it from outside.

Mining Summary.

The following information is gleaned mostly from journals published in the interior, in close proximity to the mines mentioned.

California.

ALPINE COUNTY.

LEVIATHAN.—*Miner*, Aug. 20th: A contract has been let to run the tunnel 200 feet further.

TARSHISH.—*Chronicle*, 20th: We hear that some ore was yesterday struck in the lower tunnel, but have not learned that any great body has been encountered. This tunnel may be run 100 feet further to reach the ledge. The indications are good.

CALAVERAS COUNTY.

RICE.—*Chronicle*, 27th: On Thursday we were shown, by A. M. Harris, of Sandy Gulch, a "chuuk" of amalgam weighing \$3,500. This was the product of 43 tons rock from the "Col. Avery" or "Woodhouse" mine. This is an average of \$81 40 per ton, for unassorted rock. The lead is wide, well defined, and of unexampled richness throughout. Gold is visible in all the rock. Good judges estimate at least \$20,000 in sight, within a space twenty-five feet in length. This mine was abandoned by a company of English capitalists, who could not make it pay. It was sold at sheriff's sale for taxes and bid in by Mr. Harris, who commenced by sluicing down to the lode on the northern end, disclosing rock that will pay from \$80 to \$1,000 per ton. A large amount of money has been already been taken out. The forty-three tons of rock were mined by three men in two weeks.

RICH GULCH.—The Palomo mill, 36 stamps, is running day and night. The shaft is sunk 300 feet and the rock is being "stoped" out. Forty miners are employed. Alexander & Co. are working industriously. Their mill, a 10-stamp, is crushing a great deal of rock with good results. The mine has paid steadily from the commencement.

INDEPENDENCE.—Cor. of same: Lewis Bros. have run their north level 135 feet from the shaft. They will have their 5-stamp battery running this week. At the Lefoy mine they have sunk 170 feet, and have a 3½ feet ledge which looks well. Buckeye will complete their whim this week.

EL DORADO COUNTY.

GREENWOOD VALLEY.—*Georgetown Cor.* of Placerville *Democrat*, Aug. 27: The owners of the French claim, are running a new cut from the ravine, which will give forty or fifty feet more depth. The work heretofore has been done by ground sluicing. Lately they have fitted up a hydraulic. The Negler claim, is the only one at present working. They are into the hill two hundred feet. They do their own work with a hydraulic. They use from one hundred and forty to two hundred inches of water. The rock is very soft, and of little trouble to cut down with water. The "Never Sweat Claim," has been working up to ten days since when water failing, they had to suspend. Next north is the "Spanish Claim," or as it has been christened by parties in San Francisco, who came up and purchased the mine, "The Glenwood Mill Co." They sent up a man of that class whose aim seemed to be to see how big a show he could make. The result has been that they had to suspend operations. Another claim, owned by Nagler, Greenwood & Co., which went through the same experience and wound up, will get a U. S. Patent, and go on success under men who don't wear kid gloves.

INYO COUNTY.

COSO.—*Independent* 22d: This is 55 miles from Lone Pine. It was abandoned in 1866 on account of Indians. In '68 a party of Mexicans settled there, and have now 20 arastras at work. The ledges are small, and mostly lie flat, but are very rich. The greatest abundance of ore is found in the Mina Grande, formerly the Josephine. The gold bullion produced is worth \$15 per ounce, and the product between April and October, is estimated at between \$30,000 and \$40,000.

GOLCONDA.—This mine two miles from Owens River, was located two years ago but little work was done. Capt. Chase intends to have some of the very rich looking ore tested. A thousand tons could easily be taken out. Good chance for capital.

The Los Angeles *News*, of 27th, says:—Yesterday the train from Cerro Gordo arrived, with three hundred and thirty-five bars of bullion, weighing twenty-one thousand nine hundred and twenty-one pounds.

LASSEN COUNTY.

Yreka telegram of 30th:—The new diggings in Big Valley, discovered by Haskins

& Co., are turning out richly, but only one spot of pay-dirt has been struck. From that they realized from two hundred to five hundred dollars per day to the hand, with a rocker. The new district is twelve miles south of the Siskiyou County line, in Lassen County, forty-five miles from Susanville.

NEVADA COUNTY.

GOLD BRICK.—*Gazette*, 25th: A brick weighing 87 ounces and worth \$16 an ounce came down from the Star mill yesterday.

NUCKET.—*Transcript*, 28th: A nugget of gold, weighing nearly 21 ounces, was picked up in the claims of the Omega Co., on Thursday. Quite a number of respectable nuggets have been found in the same diggings during the summer.

ITEMS.—Grass Valley *Union*, 24th: Yesterday the Seven-Thirty mine sent up specimens valued at between \$1,500 and \$2,000....The Tornado is working with good results. The shaft is down 40 feet on the incline....The Grant mine had a crushing at Perrin's mill. There was much waste rock crushed. The yield was \$18 per ton. The Grant has yielded \$80 per ton.

ALTA HILL.—Same of 25th: The Hope Gravel Co., after more than two years of hard work, struck rich gravel on Tuesday. A drift has been run from the bottom of the shaft northeasterly 225 feet. This runs 25 feet in a body of gravel which prospects 50 cents to the pan. The bed is two feet six inches thick, and of a width not yet known.

SPRING HILL MINE.—The ledge in the shaft is two feet thick, on the average, and two crushings have been taken out recently. A crushing of ten tons was made a week or two ago, and paid \$10.47 per ton.

ITEMS.—Same of 26th: The situation was never better. The older mines are doing well, and many are being opened. The Eureka yields from \$2,000 to \$2,500 per day. Without going down another foot there are "backs" in the mine sufficient to last the company three years. The Wisconsin develops well. The mine is worked under a lease, by miners who put in their own time, and are making good wages, after paying the company a percentage of the gross proceeds. Last week the blanket washings cleaned up for the month \$1,040, which indicates a yield of \$5,000 from the mill, excluding sulphurets. The Idaho has been having a reconstruction at its hoisting works. The mill is now running night and day. The Empire, Ophir Hill, has another ledge under the one which has been worked. This is making a new mine of it. The rock now going through is good. The North Star has also an under ledge which is rich in mineral. The lower level east is showing rich rock. The Allison Ranch is preparing to put up its new fifteen-stamp mill. A Rawlins & Stevens separator has just been put in. The Dromedary is to be started soon by a company which has leased the mine and machinery. Perrin's mine and the Grant, on Wolf Creek, are worked with vigor. The Bowers, Seven-Thirty and Tornado, at the head of Squirrel creek, are employing all the hands that can be got into them to advantage. In gravel mines, the Hope, on Alta Hill, seems to be taking the lead. On Wednesday the Supt. washed out \$700, using a common pan. It is said the gravel is four feet thick. On Randolph Ridge, a continuation of Alta Hill, there are several companies at work. Webster & Co. are running in gravel which has some gold. The Picayune Co. are busy. Roberts & Co., McSorley & Co. and others are making the ridge lively.

HOPE GRAVEL MINE.—Same of 27th and 28th say that proof grows hourly stronger that they have the regular lead and a very rich one.

GOLDEN GATE.—28th: The ledge is from one to three feet in thickness and shows free gold. The Co. have a fifteen-stamp mill, with pumping and hoisting machinery.

BADGER.—The ledge was struck yesterday, at a depth of 190 feet. It is a large one, and heavily charged with sulphurets.

BIG YIELD.—About forty tons of rock from the Greenhorn mine, Osborne Hill, has just been put through the mill. The result is, in round numbers, \$11,000.

PLACER COUNTY.

GRAVEL MINE UNDER A FARM.—*Stars and Stripes*, 25th.—In the lower end of the county, operations are profitably prosecuted in the claims of Crosby & Baker and Saunders & Cartwright. The gravel deposit underlies, at a depth of ten or twelve feet, a bench of non-mineral arable land. The deposit has been traced from Newton upward for six miles, varies from two hundred to three hundred feet in width, and from a few inches to several feet in thick-

ness, and is demonstrably an old bed of Doty's ravine. The claims are worked by sinking shafts and drifting, and though not extraordinarily rich, the pay is steady. Cartwright and Saunders hold twelve hundred feet along the old channel, and work their mine during intervals of leisure on their farm. Mr. Cartwright and two boys, at their last cleaning, realized one hundred and eighty dollars for sixteen days work.

SAN DIEGO COUNTY.

JULIAN DISTRICT, Telegram, 26th.—Reports to last evening say a new mine has been struck near the Helvetia, called the Gilmore. The lode is only ten inches wide, but rich. Four pounds of ore crushed in a mortar yielded \$1.25. Thirty tons of Helvetia have been crushed, yielding an average of \$30 to the ton.

SIERRA COUNTY.

GIBSONVILLE.—Cor. of Butte *Record* 27th: The North American claim, was sold the other day to parties in San Francisco, for 95,000. It has worked thirty men for six years, with big profit to the owners, who are miners.

CAMPTONVILLE.—The Downieville *Democrat* says the Von Humboldt mine is erecting a ten stamp mill, which will be running by Sept. 1st.

SISKIYOU COUNTY.

QUARTZ MILL.—Yreka *Union*, 24th.—The machinery for the Morning Star, on Salmon, is now in Scott Valley. The mill will be ready to run, perhaps, by the 1st of October. The ledge prospects equal to either the Black Bear of Klamath, both of which are paying largely.

PIT RIVER MINES.—Ehlers, Haskin & Co. report a rich claim, but say there is nothing outside that will pay. They made over \$500 in one day with a rocker. The only water is from a spring. The gold is exceedingly fine and is in a stratum of dirt 4 inches thick, and 4 feet below the surface.

TRINITY COUNTY.

THE DEEP HOLE.—*Journal*, 27th: We visited the shaft being sunk by subscription. It is down forty feet and now sinking through a layer of tough cement containing gold.

QUARTZ.—Mr. Silcox, of Indian creek, informs us that the ledge in his claim, continues to improve. A ledge has been discovered on the Southfork, which contains sulphurets and free gold.

YUBA COUNTY.

BROWN VALLEY.—*Appeal*, 26th: The Dexter Co. has struck a ledge of partially decomposed quartz three feet thick, literally "lousy" with gold. They took out 300 pounds of the stuff on Wednesday.

SUCKER FLAT.—Telegram, 25th: The blast of twelve hundred kegs of powder (thirty thousand pounds) was exploded in the Smartsville Consolidated Hydraulic Mining Claim, at 7:20 P. M. It was a perfect success.

Nevada.

COPE DISTRICT.

ITEMS.—Elko *Independent*, Aug. 27th: The Argenta shows a larger body of ore than ever....The Crescent shaft is down 228 feet with a four foot ledge, carrying 18 inches of very rich ore....The Ida Gosage is three feet wide one hundred feet from the surface. The ore is superior and carries gold....The Excelsior is worked day and night....A body of very rich ore has just been cut at the Estelle. The ledge is four feet wide with good walls....The Mammoth and Great Eastern have out 400 tons of ore....Several rich discoveries have recently been made in Bull Run, Brno and Fairweather districts.

MILL FOR COPE.—*Chronicle*, 25th: F.W. Crosby is negotiating for a mine in Cope. He has his mill and machinery, in North Carolina, where it was built to work gold rock. The mill will be shipped to Cope via New York.

SPIRITUAL.—Capt. Cook, of Cope, learned from a medium in Chicago that in a certain direction, so many feet from the main shaft of the Monkey ledge, at the depth of twelve feet, he would find a very rich four foot ledge, and that at twenty feet it would increase to twelve feet. The Captain a short time since told some men, and they undertook to find the ledge. Sure enough at the depth of twelve feet they uncovered a strong four foot ledge on which they are still sinking. Specimens assay as high as \$15,000 per ton.

TREASURE.—Shipped from Cope, in half a week, \$2,328.

COPPER.—Two large veins discovered 25 miles northeast from Elko. One is 400 ft. wide, and the other 40 ft.

ESMERALDA.

DUNDERBERG.—*Gold Hill News*, 26th: The most recent test is a sack of ore worked

last week, from the stope leading to the tunnel. It assayed \$106 51 to the ton, and milled \$87 75. The company have now a ten-stamp mill in course of erection.

WIDE WEST.—*Loyal Independent*, 22d: The mill was purchased four or five months ago by A. L. and J. L. Greely, who have fitted it up. Banning, has leased the Antelope, and is doing well.

HUMBOLDT.

OREANA.—*Silver State*, Aug. 26th: W. H. Stront has resumed work. His furnace runs finely, and stacks of metal can be seen. He will ship during the week fifty tons of metal. Drake, of the old Montezuma, commenced work a few days ago. He is repairing the mill part of the works. He intends running two furnaces at once, and has shipped fifty tons of metal this week.

STAR.—The Sheba, which has been running fifteen men, was compelled to reduce its working force on account of water failing. The hands however, are in very rich ore, and the mine never made a better showing. The DeSoto is working 8 men, and yielding fine concentrating ore. Six tons shipped this week will average \$400 the ton.

UNIONVILLE.—Telegram, 24th: New discoveries are made every day. A rich strike was made lately, in the Hector, formerly the Monitor. They have a vein of ore three feet in thickness, all rich.

The quartz mills are steadily running, and the amount of bullion shipped is 920 pounds per week, worth \$9,000.

REESE RIVER.

BULLION.—*Revelle*, 22d: Nine bars of silver bullion, weighing 359 pounds, value \$3,977, received from Hot Creek, by Paxton & Co. on Saturday.

BULLION.—AUSTIN.—Same of 23d: The Manhattan Co. shipped last evening, seven bars of silver bullion, weighing 626 pounds of the value of \$10,450 31. Same shipped next day, \$18,273.

BELMONT.—25th: Six hors of bullion, valued at \$4,576 00, were received from Belmont last evening.

THE MINES OF BELMONT.—Same of 24th: Capt. Rock tells us: No camp ever had a more flattering prospect, but few camps ever extracted ore of such uniform high grade, averaging over \$200 per ton. Mr. Canfield is shipping a mill which will be running in two months. Leon & Co. are to erect steam hoisting works.

WASHOE.

OCCIDENTAL.—Gold Hill *News*, 27th: The new mill started up Tuesday, and is running well on ore from the lower tunnel. The mill runs twenty stamps, is most excellently constructed in every respect, and eligibly located, 300 yards below the mouth of the lower tunnel, being supplied with water by the stream flowing from the tunnel itself. This tunnel has been straightened and put in complete order. It is 1720 ft. in length. The winze between the upper mine and the lower tunnel develops a continuous body of ore 400 feet in height and from eight to twelve feet in width, sufficient to run the mill for years. The ore is all of low grade, averaging, perhaps, \$15 per ton, but owing to its evenness, it can be definitely figured upon.

CHOLLAR-POROS.—Daily yield 275 tons. The principal supply is from the Belvidere section.

YELLOW JACKET.—Daily yield 225 tons, from the 800 and 900-foot levels, through the south shaft. The drift north at the 1,000-foot level is still going ahead in softer vein-matter.

HALE & NORCROSS.—The sinking of the main shaft deeper for a new level is progressing favorably. The north and south ore breasts at the lowest level continue yielding well.

SAVAGE.—Daily yield 45 tons, all from the eighth level. The ore shows considerable improvement. Drifting is prosecuted to strike the rich ore at the north line.

GOULD & CURRY.—The body of ore developed last week proves to be richer and more extensive than at first supposed.

KENTUCK.—This once famous mine is "played out." It was yielding so little ore, and that of such poor quality, that the company thought best to shut down.

SACRAMENTO ANN MEREDITH.—The ore shows improvement toward the north, but it all yields well, and both mine and mill are doing excellent work.

HOPE.—The ore on the fourth and fifth stations has improved. Taking out forty tons daily, averaging \$22 to \$25 per ton. Two mills are kept constantly running.

CROWN POINT.—Daily yield 50 tons, low grade, averaging \$12.50 under the stamp. Prospecting drifts show only barren vein matter.

IMPERIAL-EMPIRE.—The bottom of the shaft is in lively quartz, showing an occasional trace of metal. Plenty of low-grade

ore in the old upper mine of the Imperial. BELCHER.—A few tons of low-grade ore from the 152-foot level. The 420-foot level is being re-opened.

CALEDONIA.—Connection having been made with the old American shaft, ore is being extracted through it from the 200-foot level at the rate of 40 tons per day.

Mormon Currency.

The *Overland Monthly* for September is a solid number. Thereby we do not wish to say that it is heavy, notwithstanding any idea of the correlation of solidity and weight which may float in the public mind. Our solidity here means good measure, although (we must confess it) our ideas as to the good measure are this time drawn from a rather hasty perusal of a number of its pages. [This was written for last week's issue.] We reserve its special study for a quiet, unhurried after-dinner hour. If anybody wishes a slice about Utah, he (or she) can read the following:

The Mormons reached Salt Lake Valley in an utterly impoverished condition. The cash capital of the entire community would not probably have exceeded \$1,000. The California migration furnished them a market for their surplus products; but, as they had but small store for money, they preferred taking of the miners instead something which they could either eat, drink, or wear, and not procurable at home. As they increased in numbers and means, merchants established themselves among them, thus enabling them to use their small stores of money in the purchase of needed supplies. Their great distance from market, and the small proportion of their crops which would bear transportation, have, however, at all times made money extremely scarce, and have led to the perpetration of a complicated and often amusing system of barter. Hundreds of farmers, living in reasonably comfortable circumstances, and having large families to clothe and educate, will not see a dollar in money for years. Such a farmer wishes to purchase a pair of shoes for his wife. He consults the shoemaker, who avers his willingness to furnish the same for one load of wood. He has no wood, but sells a calf for a quantity of *adobes*, the *adobes* for an order on the merchant payable in goods, and the order for a load of wood, and straightway the matron is shod. Seven water-melons purchase a ticket of admission to the theatre. He pays for the tuition of his children seventy-five cabbages per quarter. The dressmaker receives for her services four squashes per day. He settles his Church dues in eorghum molasses. Two loads of pumpkins pay his annual subscription to the newspaper. He buys a "Treatise on Celestial Marriage" for a load of gravel, and a bottle of soothing-syrup for the baby with a bushel of stragbeans. In this primitive method, until the advent of the Railroad, was nine-tenths of the business of the Territory conducted. And even now, in the more remote settlements, a majority of all transactions are of this character. The merchants, purchasing their goods in New York or San Francisco, must, of course, have money to pay for the same; but they sell their goods for cattle, flour, and dairy products, which are then marketed for cash in the adjoining mining Territories.

THE DIAMOND DRILL.—Severance, Holt & Co. have been making a new style of Diamond Pointed Steam Drill, at the Fulton Foundry, for tunnel or shaft drilling. The whole machine occupies a space only 24 inches long by 12 inches wide, and is attached to a post in such a manner that it can be slid up and down or turned, so as to drill in any required place and at any angle. Two men can handle it easily, and the machine is said to be capable of boring in any kind of rock at the average rate of one inch per minute. At the Foundry it drilled holes, one inch in diameter, a foot deep, in very hard, gritty sandstone; at the rate of 2½ inches per minute, with ease, the engine making 350, and the drill nearly 1000 revolutions per minute. This machine was made for the Blue Gravel M. Co., to be used in their tunnel at Smartsville. Messrs. S. & H. have machines at work in different parts of the State. They are taking the proper method of introducing their drill, by showing what it actually can do in practice, and have the finest prospects of success.

The San Diego Mines.

We have recently had the pleasure of a call from Mr. J. T. Dougine, who has been at San Diego for some time past, being connected with the milling interests. Mr. D. is an old hand at milling and has blown five pioneer whistles on the coast. He seems, as far as we can judge from our conversation with him, to be a very sensible sort of a person who has, during his years of practice, studied his profession, and certainly appears to know his business well. We have been furnished by him with several facts of interest concerning the district, which we give for the benefit of our readers.

To give a detailed description of the locality of the mines is now unnecessary after all which has been said. We will remark only that, according to the account given us, the mines are in a belt of slate and talc, about a mile wide, situated between granite walls which have a general direction of southeast and northwest. On this belt there is good deep soil, good wood and also pasture lands, but on either side the country is barren.

The most promising ledge, Mr. Dougine thinks, is one a little east of the centre of the belt, having the general southeast and northwest direction, on which are the San Diego, High Peak and Owens, and being very likely the same on which the Helvetia, a new and promising location, is situated. The mines have not been thoroughly prospected, however, as yet, and their true value cannot be said to have been really ascertained. Besides, the mining operations have been carried on, in many instances, in an unsystematic sort of way, which involves heavy expenses and small returns, and this has an especially bad effect, as there is so little capital in the camp. The matter of the Cuyamac grant has not been settled as yet, and this naturally has no favorable effect on mining.

The gold exists, as far as developments have gone, in a free state in the rock, there being no sulphurets present in any amount. The quality of the gold obtained is good, running from \$17.94 to \$18.45 per ounce. The amount of this metal in the various ledges varies very considerably. There is a large vein of quartz, 10 feet wide, which is quite barren as far as known, and others assay quite high. As assays are by no means so valuable as milling results, we are glad to be able to give the mill returns of a number of lots of ore. These are, of course, not given as the absolute values of rock in the different mines, for in the same mine very different results can be obtained. This is shown in one or two of the examples given. Yet mill results are very instructive and therefore we publish the following:

Mine.	Amount Treated.	Yield per Ton.
Lone Star.....	7 tons.....	\$7.00
".....	5 ".....	70.00
Shamrock.....	7 ".....	3.50
Eagle.....	10 ".....	2.90
".....	5 ".....	2.75
San Diego.....	19 ".....	35.50
".....	51 ".....	61.00
Owens.....	16 ".....	61.00
Keystone.....	4 ".....	7.00
High Peak.....	10 ".....	42.00
Sherman.....	4 ".....	4.12
Hannon.....	3 ".....	3.50
Pride of the West.....	13 ".....	31.00
White Fawn.....	3 ".....	0.37
North Star.....	5 ".....	4.50
North America.....	6 ".....	4.00
Monitor.....	5 ".....	4.00
Ella.....	3 ".....	1.25
Forty-Nine.....	12 ".....	12.50
Hayden.....	19 ".....	40.00

*The last came from a place where the vein widened out to a much greater width than usual. The first results are probably nearer the general average to be expected.

There are two mills in the district,—Cotton's, running 5 stamps, and the Wilson Steam Stamp Mill, 2 stamps, owned by J. McMechan.

Being naturally curious with regard to the Wilson mill, we enquired particularly as to its work. Mr. Dougine spoke of it in the highest terms. He has had charge of it, and has been running it from the middle of June to the present time, with, perhaps, a couple of weeks intermission in all, when there was no ore to be treated. Mr. D. has made a number of

experiments, with from 60 to 90 lbs. of steam and a varying number of drops, etc., but obtained the best results with 70 lbs of steam and 412 drops per minute (206 of each stamp). On August 10th, he crushed 10 tons 800 lbs. of Hayden rock in 8 hrs. 45 m., using one cord of wood (oak). On August 11th, 8,590 lbs. of the hardest rock obtainable were crushed in 5 hrs., with 65 lbs. steam. On August 12th, with 68 lbs. of steam, to crush 10,800 lbs. of ordinary rock, required 4 hrs. 50 m. In July, 51 tons were crushed in 47 hours. The average amount of ore which can easily be crushed in a day (of 24 hours) is 28 tons, with a No. 6 slot screen, and using not over three cords of 4-foot wood; the average consumption of fuel is one cord to 10 tons of ore.

The durability of the mill is very great, no breakage having occurred and there being no signs at all of any probability of breakage. In every part the mill has worked wonderfully well. It took just six days to set up the machine ready for work. It is so simple, durable and economical, and so efficient, that Mr. D. has thought it worth while to get the certificates of the employees, amalgamator, rock-breaker and battery feeder to all the facts which he states, in order that there may be no doubt on these points.

Taking these points into consideration, and not forgetting its comparatively very low cost, it would seem that the mill must be pronounced a great success. It is thought that, at San Diego, \$6-ore can be mined and milled at a profit, where this mill is used and the same party owns both mine and mill. It would appear then that, with proper management, San Diego might add very essentially to the bullion production. It may be stated in conclusion that, at present, 4-foot oak costs there \$3 per cord, and that for custom work, the mill rates are: for sample lots, \$10 per ton; for 50-ton lots, \$7; for 100 tons and upwards, \$6 per ton. We should also state, in connection with the above figures, that the same boiler runs two steam pumps, one for feeding the boiler, and one for pumping back the water from the settling tank, this last being necessary on account of the rather scanty supply of that article.

Mining Shareholders' Directory—Meetings, Assessments and Dividends.

[Compiled weekly from advertisements in the SCIENTIFIC PRESS and other San Francisco journals.]

NAME, LOCATION, AMOUNT AND DATE OF ASSESSMENT.	DAY	DAY
Alpha Cons., W. P., July 7, \$5.....	Aug. 10	Sept. 1
Alpha Cons., G. H., July 13, \$1.....	Aug. 22	Sept. 20
Bromide Tunnel, W. P., Aug. 9, 10c.....	Sept. 13	Oct. 3
Brush Creek, Sierra co., Aug. 6, \$2.50.....	Sept. 9	Sept. 29
Crown Point, G. H., \$3.....	Sept. 6	Sept. 27
Cosala, July 30, \$1.....	Sept. 17	Sept. 17
Cons. Virginia, Storey, July 6, \$1.....	Aug. 18	Sept. 1
Daney, Lyon co., July 8, \$1.50.....	Aug. 11	Aug. 30
Eagle, Sta. Barbara co., July 27, \$20.....	Sept. 10	Sept. 25
Empire, G. H., Aug. 4, \$6.....	Sept. 8	Sept. 29
Excelsior, Argenta, June 22, 20c.....	July 30	Aug. 20
Evening Star, No. 1, W. P., June 4, 5c, Aug. 4.....	Aug. 4	Aug. 24
Empress, G. H., Aug. 4, \$6.....	Sept. 8	Sept. 25
Gould & Curry, July 14, \$12.50.....	Aug. 18	Sept. 12
Hall & Van Dyke Cons., July 7, 50c.....	Aug. 23	Aug. 20
Julia, July 19, \$5.....	Aug. 25	Sept. 12
Kentuck, G. H., Aug. 27, \$5.....	Sept. 29	Oct. 17
Kineaid Flat, Tual. co., July 20, \$2.50.....	Aug. 24	Sept. 14
Latawana, W. P., Aug. 15, 15c.....	Sept. 14	Oct. 3
Land Purchasers' Ass'n., Aug. 3.....	Aug. 30	Sept. 24
Mountain City, Elko co., July 14, 25c.....	Aug. 23	Sept. 26
Nonday, W. P., July 20, 20c.....	Aug. 24	Sept. 30
Nevada L. & M. W. P., Aug. 1, 2c.....	Sept. 14	Oct. 3
North America Cons., July 16, 5c.....	Aug. 17	Sept. 17
Hidden Treasure, W. P., Aug. 27, \$2.....	Sept. 30	Oct. 20
Oriental, Sierra co., July 7, 25c.....	Aug. 9	Aug. 30
Pinto, W. P., July 22, 10c.....	Aug. 25	Sept. 15
Silver Sprout, Inyo co., Aug. 23, 25c.....	Oct. 18	Dec. 1
Sagest & Belcher, W. H., Aug. 25, \$1.50.....	Sept. 28	Oct. 7
Silver Vault T. & M. W. P., July 20, 5c.....	Aug. 25	Sept. 15
Sophia Cons., 50c.....	July 27	Aug. 25
Wheeler, Pine Grove, June 28, 50c.....	July 30	Aug. 25

MEETINGS TO BE HELD.
Argenta.....Annual Meeting, Sept. 5
L. & E. Alpino Co.....Annual Meeting, Sept. 6
Fiduc.....Annual Meeting, Sept. 7
Jennie A.....Annual Meeting, Sept. 10
Suecor.....Annual Meeting, Sept. 5
LATEST DIVIDENDS—(Within Three Months).
Eureka, div., \$7.50.....Payable August, 1870
Hale & Norcross, div., \$5.....Payable August, 9 1870
San Marcella div., 30c.....Payable June 10, 1870
Union, div., \$1.....Payable Aug. 5, 1870
*Advertised in this journal

COLORADO GEOLOGY.—The scientific party, under Prof. Marsh, were reported last week at Cheyenne. They are said to have found an extensive tertiary deposit in northern Colorado identical with the "Bad Lands" deposit of Dakota.

TO PACIFIC COAST INVENTORS.

DEWEY & CO.
San Francisco.
Scientific Press
U. S. & Foreign
PATENT AGENCY.

Expense of Applying for Patent.

The Government fee, on filing an application for a patent in the United States, is fifteen dollars; and if the patent is allowed, twenty dollars additional is required. If rejected, the first fee of fifteen dollars is all that is demanded.

To the foregoing official fees must be added fees for preparing the various documents and expense of drawings. Our charge for preparing the documents for a case, presenting it to the Government, and attending to all business connected with it, is \$25 and upward. For cases demanding extra work and attention, only a reasonable fee in accordance with the services required, to do full justice to the case, will be charged.

Following is the list of Government fees, payable in currency:

On every caveat.....	\$10
On every application for a patent, for seventeen years.....	15
On every application for a design, for 3 yrs and 6 mos.....	10
On every application for a design, for seven years.....	15
On every application for a design, for fourteen years.....	20
On issuing each original patent.....	20
On every application for a re-issue.....	10
On every additional patent granted on a re-issue.....	30
On every application for an extension.....	50
On the grant of every extension.....	50
On appeal to the Examiners-in-Chief.....	10
On appeal to the Commissioner from Examiners-in-Chief.....	20
On every appeal to the Judges of Circuit Court, D. C.....	25

Inventors on the Pacific Coast, located at great distance from the Patent Office, of all others, should be careful to avoid inexperienced, dishonest, or otherwise unreliable and irresponsible agents.

Inventors having models in our possession must send written orders when they desire any particular friend to see them.

Self-Evident Facts.

Having had large experience, and gratifying success with the great variety of cases emanating on this coast, we feel confident of our abilities to assist inventors in patenting their inventions, saving them from vexatious delays, and from receiving worthless papers by reason of imperfect preparation of their claims before being sent to the Patent Office.

In early days but little preparation was needed, or but ordinary skill required to obtain a patent; but now, by reason of the multiplicity of inventions, and the numerous Acts of Congress, found necessary to protect the inventor while the patent lasts, and to do justice to the people after it expires, the utmost care and skill are requisite in managing cases and obtaining a patent that will be of real value to the Patentee, and stand the test of passing through the legal ordeal of an infringement suit.

The general practice of the Patent Office regarding the examination or issue of Letters Patent for inventions has not been materially changed for many years, yet there have been amendments added to the laws of 1861, 1863, and 1866, and which it is necessary for all parties managing an application to be conversant with. Old inventors invariably advise the employment of none but agents of responsibility and experience. As agents with such qualifications, we solicit honest patronage.

Dangers of Delay.

Situated so remote from the seat of Government, delays are even more dangerous to the inventors of the Pacific coast than to applicants in the Eastern States. Valuable patents may be lost by the extra time consumed in transmitting specifications from Eastern agencies back to this coast for the signature of the inventor, or by reason of return for amendment when addressed directly by the inventor to the Government.

Saving of Time.

In urgent cases for an immediate patent, persons can deposit the amount of the last fees with us, in San Francisco, and have our Washington agent procure the issue of the papers as soon as granted, saving at least several weeks time which would otherwise be required for the inventor to receive notice and then forward the money. Money advanced for this purpose will be returned, should the application be rejected. By adopting this course, we are enabled, with our other advantages, to secure the receipt of patent papers to inventors on this Coast several months sooner than can generally be done, through agents in the East,—without the applicant going to the risk and expense of sending on the last fee before it is known whether the patent will be granted.

By Telegraph.

In cases of immediate importance we can have their progress reported by telegraph, so that applicants know immediately the result of the examination and decision of the Patent Office. We also make examinations by telegraph regarding the patentability of inventions; examine patent assignments on record at Washington; obtain copies of patents or claims, and also derive other information desired instantly from the Patent Office.

DEWEY & CO.,

Publishers Mining and Scientific Press, U. S. and Foreign Patent Agents, 514 Clay street.

THE SCIENTIFIC PRESS is a valuable journal for all persons engaged in matters connected with practical industry where science or machinery are needed.—*Colorado Herald*.

Farming and Gardening.

COMMUNICATIONS for this department are solicited from all parts of the Pacific States and Territories.

Cultivation of Hops.

Few persons are aware of the importance to which this branch of agriculture might be carried in this State, by a judicious system of cultivation, curing and shipping. Our home market is already well supplied, and the introduction of California hops, in large quantities, at the East and in Europe is perfectly practicable.

The demand of this product is rapidly increasing in the United States. The crop of 1840 was but 620 tons; in 1850 it had increased to 2,223 tons; in 1860 it was 5,500, while the last year's crops was estimated at the very large amount of 12,000 tons. About one half of the total amount is produced in the State of New York, and one third in Wisconsin. Large quantities of American hops are exported to England, where the consumption is enormous, aggregating fully 20,000 tons, with but very little home production, owing to the unsuitableness of the climate.

Notwithstanding some little feeling of opposition or prejudice was at first encountered in the introduction of California hops in New York and in Europe, those unfavorable impressions are fast giving way before the experience of their actual use; and it is now quite generally conceded that no country in the world produces larger, finer or stronger hops, than California. Thousands of bales have already found their way to New York, and some small shipments to Europe.

Some of the brewers assert that while California hops are strong, they lack a peculiar flavor, which always pertains to the Eastern hops. Others maintain that they contain an excess of a bitter principle, foreign to that due to the legitimate bitter of the lupine. Some experts who admit these objections to a greater or less extent, yet hold that it is due to their being produced on new ground, and that, in successive years of cultivation they will gradually lose this peculiarity, others hold that this objection is a mere fancy or prejudice. It has also been claimed that a long sea voyage seriously interferes with the aroma of the hop. If such is the case, railroad transit would remove such objection.

According to the report of the New Hampshire State Ag. Society, the cost of raising hops in that State does not exceed five cents per pound; while the ordinary market price is from 12 to 15 cents sometimes going up to 30 and 40, and in very exceptional cases to 60 cents per pound. The cost of their production ought to be less in this State than elsewhere, on account of their more abundant yield, and the fact that all the tending, picking, curing and baling can be done with the cheapest kind of labor—cheaper than that attainable at the East. While California hops sell in this market for 8, 12 or 15 cents, according to the season or market, they are at the same time worth from 20 to 30 cents, and sometimes more, in London. These figures, at the present low rates of freight over the Pacific Railroad, ought to afford a handsome margin for profit over the highest price here and lowest there. Hops are now worth about 30 cents in London.

Prospects of the Present Season.

As we have already intimated, there are great fluctuations in the prices of hops. They have varied within a few years from 12 to 60 cents per pound. At 12 cents, even, the grower ought to find a fair margin for profit; which one good year would largely remunerate. This season the crop is likely to be a failure both at the East, and in Europe, while it never promised better in this State. In fact the uniformity of the California season, and particularly the immunity from excessive moisture during the summer, renders the hop crop more sure here than perhaps in any other part of the world.

The prospect of high prices at the East, will be cheering news to California growers, who have had several successive years of low prices. Letters from all the hop districts, both in the Eastern and Western States agree that the crop will be an excessively short one this year. Owing to previous failures many have plowed up their hop fields, and planted other crops. The various insects which prey upon this plant have been wonderfully active almost everywhere; while a generally unfavorable condition of weather is reported.

Emmett Wells, than whom there is no better authority, in his last hop circular gives extracts from a large number of his correspondents in various parts of the Union, from which we collect as follows:—In Richfield Springs, N. Y. the crop looks very poor; growers set the crop at only about one half that of last year; 500 lbs. to the acre is the highest estimate. In Oneida County not over one quarter of a crop will be realized; the lice and honey dew are working much injury. Similar reports come from Stockbridge and the Chenango Valley. An unprecedented drouth is adding its damage to that of the insect enemies. To the business interest of this vicinity says one correspondent, this is a calamity which will drive many out of the business altogether. The circular closes as follows:—"Our advices from Wisconsin are of the same tenor—if anything still more discouraging!"

When we add to the above now well established fact that the crop will be almost as short in Europe as in the Eastern States, our California growers may well take heart. Special care should be taken in curing and packing, so as to secure a choice article for export, and establish such a reputation for California hops abroad, as will secure for them a fair market hereafter, when they come in contact with better crops and lower prices in those markets.

Reclamation of Tule Lands.

The work of reclaiming the tule lands on the islands in the Sacramento and San Joaquin rivers is progressing rapidly, and most satisfactorily. This land, which comprises millions of acres, in its unreclaimed state is utterly unproductive and worthless, but when reclaimed it makes the best land in the state, and is suited to every class of cultivation. It has proved excellent for either wheat or roots, and will no doubt be found well adapted and of great value for the cultivation of rice. The islands upon which work is now in progress, are enumerated in the *Alta* as follows:

Sherman.....	14,000 acres,
Twitchell.....	3,000 "
Andross.....	4,000 "
Tyler.....	10,000 "
Staten.....	8,000 "
Bouldin.....	7,000 "
Roberts.....	90,000 "
Union.....	50,000 "
Grizzly.....	12,000 "
Total.....	198,000

On some of these tracts, work has been commenced with insufficient means, and without any comprehensive plan, which will defer any productive results for some considerable length of time; but the great bulk of the land mentioned is in energetic hands, by whom the work of reclamation will be pushed forward as speedily as possible. The amount reclaimed will increase rapidly from year to year, as will also new undertakings. The most of the land, as soon as reclaimed, will be put in the market for sale, in small tracts; thus ensuring for it an early and thorough development and productive value.

In addition to the above, arrangements are being made for the early reclamation of Grand Island, comprising 17,260 acres. Advertisements have also been published preparatory to the reclamation of a tract of about 100,000 acres, on the west bank of the Sacramento, between Knight's Landing and Colusi.

The tules of California will soon occupy a very important place in the agriculture of the state, and will undoubtedly eventually prove the most valuable farming lands on the Pacific coast. This latter result cannot fail of being realized, as soon as they can be thoroughly reclaimed and put in cultivation. Their fertility will be more lasting than our valley lands, while their location, directly upon the lines of our great natural high ways, will give a great advantage in the transportation of their products to market.

Large Profit from Planting Forest Trees.

One great reason why people are so disinclined to plant forest trees may be found in the mistaken idea that they will have to wait an ordinary life time to derive any profit therefrom. Now, nothing can be further from the truth. Any farmer owning ground convenient to any of the railroad or water communications with this city, or with any of the other principal cities in this State, might, in twelve years, derive more than double the profit from planting one-fifth of his land with forest trees, that could be realized from the same land devoted to any other ordinary field culture, to say nothing of the less amount of labor required for the former.

Let us make a few figures, and see if this is not so. An acre of land planted with locust trees or any other tree of rapid growth will, in twelve years, give the farmer about 2,000 trees, 30 feet high and from 12 to 14 inches in diameter. These trees will furnish, at least, 2,000 railroad ties and the same number of fence posts, which, by reason of the superior quality of the wood, will command the highest price and a ready sale. There would then be left about 70 cords of fire-wood, worth \$5 per cord. This timber and fuel would be worth \$1,000, or \$83 per acre per year, as the product of the land. If it was allowed to stand five, ten or fifteen years longer the annual average value would be largely increased, without any deduction whatever for labor. We have calculated on a close cultivation, for the reason that a straighter and taller growth is thereby obtained. Very likely a close planting, say by one-third or one-half even, would come forward equally as well, until it had attained the growth proposed, in which case a proportionate addition would be made to the profit, without any material increase in labor or expense.

These figures are made for obtaining early returns and closing out the speculation. We will now give a few figures, intended more for a permanent investment. Let us adopt two different varieties of timber, say the European larch and the common white pine, and prepare for a model timber farm, something on the European plan. We say, at least, two kinds, for, in doing Nature's work, we must imitate her manner of doing it. Nature always introduces variety into her vegetable products, whether it be trees, shrubbery, flowers, weeds or grass. Man does violence to nature when he compels the soil to produce but one growth for any length of time. Probably three or four different varieties would be better than the two we have named.

First let us examine a few facts. Both these trees are very reliable for timber, and have succeeded well in forest culture. The former, in the middle Atlantic states, is found to attain a height of from 30 to 35 feet, with a diameter of 8 to 12 inches, in ten or twelve years; while in from forty-five to fifty it reaches a height of 100 feet and over, with a diameter of about three feet.

The larch is especially a European tree, where it is largely cultivated there in forest growth. Experience and observation show that it will attain a height of 30 feet in 12 years, with a diameter of 10 to 12 inches; while in 20 years it will reach 50 feet in height, and a diameter of at least 20 inches. The longer and more favorable season for growth in California, judging from our experience in the growth of fruit, and to some extent in forest trees, will add largely to the above growth. With this information let us proceed to put out our timber farm.

How to Prepare and Plant the Ground

In Europe the tree is usually started in a nursery, and placed in the field at the end of the first year's growth. Many, especially in this country, prefer to plant

this seed where the tree is to grow. The ground which may be a light and indifferent soil, either hill or plain, should be prepared as for corn or wheat, and marked off by the plow into rows three feet apart, crossing at right angles. This will give, say 4,900 crossings to an acre, at each one of which a tree should be set or seeds planted. One variety only may be planted or different kinds as desired. We will suppose two kinds are taken—the pine and larch already referred to, with the view of eventually closing out with a pine forest exclusively of large growth. We would take the locust in preference to the larch, if it were not for the fact that we desire, according to this plan, at the end of a certain time to remove all but the pine. This removal would be impracticable with the locust on account of its impressive disposition to send up sprouts when cut down or dug up.

Set every fourth tree each way, a pine, and the balance with larch. This would give say, 300 pine and 4,600 larch. The ground should be kept clear of weeds for the three first years, after which it will protect itself. Close cultivation is an advantage at the start, in order to secure shade for the ground.

At the end of the fifth or sixth year, remove every alternate larch. Those reserved, 2,300 in number, may be left for fuel, grapevine stakes, or hop or bean poles. Many of the trees will be long enough for light fencing stuff. The timber so removed will leave quite a large value per acre, over and above the cost of removal; moreover, its presence up to this time is necessary to secure the better growth of the entire forest. At the end of the next five or six years, again remove each alternate larch as before. The trees now removed will be at least 30 feet high, by 12 to 14 inches in diameter, and will number 1,150. The butt of each tree will make a good railroad tie, and an average of two fence posts in addition, may be obtained—say 2,300 in all, while the balance of the wood can be worked up into poles or fuel. The value of the timber so removed may be easily calculated, remembering, that in this country, railroad ties and fence posts will always be in demand, as well as fuel, and at large prices.

At the end of the next 5 or 6 years, again take away each alternate larch, or 573 trees, which will now be about 18 inches in diameter, and 45 to 50 feet high, still more valuable for railroad ties and fence posts, and even for small spars. The trees removed will be worth from \$3 to \$4 each.

At the end of the fourth period, say 20 to 24 years, remove the balance of the larch trees—575 in number—and leave the forest proper, 300 trees of pine only, standing about 12 ft apart. The trees now removed will be from 20 to 24 inches in diameter, and from 50 to 60 feet high, of sufficient size to furnish for the saw mill, two cuts aggregating 500 feet, from each tree. The lumber which may be thus produced, is equal to the best clear pine or hard oak.

We may here remark, that the European (not the American) larch is one of the most valuable trees for lumber which can be grown. It is a very close grained wood, of reddish or gray color, remarkable for weight, strength, beauty and durability. It is better for ship timber than the oak, and will last as long in the ground or in the water as our California redwood. This subject will be concluded next week.

THE ORANGE AND LEMON ON THE COAST RANGE—The San Jose *Mercury* suggests that fruit growers about Lexington, and those in other sections of the mountains surrounding the Santa Clara Valley, should try the orange and lemon, in preference to any further extension of the fruit now cultivated there, and which cannot be made profitable on account of its abundance and distance from a market. The hills or mountain slopes are suggested for such cultivation, rather than the plains at their foot, for the reason that they are more free from frosts. The *Mercury* says: It is somewhat remarkable that in the hills on either side of this valley, after reaching an altitude of from 300 to 500 feet above the plain, the frosts are scarcely ever severe enough to injure the tenderest plants. It frequently happens that no frosts at all are experienced, throughout the entire winter, in the neighboring hills, above the altitude mentioned, and that potatoe and tomato vines will grow all winter.

SHALL WHEAT STRAW BE BURNED.—John Wragg, of Waukege, Iowa, writes to the Farmer's Club at New York, asking if it would be best to burn wheat straw, plow it under or compost it. Mr. Ely, of the Club answers—"A lazy man would say burn it; a better farmer would say plow it under." Dr. Trimble replied—"A good farmer never burns his straw."

This is a question which has an important bearing in California. On new, rich land the straw may not be needed immediately, but it will pay to keep it, pitch it over and compost with sufficient soil to rot it during the rainy season. It will in time be worth much more than it has cost to keep it. It will future years become a bank upon which you may draw without being dishonored. "Plowing under," in such a dry climate as California, before the straw has become decomposed, will do but little good. Judgment must be used in nearly all farming operations, to the end that action may be properly conformed to circumstances. "Brains, sir, brains are what are wanting." Brains have increased the yield of the English wheat from 15 to 35 bushels to the acre; while the lack of them, or rather the lack of their use, has decreased the yield of some of our fields, from 30 to less than 10 bushels.

CROPS IN MONTANA, A FESTIVAL FAIR.—Our Montana Exchanges are congratulating their readers on the fine and plentiful harvests in that country. Wheat is good, and they have a sufficient number of good and efficient mills to turn out all the flour needed. The hay harvest is also pronounced abundant, and it is being gathered and put up in good condition. Similar reports are made with regard to vegetables, many of the ranchmen there are getting rich, or at least independent. A call is made for an Industrial Fair, for that country, which will be kept up annually, and which shall—as may be done—exhibit to the world, in a more creditable manner, their great agricultural, mechanical and mineral resources. There was an exhibition of the kind held there, two years ago; but it is claimed that the times now are much more propitious for such an exhibition.

THE STRAWBERRY CROP.—The San Jose Independent gives the following facts, with regard to the yield of some of the most extensive strawberry fields in Santa Clara County:—Mr. L. A. Gould owns 35 acres, on which are planted 350,000 vines; the yield last year was 50 tons, and his cash sales amounted to \$10,323. Benjamin F. Hayden cultivated 12 acres with 100,000 vines, which, at the above average produced 20 tons, which, at ten cents per pound, brought him 4,000. Minor King, 1½ acres on 12,000 vines, \$240. Benjamin F. Watkins, 6 acres, 60,000 vines, 7½ tons \$500. Cary Peebles, 5 acres, with 45,000 vines, 3½ tons, \$700. Edward Burrill, 5 acres, 50,000 vines, 5 tons, \$1,000. William Hannibal, 3 acres, 30,000 vines, 3 tons, \$600. Isaiah Wilcox, 11 acres, 110,000 vines, 11 tons, \$2,200. Wm. Lawrence, 6 60,000 vines, 7½ tons, \$1,500. George Brown, 20 acres, 200,000 vines, 20 tons, \$4,000. Mr. Jamison, 16 acres, 160,000 vines, 16 tons, \$3,200. F. A. Pancoast, 32 acres, 320,000 vines, \$6,325. Total, acres, 152½. Total vines, 1,525,009. Total value of yield last year, \$35,598. Average yield to the acre, \$234.

A LONDON COMPLIMENT.—The London Mining Journal, a high authority in the old world in its line, gives its readers a liberal notice of Mr. Kustel's new work, "Roasting of Gold and Silver Ores and Extraction of their Respective Metals without Quicksilver," recently published at the office of the SCIENTIFIC PRESS. It correctly remarks: "As Mr. Kustel gives plane and sections of the several furnaces, and carefully explains the advantages and defects of each, the practical man can readily ascertain which particular form is best suited to his immediate purpose."

STILL DIVIDING UP.—About 4,000 acres of the Coyote ranch in Lake county, have lately been sold out in small tracts to settlers.

Farmers' Banks.

Why do we not have farmers' banks in this state. Our farmers are often compelled to raise money by selling portions of their grain to speculators at ruinous rates. Such banks, judiciously located in the interior, under proper management, and loaning only on farm mortgages or warehouse receipts for grain, would do much good, and greatly aid in the agricultural development of the state. The *Colusi Sun* endorses such a course as follows;

The farmers cannot ship on their own account—that would be attended with too many complications, but they can establish Farmers' Savings Banks in every agricultural county in the State. If the farmers who have plenty of money buried or locked up, doing them no good, would only put it in such a bank and establish a low rate of interest, the farming community would be so relieved that no one would be obliged to sell. The investment could be made perfectly safe, for the farmer can always give security.

We have a mixed institution of the kind in this city—the Farmers' and Mechanics' Bank—which is doing much good in this direction; but this is local and necessarily limited in its work and means. Two or three banks have been established in the interior, on a similar plan to the one named, all of which, we believe, are doing well. Why cannot we have in addition, a few special farmers' banks in the state. There is no business in the world which offers better security, or that is less inclined to run into speculations. All the trades organize for their mutual benefit—why not the farmers? In organization there is strength, and with it the farmers can save for their own pockets much of the large profits which the speculators, under the present system, are making out of their necessities. The *Sun* suggests that this matter should be taken up by the farmers at the approaching State Fair. We would add that it be considered at each of the District and County Fairs. We ought to have such a bank at the county seat of every farming county. Without some such course our farmers will ever continue to labor for the benefit of grain speculators and country merchants.

Rice Growing in California.

We have made several allusions to the experiment now in progress by Mr. Hugh Davis, on Andros Island, to test the practicability of growing rice on the tule lands of this state. The experiment is one of great importance to the state, and should be watched with much interest. Of course we shall not fail to report progress. Mr. Davis has planted two acres—one on tule cultivated last season, and the other on tule planted for the first time for this experiment. That which had been previously cultivated has much the advantage, from the fact that by such cultivation, the tules have been effectually killed, leaving an undisturbed growth for the rice; while the rice grown on the latter is greatly interfered with and choked down by the sprouting tules. The *Alta* gives the following as the *modus operandi* of Mr. Davis' cultivation:—

Mr. Davis lets the water stand about a week at a time in his field, opening his gates at every high tide, and then keeps out the water for three days and thus alternates from wet to dry. The rice field is surrounded by a dyke which, in the opinion of Capt. W. C. Walker, who has had considerable experience in tule, should be erected over a ditch dug down to low water mark, and then filled up with the same earth rammed down. If this ditch is not dug, the water will not be held by the dyke, but will run out and give bother in other fields.

IRRIGATION AND DRAINAGE.—The man who will invent cheap irrigation, will be one of the main benefactors of the race. The man who will convince farmers of the full benefit of drainage, will be another.

What I Know of Farming—No. 34.

Intellect in Agriculture.

If a man whose capital consists of the clothes on his back, \$5 in his pocket, and an ax over his right shoulder, undertakes to hew for himself a farm out of the primitive forest, he must of course devote some years to rugged manual labor, or he will fail of success. It is indeed possible that he should find others, even on the rude outposts of civilization, who will hire him to teach school, or serve as county clerk, or survey lands, or do something else of like nature; thus enabling him to do his chopping trees, and rolling logs, and breaking up his stumpy acres, by proxy; but the fair presumption is that he will have to chop and log, and hew off and fence, and break up, by the use of his own proper muscle, and he must be energetic and frugal, as well as fortunate, if he gets a comfortable house over his head, with forty arable acres about him, at the end of fifteen years' hard work. If he has brains, and has been well educated, he may possibly shorten this ordeal to ten years; but, should he begin by fancying hard work beneath him, or his abilities too great to be squandered in bushwhacking, he is very likely to come out at the little end of the horn, and, struggling back to some popular settlement, more needy and seedy than when he set forth to wrest a farm from the wilderness, declare the pioneer's life one of such dreary, hopeless privation that no one who can read or cypher ought ever to attempt it.

A poor man, who undertakes to live by his wit on a farm that he has bought on credit, is not likely to achieve a brilliant success; but the farmer whose hand and brain work in concert will never find nor fancy his intellect or his education too good for his calling. He may very often discover that he wasted months of his school days in what was ill-adapted to his needs, and of little use in fighting the actual battle of life; but he will at the same time have ample reason to lament the meagerness and the deficiency of his knowledge.

I hold our average Common Schools defective, in that they fail to teach Geology and Chemistry, practical knowledge of things—knowledge which the farmer, of all men, can least afford to miss. However it may be with others, he virtually needs to understand the character and constitution of the soil he must cultivate, the elements of which it is composed, and the laws which govern their relations to each other. Instruct him in the higher mathematics if you will, in logic, in meteorology, in ever so many languages, but not till he shall have been thoroughly grounded in the sciences which unlock for him the secrets of Nature; for these are intimately related to all he must do, and devise, and direct, throughout the whole course of his active career. Whatever he may learn or dispense with, a knowledge of these sciences is among the most urgent of his life-long needs.

Hence, I would suggest that a simple, lucid, lively, accurate digest of the leading principles and facts in Geology and Chemistry, and their application to the practical management of a farm, ought to constitute the Reader of the highest class in every Common School, especially in rural districts. Leave out details and receipts, with directions when to plant or sow, etc.; for these must vary with climates, circumstances, and the progress of knowledge; but let the body and the bones, so to speak, of a primary agricultural education be taught in every school, in such terms and with such clearness as to commend them to the understanding of every pupil. I never yet visited a school in which something was not taught which might be omitted or postponed in favor of this.

Out of school and after school, let the young farmer delight in literature illustrative of his calling—I mean the very best of it. Let him have few agricultural books; but let these treat of principles and laws rather than of methods and applications. Let him learn from these how to ascertain by experiment what are the actual and pressing needs of his soil, and he will readily determine by reflection and inquiry how those needs may be most readily and cheaply satisfied.

All the books in the world never of themselves made one good farmer; but, on the other hand, no man in this age can be a thoroughly good farmer without the knowledge which is more easily and rapidly acquired from books than otherwise. Books are no substitute for open-eyed observation and practical experience; but they enable one familiar with their contents to observe with an accuracy, and ex-

periment with an intelligence, that is unattainable without them. The very farmer who tells you that he never opened a book which treats of Agriculture, and never wants to see one, will ask his neighbor how to grow or cure tobacco, or hops, or sorgho, or any crop with which he is yet unacquainted, when the chances are a hundred to one that this particular neighbor cannot advise him so well as the volume which embodies the experience of a thousand cultivators of this very plant instead of barely one. A good book treating practically of Agriculture, or of some department therein, is simply a compendium of the experience of past ages combined with such knowledge as the present generation have been enabled to add thereto. It may be faulty or defective on some points; it is not to be blindly confided in, nor slavishly followed—it is to be mastered, discussed, criticised, and followed so far as its teachings coincide with the dictates of science, experience, and common sense. Its true office is suggestion; the good farmer will lean upon and trust it as an oracle only where his own proper knowledge proves entirely deficient.

By-and-by, it will be generally realized that few men live or have lived who cannot find scope and profitable employment for all their intellect on a two hundred acre farm. And then the farmer will select the brightest of his sons to follow him in the management and cultivation of the paternal acres, leaving those of inferior capacity to seek fortune in pursuits for which a limited and special capacity will serve, if not suffice. And then we shall have an Agriculture worthy of our country and the age.—*Horace Greeley.*

San Francisco Market Rates.

Wholesale Prices.

THURSDAY EVENING, SEPT. 1st, 1870.	
Flour, Extra, per bbl.....	\$5 50
Do, Superfine, " ".....	4 50
Corn Meal, per 100 lbs.....	2 25
Wheat, per 100 lbs.....	1 10
Oats, per 100 lbs.....	1 05
Barley, per 100 lbs.....	1 05
Beans, per 100 lbs.....	2 00
Peas, per 100 lbs.....	1 00
Hay, per ton.....	9 00
Live Oak Wood, per cord.....	9 00
Reef, extra, dressed, per lb.....	7 10
Sheep, on foot, per head.....	2 00
Hogs, on foot, per head.....	6 50
Hogs, dressed, per lb.....	7 10
GROCERIES, ETC.	
Sugar, crushed, per lb.....	14 1/2
do, Hawaiian, " ".....	13 1/2
Coffee, Costa Rica, per lb.....	20 1/2
do, Rio, " ".....	20 1/2
do, Java, " ".....	18 1/2
do, Green, " ".....	60 1/2
Hawaiian Rice, per lb.....	7 1/2
China Rice, per lb.....	4 1/2
Coal Oil, per gallon.....	41 1/2
Candles, per lb.....	14 1/2
Overland Butter, per lb.....	20 1/2
Ranch Butter, per lb.....	35 1/2
Butter, California, per lb.....	20 1/2
Cheese, California, per lb.....	10 1/2
Eggs, per dozen.....	40 1/2
Lard, per lb.....	16 1/2
Ham and Bacon, per lb.....	16 1/2
Shoulders, per lb.....	9 1/2

Retail Prices.

Sutter, California, fresh, per lb.....	50
do, pickled, per lb.....	20
do, Oregon, per lb.....	20
Cheese, per lb.....	20
Honey, per lb.....	25
Eggs, per dozen.....	30
Lard, per lb.....	18
Ham and Bacon, per lb.....	22
Crabapples, per gallon.....	100
Potatoes, per lb.....	2
Potatoes, Sweet, per lb.....	2
Tomatoes, per lb.....	2
Onions, per lb.....	4
Apples, No. 1, per lb.....	4
Pears, Table, per lb.....	5
Plums, dried, per lb.....	12
Peaches, dried, per lb.....	10
Oranges, per dozen.....	100
Lemons, per dozen.....	100
Turkeys, per lb.....	25
Soap, Pale and C. O., per lb.....	10
Soap, Castile, per lb.....	15

FIRES IN THE FIELDS.—Although such fires have been less extensive and general the past, than during previous seasons, still much damage has been inflicted in that way. Choppers, hunters and railroad locomotives have caused about their average amount of destruction. All such should be exceedingly careful, as the penalties of the law are very severe for starting such fires, no matter whether the fire is started by accident or design.

FRUIT, though abundant, is small, and much will be allowed to rot, on the ground, while we still continue to import large quantities of dried fruit. We ought to be able to export dried fruit of almost every description. Farmers and householders generally ought also to make their own vinegar. The smallness of fruit this season is mainly due to the excessive heat and dryness of the atmosphere. The moisture has been taken away from the fruit and leaves more rapidly than the roots could appropriate it from the parched soil. Although the trees are generally as full as usual, the diminished size will greatly reduce the bulk and weight. Grapes have been affected as much as other fruit.

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San Francisco:

Saturday Morning, Sept. 3, 1870.

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The Pomological and Horticultural Fair.

This Exhibition was opened, according to announcement, at 3 o'clock, P. M. on Monday, at the Pavilion of the Mechanics' Institute. The inaugural address by Prof. Carr, of the University of California, was appropriate, to the point, and replete with good things. After the conclusion of the address, the Fair was duly declared "open," by Mr. Hallidie, President of the Mechanics' Institute, under the auspices of which association this exhibition has been given. The interior of the Pavilion has been beautifully decorated for the occasion, and the display of plants, fruits, flowers, etc., is good—but far short of what it would have been if proper time had been allowed. It is still, however, very fine; nothing like it has ever before been seen on this coast, and taken as a whole, no where else on the continent.

The fruit tables are well covered and with a great variety of fruit. Around the fountain, from the centre of which towers the lofty and magnificent century plant, a description and figure of which is given elsewhere, is an exquisite display of flowers, varied in their species and beautiful to the sight. On the right and left, tastefully arranged, are the contributions of the different horticultural exhibitors. We have now merely time and space for the following brief mention of the principal

Exhibitors and Exhibits

That were in view on Thursday morning. Numerous additions have since been made, some or all of which will be noticed next week, together with more full mention of the more prominent exhibits.

Orleans Hill Agricultural Association.—Three bottles of white wine, 1869; two bottles of Orleans wine, 1867; two bottles of Orleans, 1868; two bottles Rieslings, 1866; two bottles Rieslings, 1869; one bottle port, 1869; one bottle tokay, 1869.

E. A. Upham, non-professional grower—Collection of plants and flowers.

H. D. Dunn & Co.—Forty-eight bottles wine; vintage of 1867 and 1868.

J. Levelling & Son.—Four boxes and one basket fruit, one chest grapes.

D. B. Wilson.—One box oranges.

Allen & Co.—One hundred plants in pots and hanging baskets.

Mr. Rheimer.—Eleven hundred plants and cut flowers in pots and boxes.

California Silk Culture Company, William Blauding, President.—One case raw silk, one bunch

of cocoons, one bundle of reeled silk, card of eggs.

Wm. Hunt.—One bottle of oats, three bunches of Black Hamburg grapes.

B. F. Headen, Santa Clara.—Eighty plates of fruit, ten bottles unfermented grape juice, two bottles white wine.

R. B. Woodward.—One hundred and twenty-three plants in pots, two boxes fruit.

A. Lusk & Co.—Three boxes oranges, one box of quinces, one basket of peaches.

P. D. Code & Co.—Forty-eight and a half canned fruit, ten bottles jelly, twenty-four tumblers of jelly.

A. Kenyon, Obispo, Solano county.—One basket of pears and apples.

E. Andrews, Sonoma.—Three boxes pears.

Mr. Kimball.—One watermelon, three seed potatoes, two stalks green corn, one stalk cotton.

R. Stone.—One bottle of wheat.

Grass Bro's., Marysville.—Four boxes apples, pears, grapes and plums.

W. Meyer, Union Nursery.—Collection of plants in pots, cut flowers in baskets.

A. Caldwell, Petaluma.—Two boxes plums and apples.

E. & P. J. Cassin.—Four dozen XXX Bitters.

Eberhardt & Lachman.—186 bottles Champagne brandies, bitters and wine.

Miss Crittenden.—One vase of wax flowers and autumn leaves.

W. Anderson.—One potato, raised by William Poole, Sacramento, 11½ inches long, 1½ in circumference, and weighing 3 pounds 9 ounces.

C. Phelps, Walnut Grove.—One potato, dug August 1869; 18 inches long, 14 inches in circumference, weighing 3 pounds 16 ounces.

M. Keller.—176 bottles wines, brandies and bitters; one box lemons.

A. Gore.—One bag white bald Mediterranean wheat; yield, 17 bushels to the acre; grown near Stockton.

W. F. Swasey.—Two cases of California Bon-Zest—relish.

J. H. Purdy.—Two bottles of syrup, one package of sugar; grown and manufactured in Monterey county.

E. Moore.—Plants in pots, cut flowers, hanging baskets, box of pansies, box of verbenas.

W. F. Kelsey.—149 plants in pots.

Thomas Appleby.—Eighty-three plants in pots.

Mr. O'Hare.—147 plants in pots.

F. Schleifer.—Three kegs California brandies and three bottles brandy.

J. S. Finch.—One ramie plant and sample of ramie—California grown.

United Anaheim Wine-Growers' Association.—Six dozen bottles juice and brandy—California manufacture.

Lake Vineyard Wine Company.—Four dozen California wine, half a dozen Angelica wine.

San Francisco Produce Exchange.—One sample containing cereals.

O. W. Craig.—One lot native sherry, one lot native muscatel, one lot native amber malaga.

S. W. Shaw.—One lot native dry muscatel.

J. R. Snyder.—Lot El Cerito white wine, lot El Cerito red wine.

Bowen Brothers.—Lot dry peaches, lot mountain dew honey, popcorn.

J. R. Wheeler.—Two bottles wheat grown in Oregon.

W. M. Boyd & Co.—Lot of California yeast powder.

W. O. Hawkins.—Seven dozen U. S. A. Indian root bitters.

F. A. Miller.—Design for California landscape gardening.

W. J. Lavery & Co.—Eight boxes of starch, twelve sample packages, two boxes of yeast powder.

Landsberger.—Eight cases wines and champagne.

L. J. Rose.—Three bottles American wine.

E. Allen.—Three bottles of white wine, three bottles of red wine.

D. McCord, Napa Valley.—One box of grapes.

Isaac Bird, San Jose.—One lot of grapes.

H. Epstein & Co., Nine dozen of IXL Bitters.

D. L. Perkins, Sherman Island.—One hundred and thirty-eight varieties of seeds in bottles, four watermelons, two potatoes, one beet, one squash, one ear sweet corn, one sample of flax.

George West, Stockton.—Two bottles port wine of 1865, two bottles port of 1866, two bottles of sherry of 1866, two bottles of sherry of 1867, two bottles of white Frontignan 1867, two bottles white Frontignan 1868.

Jos. Putzer, Santa Clara.—One package Hungarian rye, yield 74 bushels to the acre.

C. H. Dennison.—Section of a tree from the petrified forest of Calistoga.

J. Hutchinson, Bay Nursery, Oakland.—Collection of cut flowers and plants, in pots and hanging vines.

J. M. Patterson.—Collection of plums, pears, apples, pears and blackberries.

W. A. Field.—Three acacia trees.

Dr. J. B. Trask (non-professional).—One Florida palmetto.

Tyler Curtis.—Five plants in pots, four plants in boxes, viz: Four Japau lilies, one orange tree, one daphnia, one pinus from Japan.

S. Wing, Napa.—Five bottles wine, four boxes pears and grapes.

R. S. Thompson, Napa.—Thirty varieties of grapes, six varieties of apples, three varieties of pears.

General W. S. Jacks, Napa.—Collection of native trees, in pots.

ALTA sheet of 1851, printed on California silk.

H. D. Dunn & Co.—Six bottles of Angelica wine.

B. N. Bugby.—Seven cases of wines,

two cases of champagne, one case of brandy.

B. S. Fox.—Eight cases of apples, pears, plums and prunes.

L. A. Gould, Santa Clara.—Three boxes and one basket of pears, apples, prunes, grapes, peaches, walnuts and almonds.

H. Brighton.—Two boxes grapes from Green Valley.

Thomas A. Garey, Los Angeles.—Samples of silk cocoons.

Nash & Co. Napa.—Three water melons, two squashes, two jars gooseberries and pears, six stalks of corn.

Bavena & Co.—One case of macaroni and vermicelli.

A. H. Todd.—Sample of corn planted May 10th, and grown without irrigation, on the farm of J. W. Bulwer, Mayfield.

Premium Awards—Fruits.

The following awards have been given for the best exhibitions of fruit:

J. Luelling & Son, for best general display of Fruits; Diploma.

H. F. Hutchinson, best specimens of Peaches (5 or more); \$10.

B. S. Fox, best exhibit of Apples (30 varieties or less); \$40.

B. F. Headen, second best exhibit of Apples (30 varieties or less); \$20.

R. B. Woodward, best specimens of Apples (10 varieties or more); \$10.

S. P. Smith, best exhibit of Pears (25 varieties or less); \$40.

B. E. Fox, second best exhibit of Pears (25 varieties or less); \$40.

H. F. Hutchinson, best specimens of Pears (10 varieties or more); \$10.

B. S. Fox, best exhibit of Plums (15 varieties or less); \$25.

L. A. Gould, second best exhibit of Plums (15 varieties or less); \$20.

H. F. Hutchinson, best exhibit of Foreign Grapes; \$50.

S. Wing, second best exhibit of Foreign Grapes; \$20.

West, third best exhibit of Foreign Grapes; \$10, with a recommendation for special Premium for finest specimens of Grapes.

R. S. Thompson, best exhibit of Mission Grapes; \$10.

L. A. Gould, best exhibit of Quinces; \$10.

H. F. Hutchinson, best exhibit of Figs; \$10.

J. M. Patterson, best exhibit of Prunes; \$10.

Wilson Bros., best exhibit of California Oranges; \$15.

M. Keller, best exhibit of California Lemons; \$10.

B. F. Fox, best exhibit of Strawberries; \$7.50.

J. M. Patterson, best exhibit of blackberries; \$5.

H. F. Hutchinson, best exhibit of Dried Fruits; Silver Medal.

J. M. Patterson, best exhibit of Prunes (cured); Diploma.

H. F. Hutchinson, best exhibit of Figs (cured); Diploma.

P. D. Code, best exhibit of Canned Fruits; Diploma.

The attendance has been large and brilliant, especially during the evening. The visitors seem to take great delight in wandering around through the various avenues and aisles, gazing with wonder-stricken eyes upon the novel and beautiful display. The music is quite a feature, as how can it be otherwise, when such musical celebrities as Levy, Harvey, Schlotte, and other musicians are among the performers.

Among the novelties that have made their appearance are some goma oil plants, and tea plants from Schnell's plantation in El Dorado, and some California-made tea from the same source. The Ramie plant exhibited by John S. Finch, of Alameda, also attracts much attention.

EARTHQUAKE.—At Shasta, Aug. 30th, two small shocks, from west to east, were felt a little after 8 p. m.

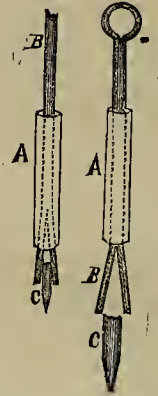
COD-FISH ESTABLISHMENT.—Messrs. F. W. McCollum & Co. are to erect a cod-fish establishment near the mouth of Redwood City Creek, on the west side of the Bay. Here the finny tribe will be cured and dried for the delection of their many admirers.

On the 10th of July, Valparaiso had a gale which demolished buildings, etc., etc. to the amount of three or four hundred thousand dollars.

Device for Extracting Broken Drills.

[Written for the Scientific Press.]

EDITORS PRESS:—When I was at Mineral Hill, I saw a very handy device for extracting the part of a drill which may be broken off in drilling a hole. I saw it, as I was visiting a mine, in the hands of Mr. D. R. Northey, who had his idea from a similar contrivance seen by him last year at Austin. As it is so simple that any one can make it, is so efficient, and can be used by any one (not being patented), I send you a rough sketch of it, although the idea is an old one.



In the drawings, A is a piece of gas pipe, about two feet long. B is an iron rod whose two prongs spring apart, and C is the broken drill. The pipe and rod are inserted in the hole (as in Fig. 1) until the prongs are on each side of the drill. Then by pushing the pipe over the prongs (as in Fig. 2), the drill is firmly gripped and can be removed, any pull on B only increasing the grip on C. The device accomplished easily the desired object, when I saw it used. By publishing you may do a considerable benefit to some miner.

W. H. M.

Our Double Sheet.

The present issue of the SCIENTIFIC PRESS contains two full sheets, making 32 pages, or a paper about twice the size of Harper's Weekly. The additional sheet contains "A Guide to Immigrants to California" which is full of valuable facts and statistics—information of real value for personal and preservation by our home readers; and exceedingly desirable for sending to families abroad. We trust this extra size double sheet will amply satisfy our readers for the omission on account of the printers' strike, of our usual 8-page extra on the first of last month, that our extra trouble and expense in that instance will be fully appreciated by the intelligent reading public—who are almost universally in favor of advancing home manufactures and industry.

Extra copies of the Guide alone will be sold for 15 cents.

THE NEW REFORM MOVEMENT IN UTAH.—We have had the pleasure, the past week of a call from Mr. Walter Shearman, the editor of the Salt Lake Tribune, the organ of the new reform movement in Utah. This is the first movement against the "one man power" of the Mormon organization, and bids fair to accomplish much good, in the way of bringing about a peaceable and quiet solution of the "Mormon problem." The mission of Mr. S to this State is in part as an accredited agent, to raise funds for the building of a large Hall or Meeting House for the use of the reform party of Salt Lake. The reformers are poor and have many calls for money to sustain their movement, and we presume his appeals to our citizens will not be made in vain.

The erection of such a hall is considered a positive necessity in carrying on this work of reform.

SCIENTIFIC PRESS.

EXTRA DOUBLE SHEET.

San Francisco, Cal., September 3, 1870.

DOUBLE SHEET—32 PAGES.

Our regular issue of the SCIENTIFIC PRESS, for Sept. 3d, 1870, contains 32 pages. A large edition of Extra copies of the 16 page sheet containing the Guide for California Immigrants, will be printed and sold separately. Price 15 cents.

The Great Century Plant.

Among the famous plants which have been popularly endowed with mythological characteristics, the American Aloe,—scientifically denominated the *Agave Americana*, and very commonly called the Century Plant,—is entitled to a high place. Born in the tropical regions of America, the plant has been transported to many other parts of the world, and now is not uncommon as a hot house plant in Northern Europe, and as a perfectly naturalized product of the warmer portions of Southern Europe and Africa.

Although the American Aloe does not require the whole of a century to come to maturity, yet it may take quite a long period before it gets ready to flower, and when it has once made up its mind so to do, it devotes itself so energetically to the task, that, on its completion, it has no strength for further existence, and dies in propagating its species.

Over in the garden spot across the Bay called Oakland, there has been growing for some seven years, in the handsome grounds of Gen. R. W. Kirkham, one of these curiosities of nature. How old it is, or who its parents were, or where was its native spot, is unknown. But there it has been slowly growing and storing up strength and sustenance for future need in its circular cluster of fleshy, spiny, sharp-pointed leaves. Nobody noticed it particularly, nor was its appearance particularly deserving of notice. But last spring it turned over a new leaf and sent out a stem that grew with an almost visible velocity. As the tall spire kept reaching out and getting up higher, people began to go out to the General's place to see it, and weekly reports of progress were brought to us. When the clusters of greenish-yellow flowers opened out some thirty feet up in the air, then everybody told everybody that the century plant had bloomed, and the Press whispered softly in the ears of Mr. Burgess, the artist, and Mr. Burgess took a trip to Oakland, and what he brought back, all our readers have here an opportunity to see. This was before the leaves had drooped.

Now if that plant had grown in Mexico, it might have been badly wounded in the stem with sharp knives, and its life's blood pouring out might have been fermented and become "pulque" so much liked by our neighbors, or further distilled and, as "vino mecal," have infixed a deleterious spirit into the thirsty natives. Or its leaves might have been broken and the coarse fibers thereof manufactured into a sort of thread. Or from an extract from these leaves balls might have been made

which, rubbed with water, produce a lather like that of soap. Or the dried flower stems might have been used as a thatch to keep off the rain. Or the pith of the stem might have been baked in hot stones and eaten, tasting something like a sweet potato and sugar cane combined. All this might have been, had the plant grown further south, where it is more common.

But growing where it did, it attracted

measurement, 36 feet high, that its cluster of leaves are 16 feet in diameter, and that its stem, six feet above the ground, is 11 inches through. And some, perhaps, may have drawn close to the flowers and been fortunate enough to perceive the wonderful perfume which, to the human nose, may well appear a hundred years old.

But those of our readers who have been unable to attend the Exhibition, may here



THE CENTURY PLANT—AGAVE AMERICANA.

special attention of a person who calls himself S. H. Herring and writeth for the Press. And he, being of fertile invention, conceived the idea of having it carried over to San Francisco and placed in the great Pavilion at the Grand Horticultural Exhibition of the Mechanics' Institute. And Gen. Kirkham, being of a most generous disposition, agreed thereto, and now it has been visited by thousands who have wondered at its size and shape from afar, and, coming nearer, have examined it more closely, and have been told that it is, by

see how the curious plant actually appears. And they will perceive, on the right, a cluster of the flowers (not quite open) and, on the left, a single flower (in full bloom,) drawn of larger size for the sake of clearness. And they may like to know that the calyx of one of these flowers, now before us, is three inches long and of a green color, that the stamens are some two and a half inches long and are greenish yellow. But of the perfume we cannot give them any idea. That each individual must experience for himself.

[Entered according to Act of Congress.]

GUIDE FOR IMMIGRANTS To California.*

BY BENTHAM FABIAN.

For the Scientific Press.

Containing a Description of the Climate and Soil—Natural Wealth and Resources—Productions in Agriculture and Manufactures—The Past, Present, and Future of the State—Agricultural Districts—Public Lands—Laws relating to Preemption and Homesteads—Tables of Statistics from Official Reports—Lands for Sale—Railroads—Routes of Travel—Methods and cost of Travel—Distances—Suggestions to Immigrants—&c.

Chapter I. CALIFORNIA.

Its Discovery—Early History—American Occupation—Geography and Topography—Scenery—Minerals—Present Status—Education—Morals, Society, etc.

DISCOVERY.

The discovery of Upper California is credited to a Spanish navigator named Cabrillo in the year 1542. Subsequently, in the year 1578, it was visited by the famous English navigator Sir Francis Drake. In 1602 the coast was surveyed by Gen. Sebastian Viscaïno under orders from Philip III of Spain, and several harbors were discovered by him.

EARLY HISTORY.

But little is known of the country from that time until 1768-74 when the first permanent settlement of the country was made by the Spanish Jesuit Missionaries, during which years several Missions were established, including one in the harbor of San Francisco, which it is supposed was not discovered before that period. Up to the year 1820 the country was entirely under the control of the Missionaries, although nominally represented by a military governor, their Missions were principally on the coast, and no important settlements had been made inland. In 1822 Mexico threw off the yoke of Spain, assumed an independent Empire under Yturbe, and California became a colony of the New Empire. In 1824 Mexico laid aside the Imperial, and assumed a Republican form of government, and California, on account of the small number of white inhabitants residing within its borders, was not admitted as a State, but allowed the privilege of Territorial rights. This movement on the part of the newly formed Republic was the cause of the disaster which culminated 24 years afterwards in the taking of the country by the United States in order to save it from falling into the hands of the British, on whom in their bickerings and discontent with the mother country, the Californians relied for protection and support. In 1826 a law was passed which proved a death blow to the power of the Missionaries, as it deprived them of their cattle, horses, other animals and emoluments, and appropriated the same to the service of the Republic. A succession of revolutions and

*To those citizens of California who have the interests of the State at heart,—are zealous in devising and adopting means to develop the resources of the country,—and who have an abiding faith in its future—who fully realize the truth of the Axiom that "Labor is Wealth" first in Agriculture, second in Manufactures, and third in the pursuit of such other occupations as are of benefit to society and necessary concomitants to a state of civilization,—and who believe also that one of the leading principles involved in the science of "Political Economy" is the application of capital to the promotion of Home Industries—this Essay is respectfully commended by the AUTHOR.

attempts to form an independent government were, at the instigation of the Catholic Fathers made by the Californians without success. In 1846 the population was estimated at 16,000 white persons, and over double that number of Indians. Of the white population, about 2,000 were citizens of the United States.

AMERICAN OCCUPATION.

In the spring of 1846 Captain (now General) John C. Fremont arrived on the frontier with a U. S. Government command on an exploring expedition. The Californians had for some time been very jealous of American settlers, believing that their ultimate aim was to gain possession of the country, and therefore determined by forcible measures to resist the encroachments of the objectionable intruders. Many indignities were put up with by American residents, and remonstrances on their part and that of U. S. officers of the Army and Navy proving of no avail, a series of engagements took place, which culminated in victory on the side of the Americans, who finally hoisted the American flag in the harbor of Monterey. It has been argued by some writers that the Americans were unnecessarily hasty, but when it is taken into consideration that the British naval force then on the coast had concluded to give, and was on the eve of giving the Californians a British protectorate against the United States and Mexican powers, due allowance will be made for any seeming precipitancy on their part. From this time immigration from the Eastern States began rapidly to flow in. In January, 1848, gold was first discovered at Coloma on the American river, and the onward and rapid progress of California may be based from that time. About a month after the discovery of gold, an armistice between the United States and Mexico was agreed upon, and a treaty of peace ratified by the United States in March, and by Mexico in May.

GEOGRAPHY AND TOPOGRAPHY.

California is about 700 miles long, and has an average breadth of 100 miles. It extends from latitude 32° 45' north to latitude 42° north, and contains about 160,000 square miles, or over 100,000,000 acres, of which 35,000,000 acres are adapted for agricultural purposes, 23,000,000 acres for grazing, 5,000,000 acres are swamp and overflowed lands which may be reclaimed. The lakes, rivers, bays and other surface covered with permanent water, amount to nearly 4,000,000 acres, about 10,000,000 acres consist of arid plains and deserts, the balance 23,000,000 acres being covered with rugged, and for the most part heavily timbered mountains. There are two ranges of mountains which traverse the State from north to south—the Sierra Nevada on its eastern border, and the Coast Range, as its name denotes, on its western border.

SCENERY.

The scenery of California combines the grand and the picturesque. There are two ranges of mountains running the whole length of the State, one at the eastern extremity known as the Sierras, and another at the western called the Coast Range. Between the two ranges there is an unbroken valley which bears evidence of having been ages ago a basin of water. A peculiar sight that arrests the attention of the stranger in California, is that from the valleys during the summer months when the heat is oppressive, he can look upon everlasting snow on the mountain tops of the Sierra Nevada. The mountain ranges are filled with innumerable smaller valleys; those in the Coast Range are the largest and most beautiful, while those in the Mountain Range reach a higher elevation, in some instances 8,000 feet, and enclosing charming lakes. Mount Whitney, the highest mountain of the Sierra, has an elevation of 16,000 feet, and is surrounded by many others at least 13,000 feet high. The average height of the range may be set down at 8,000 feet. In this range of mountains are groves of the largest and oldest trees in the world.

The Yosemite Valley is a chasm ten miles long, two miles wide, and 3,000 feet deep within the heart of the Sierra Nevada, without an equal in the world for sublime and picturesque scenery. It has a dozen great cascades, the highest of which has a fall of 1,300 feet. The Mammoth Trees are the largest known growths of the vegetable kingdom. There are likewise in the State mud volcanoes, natural bridges, many caves, and numerous hot and mineral springs, some of which throw out great columns of steam.

MINERALS.

The mountains abound with ores, precious and other metals, and minerals. Chief in importance are gold, silver, copper, quicksilver, iron and coal. Borax, sulphur and common salt are also found in considerable quantities.

Although it is not intended in the present essay to dwell upon the subject of mining matters, the object being more especially to portray the Agricultural and Manufacturing resources, yet it may be interesting to our readers to know something about the products of precious metals.

The receipts of Treasure (gold and silver,) from all sources through regular public channels during the past six months, as compared with those of a like period of 1869, were as follows:

	1869.	1870.
From North'n & South'n Mines..	\$23,542,546	\$18,593,364
From Coastwise.....	\$1,949,808	\$1,959,825

The total receipts of Treasure from all sources since 1849, amount to somewhere in the neighborhood of \$1,150,000,000. These estimates of course includes much of the products of Nevada State and Territories north and south.

The gold yield of California has been decreasing, partly from working out of the rich placer or surface diggings, and the departure of gold seekers

to newly discovered diggings in neighbouring districts. The following table shows the yield of gold in California alone, as nearly as can be estimated, from 1848 to 1870:

1848.....	\$10,000,000	1860.....	45,000,000
1849.....	40,000,000	1861.....	40,000,000
1850.....	50,000,000	1862.....	34,700,000
1851.....	55,000,000	1863.....	30,000,000
1852.....	60,000,000	1864.....	26,600,000
1853.....	65,000,000	1865.....	25,500,000
1854.....	60,000,000	1866.....	26,500,000
1855.....	55,000,000	1867.....	25,000,000
1856.....	55,000,000	1868.....	22,000,000
1857.....	55,000,000	1869.....	21,000,000
1858.....	50,000,000		
1859.....	50,000,000	Total.....	\$904,300,000

PRESENT STATUS.

In November, 1869, the population of the State was estimated at 670,000, composed of various races, as follows: White, 485,000; colored, 10,000; Chinese, 66,000; and the balance civilized and wild Indians.

The value of real estate at the same period was \$137,167,417; improvements, \$18,098,097; personal property, \$86,809,006; and the total valuation, \$242,074,620.

The following commercial summary from the San Francisco News Letter of July 16th contains much useful information:

COMMERCIAL DOTTINGS FOR PAST SIX MONTHS.—Tonnage arrivals, 616,000 tons, or about 40,000 tons less than for the same time last year. Foreign imports for the six months cost us, exclusive of duties, about \$8,000,000, or adding duties, \$12,000, an increase of at least \$1,000,000, as against the same time last year. Duties collected on imports for the six months not quite \$4,000,000, while for the fiscal year the amount was \$8,600,000, the largest amount collected for any similar period. From Internal revenue there was collected in the district the sum of \$1,685,000 for the six months, and \$3,150,000 for the year. Our exports of merchandise for the half year, by way of the sea, amounted to \$6,890,000, a decrease of nearly \$2,000,000 from 1869. Included in the merchandise exports for the past six months was \$5,210,000 for California products. During the harvest year ending June 30th, merchandise exports amounted to \$18,990,800, a decrease of \$2,854,000 as compared with the previous harvest year. Of the amount for the past harvest year, \$9,958,400 was for flour and wheat, \$422,000 for wine, \$2,495,500 for wool, \$381,000 for hides, \$178,500 for leather, \$264,000 for skins and furs, \$674,000 for quicksilver, and \$381,000 for ores. The dividends paid for various local incorporations for the past six months show an aggregate of \$2,487,000 exclusive of the amounts paid depositors by the savings banks. The sales of the Stock Board for the half year amounted to \$29,692,000. The real estate sales amounted to \$8,750,000, a decrease of \$12,250,000 as against same time in 1869. Adding through passengers per railroad to those by sea, gives us a total of about 30,900 against 15,000 departures.

The productions from agriculture and manufactures will be found under their appropriate heads in another part of this work.

EDUCATION, MORALS, SOCIETY, ETC.

The Common School system of California is modeled after that of New York; the teaching thorough, and the teachers only permitted to assume their responsible positions after passing through a rigid examination. No State in the Union possesses a more enlightened educational system, nor one from which better results flow.

The laxity of morals of early days has been improved by the large influx of the female sex, and the influence women have to ennoble man and regenerate society; the formation of homes and settled habitations, and the general entrance of the population into legitimate pursuits. In a social point of view the standard of morality is high; the Christian Sabbath is observed and respected, and society compares favorably with that of an old settled community in the Atlantic States. There is hardly a trace of the newness of the country to be observed, other than in improvements. All the conveniences and appliances of civilization are here; and in no form do relics of a pioneer life appear. Probably in no part of the United States do the farmers generally live so well, either producing, or having within the easy command of money nearly everything relishable from the air, earth or water, and at prices within the reach of moderate means.

The population of California is more homogeneous than that of any other part of the world. All nationalities are here, and all meet on a common plane, learn to know each other, give up sectional prejudices, and assimilate and fuse into a cosmopolitan whole. Differences in political and religious belief never disturb the general equanimity, for antagonists and sectionalists have been brought into close contact, and learn to know that dislikes are the result of prejudice and feeling rather than of reason and sensible judgment.

Chapter II.

CLIMATE.

General Features—Variations of Heat and Cold—Rain—Relation of Climate to Agriculture—Health.

GENERAL FEATURES.

The climate of California, in general character, resembles that of Western Europe; the changes from heat to cold are neither great nor frequent; there is but little difference between the temperatures of summer and winter. The summer months from April to October are dry and without rain, except at rare intervals. The winter months from November to March constitute the rainy season.

The western slope of the Coast Range is subject during the summer season to heavy fogs, which are drifted in from the ocean. They are deposited at the foothills and on the slopes of the highlands, which add materially to the richness of the soil, and renders it so peculiarly applicable for grazing and dairy purposes. High up on the mountain ranges and summits of the Sierra Nevada extreme cold and everlasting snow are prevalent. The climate of the valleys between the two mountain ranges is not excelled by any other in the world.

VARIATIONS OF HEAT AND COLD.

The variations of heat between the northern and southern counties are not excessive, as the following table will show:

LOCALITIES.	SPR.	SUM.	AUT.	WIN.	AV. PR YR.
Humboldt Bay...	52.0.	57.6.	63.0.	48.5.	51.5.
San Francisco...	66.5.	60.0.	59.0.	61.0.	66.6.
Sacramento.....	56.0.	69.5.	61.0.	46.5.	58.0.
San Diego.....	60.0.	71.0.	64.5.	52.5.	62.0.

One feature that strikes the new comer to California very strangely is the great disparity in temperature found in different portions of the State in summer, and to a less but yet decided degree in winter. While the inhabitants of San Francisco are visited from May to October with strong north-west winds, and chilled with wet fogs so that woolen clothing is universally used, less than one hundred miles distant in the interior valleys and plains the lightest summer clothing is all that can be comfortably borne. The temperature of the interior valleys from May to October averages about ninety degrees Fahrenheit during the day, but the heat is so devoid of moisture that it can be borne with less unpleasantness or distress than a much less degree of warmth in the Mississippi Valley or Atlantic States. Thunder and lightning is of extreme rarity in California, but in its absence a very large amount of latent electricity prevails in the air, which is claimed to be of great benefit to health.

RAIN.

In the entire absence of rain during one portion of the year, and its restriction to another portion, California has but one climate. There is this difference, however, between one part and another: that the rain commences sooner and continues later in the north, and that both the quantity of the rain and the durations of the rainy season diminish on approaching the southern part of the State, or rather on receding from the mountainous section. The following table will show the average quantity of rain in inches which falls during the four seasons at different points, with the yearly aggregate:

LOCALITIES.	SPR.	SUM.	AUT.	WIN.	AG YR.
Humboldt Bay...	13.51.	1.18.	4.87.	15.03.	34.66.
San Francisco...	6.64.	0.13.	3.31.	11.33.	21.41.
Sacramento.....	7.01.	0.00.	2.61.	12.11.	21.73.
San Diego.....	2.74.	0.65.	1.24.	5.90.	10.43.

Very nearly the same quantity falls in the valleys surrounding the Bay of San Francisco, and also in the Sacramento Valley. The fall in Sonoma and Napa counties is rather greater, and in Santa Clara rather less. The rainfall in the southern counties is not more than one-half of that of San Francisco.

RELATION OF CLIMATE TO AGRICULTURE.

The farmer in California can work nearly all the year; he can commence plowing and sowing with the first rains in the fall—about November—and continue until January. From that time until the middle of April he can summer-fallow; which experience has shown to be both the safe and true method of tilling our soil; then haying commences, and lasts until the end of June, and the succeeding five months are devoted to harvesting the crops; this over, he can put in his summer fallow, or leave the land to spontaneous or volunteer crops, and be prepared for winter plowing at the commencement of the rains. Owing to the absence of frost, fresh vegetables are in the market all the year round. New potatoes frequently make their first appearance in March. The climate is very favorable to fruit; cherries begin to appear about the middle of May, and are found in the market until the end of July. Strawberries come in about April, but when the winter is mild are exposed for sale all the year round. All sorts of fruit may be dried with little care or attention, the absence of dews rendering no covering at night necessary.

HEALTH.

The climate of California appears to be peculiarly propitious in its relation to the physical development of animals, including man. No amount of labor or exposure to the elements seems to affect health, which is preserved in a remarkable degree. The dryness of the air promotes rapid perspiration, which favors rest and recuperation. There is no climate in the world in which one sleeps so comfortably all the year round, and can occupy so many hours out of the twenty-four with satisfactory results. The climate is remarkably adverse to epidemic diseases. During summer the residents in and about San Francisco Bay are subject to influenza. Malarious fevers are somewhat prevalent in the interior valleys, but not of a severe type. Insanity and diseases of the heart, and blood vessels are frequent; but this is due rather to moral and physical causes than to climate influence. Children are almost invariably healthy and robust, and remarkable for good looks and well developed forms.

Chapter III.

AGRICULTURE.

General Remarks—Annual Report of Surveyor General of the State—Diversified Farming—Prices of Land—Dairy Farming, Cattle and Horses—Sheep—Culture of the Grape or Viticulture—Silk Culture—The Tea Plant—Sugar Beet—Agricultural Implements—Labor.

GENERAL REMARKS.

No country in the world offers to the farmer greater inducements than California; the climate and soil are so variable that almost everything in the vegetable world can be cultivated. Probably no equal portion of the earth's surface is so well calculated to sustain a diversified and profitable agriculture as California. All the products of the temperate, and many of those of the tropical climates flourish with equal luxuriance. Nature seems to have marked out California as the special country of agriculturists. Her thousands of valleys and innumerable mountain and hill sides containing as valuable land as the world has ever known, fully attest such a theory. Such is the mildness of the climate that neither food nor shelter is required to be provided for stock during the winter season. The grain when threshed lies out in the field, and the necessity of building barns is almost dispensed with. In some parts of the State the farmer in the winter season need spend but little money in meat provisions, as his gun will amply supply the wants of his household. Quail may be shot by thousands, deer are abundant, and the country swarms with wild duck, geese, rabbits, and other descriptions of game. In the summer time the delicious trout to be caught in the numerous brooks form an acceptable addition to the farmer's table. California wheat is unsurpassed in quality by any in the world, and commands a high price in Eastern and European markets. It took the prize at the World's Fair in Paris. Two crops are produced from one seeding, the second being termed the volunteer crop which springs up without any cultivation from the seed lost on the ground after the removal of the first crop.

ANNUAL REPORT OF THE SURVEYOR GENERAL.

The returns of the County Assessors to the Surveyor General of the State for the years 1868-69, show that there were 2,132,150 acres under cultivation, and 4,463,127 acres enclosed, and the following is a summary of their tabular statements:

NAME OF PRO'DT.	ACRES.	BUSHEL.	AV. ACRE.
Wheat.....	1,118,891	19,651,984	17½
Barley.....	362,839	7,321,333	20 2-5
Oats.....	79,064	2,568,769	32½
Rye.....	2,122	34,476	16½
Corn.....	34,472	986,224	28½
Buckwheat.....	360	8,645	24
Peas.....	3,232	114,314	36½
Beans.....	8,295	218,871	26 2-5
Castor Beans...	233	37,760	16½
Potatoes.....	27,275	3,226,997	118½
Sweet Potatoes.	1,155	78,481	68
Onions.....	2,467	164,406	66½
Hay.....	295,633	*388,113	1½

* Tons.

Beets, tons.....	10,108
Turnips, tons.....	5,914
Pumpkins and Squashes, number.....	17,437
Silk Cocoons, pounds.....	8,200
Broom Corn, acres.....	1,418
Butter, pounds.....	5,671,182
Cheese, pounds.....	4,422,355
Wool, pounds.....	9,402,364
Honey, pounds.....	479,425
Apple trees.....	2,182,224
Peach trees.....	796,394
Pear trees.....	348,736
Plum trees.....	176,334
Cherry trees.....	96,034
Nectarine trees.....	25,728
Quince trees.....	44,850
Apricot trees.....	61,114
Fig trees.....	40,819
Lemon trees.....	5,280
Orange trees.....	30,669
Olive trees.....	18,946
Prune trees.....	8,669
Mulberry trees.....	374,125
Almond trees.....	32,400
Walnut trees.....	25,888
Gooseberry plants.....	224,480
Raspberry plants.....	1,024,412
Strawberry plants.....	18,262,288
Grape vines.....	22,402,680
Wine, gallons.....	2,587,764
Brandy, gallons.....	257,333
Horses.....	212,662
Mules.....	26,882
Asses.....	1,498
Cows.....	249,685
Calves.....	151,033
Beef Cattle.....	198,643
Oxen.....	20,738
Sheep.....	2,137,948
Cashmere and Angora Goats.....	21,061
Hogs.....	508,783
Chickens.....	913,818
Turkeys.....	140,055
Geese.....	34,114
Ducks.....	63,946
Hives of Bees.....	48,788

The following is a statement of the receipts of domestic produce at San Francisco from July 1st, 1869, to April 23d, 1870, compared with the same period in the previous harvest year:

	1868-9.	1869-70.
Flour, qr sks.	599,538	637,962
Wheat, sks.	5,011,173	5,708,368
Barley, sks.	320,097	631,370
Oats, sks.	208,873	261,529
Potatoes, sks.	331,985	590,830
Corn, sks.	17,079	50,337
Rye, sks.	4,260	4,287
Buckwheat, sks.	1,412	1,701
Beans, sks.	30,455	74,198
Brau, sks.	30,457	25,450
Hay, tons.	35,192	31,607
Salt, tons.	5,267	6,452
Wool, bales.	22,663	34,687
Hides, No.	60,097	56,946

DIVERSIFIED FARMING.

The climate and soil of California are so varied that almost everything which the earth produces can be raised here with great success. All the cereals, vegetables of every name and description, fruit of every variety, not excepting the tropical orange, olive, fig, lemon, pomegranate, prune, date, banana, etc., can be raised in almost every portion of central and southern California. The grape for raisins and wines, and the mulberry for silks, flourish here in their greatest perfection, and no land or climate is better suited to the cultivation of the poppy for opium. Experiments have already quite fully shown that we can produce our own tea, while coffee will eventually be a certain success in the lower portion of the State. Our mountains, while they abound in almost every mineral known to the arts, furnish herbage sufficient to produce all the wool needed to clothe forty millions of people, and water power for its manufacture into cloth. The navies of the world might also be constructed from the timber which grows on their slopes.

Diversified farming encourages industry and application on the farm, it leads to intelligent action in the selection of crops and in their application to the soil, as well as their proper rotation; it economises the farmer's labors and expenditures; it tends to subdivision of our lands into smaller sections, whereby they are more thoroughly tilled; it fills up the State with an industrious population; furnishes a home interchange of products, encourages manufactures, and thereby greatly enlarges the market for its own surplus.

The growing of any one crop to the exclusion of others is always to be deprecated. It stakes success on a single enterprise; it is an exhaustive system of agriculture; it affords no opportunities for the general average which, under the diversified system, makes profit and loss a uniform success; it crowds the work of the entire year into a few months, thereby necessitating hard economy in labor; it compels the farmer of small capital to annually hypothecate his crops at ruinous discounts; it is a short-sighted, ruinous policy for the great mass of producers in every possible aspect in which we may view it; in short, it is the very antipodes in its results of diversified farming.

PRICES OF LAND.

In general, land is cheap and much of it open to pre-emption under United States laws, as set forth in another part of this work. There are millions of acres of swamp lands within the borders of the State which can be brought into cultivation at a cost not exceeding \$3 to \$5 per acre. Upon this subject the reader is referred to a special article. The prices of agricultural lands owned by corporations and private individuals average from \$2.50 to \$10 per acre. In the separate descriptions of counties, full information on this point will be found.

DAIRY FARMING.

Is one of the most profitable sources of wealth in the State. Almost the whole of the land on the Coast Range and adjacent valleys is adapted to grazing purposes; it is full of springs and evergreen nooks; the natural grasses are very nutritious, consisting of alfalfa, burr clover, bunch grass and wild oats. During the year 1869 over \$1,000,000 worth of butter was imported from the Eastern States—not on account of its superior quality, as California butter and cheese is not excelled by any other in the world; but simply because the supply made at home was not adequate to the demand.

CATTLE AND HORSES.

The raising of stock in California is attended with less expense, perhaps, than in any other part of the world. The rich native grasses sown broadcast over the land afford abundant support to stock, if we except those occasional droughts—fortunately few and far between—when vegetation ceases for want of moisture, and man and beast are alike sufferers. The native Mexican mustang is the horse that is in general use, and invaluable for his excellent qualities and great endurance. The magnificent breeds of horses that have been introduced from other countries are, if anything, improved by the climate of California; and the care exhibited in preserving pure the herds of imported stock, gives the best assurance that at no distant day California will be able to boast of possessing the purest horses in the United States.

It is to be regretted that the same character is not likely to be attained by our cattle. Although the most valuable bulls have been imported, the stock has not been kept select. The large consumption of butchers' meat has caused a great demand for everything in the shape of cattle, and the consequence is that the temptation to breed "in and in" has proved too great to preserve the purity of the breed. If this fault is not rectified by our graziers before long, we shall have little more than an inferior and weedy stock to fatten on our fertile pastures.

SHEEP.

The mountain pastures of this State are admirably adapted for the grazing of sheep, and compare favorably with the "sheep-runs" of Australia and New Zealand, in which countries diseases unknown to California materially deteriorate from the value of the flock. The climate being of such a mild temperature all the year round, is particularly favorable to increase, and the result is, a larger percentage accrues to the sheep farmer from the multiplication of his flock, than is the case in almost any other country.

CULTURE OF THE GRAPE, OR VINI-CULTURE.

This very important branch of husbandry is second to none among the productions from the soil, and is cultivated all over the State; but the particular home of the grape vine is the southern counties, chiefly Los Angeles. By the last report of the Surveyor General, it was estimated that the number of grape vines then in the State numbered 22,402,580; gallons of wine manufactured, 2,587,764; besides 237,333 gallons of brandy. Every description of grape is grown, each applicable to the particular class of wine manufactured from it.

Of the different classes of wines manufactured from native grapes, the following are the most prominent: white wine of the stock kind, port, sherry, maderia, champagne and angelica. The culture of foreign grapes is being largely encouraged with satisfactory results. The Black Hamburg for claret, Reising for hock, Chasselas for Sauterne, Isabella, Catawba, Muscat, Tokay, and Tinto. All thrive well and produce excellent wines.

The manufacture of California wines and brandies is a business of great magnitude, and on account of the superior quality of the article is much sought after by our neighbors in the Eastern States, and in consequence has become a leading article among our exports. We append an extract from the report of the Senate Committee on the "Culture of the Grape," made during the sitting of the last Legislature of the State, which, being official, is sufficient evidence of its reliability:

REPORT.

Perhaps no other country on the globe, and certainly no other portion of the American continent, is so well adapted, in all respects, to the successful and profitable cultivation of the grape as the State of California, which, indeed, seems, as it were, to be the natural home of the grape, where it grows readily, from cuttings, upon the most arid hill-sides, and without irrigation.

The culture of the grape gives more employment to labor than any other branch of farming, and its development will tend greatly to the rapid peopling of our State with immigrants from among the honest, industrious and moral natives of the wine-growing districts of Europe.

To the immigrant who comes to California without means, with the expectation of a dependence upon farm labor for support, the districts devoted solely to the culture of the cereals offer small inducements; for, while the demand for labor is comparatively great and the pay liberal, for a short period during the rush of gathering and harvesting the crop, it is succeeded by a long period of inaction, when there is little or no need of hired labor, and the employee is turned adrift, perhaps to suffer from want before another job offers; besides, in our country, where the use of labor saving machinery in agriculture is so universal, the demand for manual labor is comparatively small, and is decreasing every year. This is not the case in vine culture; the careful planting and annual pruning of the vines, and the gathering of the ripened fruit, can only be done by the employment of human hands.

The growing of the grape is not in conflict with any other branch of agricultural industry, but can be made auxiliary to nearly all other kinds of farm labor, as for example: if you raise grain, your seedling is over before the labor of pruning the vine commences, and at the time of grain harvest there is little or no work required in the vineyard; and if the cultivation of the mulberry and feeding the silkworm should prove a success in California, its prosecution will present no conflict with the vintage work. And in a country blessed with so genial a climate and fruitful a soil as California, where all these several branches of agricultural industry—grain growing, stock raising, vine culture and rearing the silkworm—can successfully be blended together and practised in the same district, skilled and willing labor can find an abundant field, with continuous employment, at remunerative wages the year round. Let this fact be known to the world, and this alone will do more to encourage and induce immigration hither than any proposed expensive scheme of "Immigrant Aid Societies, with State appropriations, which, at best, will go no farther than to pay the traveling expenses of the immigrant to our State, and then leave him destitute, a stranger in a strange land, with no branch of industry provided for him wherein he may labor and acquire the necessities of life.

A large portion of California, in its present condition, is neither useful nor ornamental, bearing no green trees, and yielding no pasture for grazing purposes; yet, how valuable and ornamental could nearly the whole—of what is to-day so unseemly—he made, by planting vines and fruit trees.

Meteorologists tell us, that by planting trees and shading the dry ground, the moisture of the atmosphere is increased and more rain produced; and surely California, with her long, dry, torrid summers, needs all the advantages which would accrue from having her barren lands cultivated and her hillsides covered with verdure, thus increasing the supply of rain, and materially benefiting the grain grower and grazer.

The vine, even when growing upon the thin and almost arid soil of the mountain slopes, does not suffer from drought, as do the grain crops of the

valleys below; indeed, it is to the vineyards, upon these otherwise barren and desolate hillsides, that we must look for our most delicate and finest flavored wines and brandies. Neither does the cultivation of the grape exhaust the soil as the cereals do; there are vineyards in Los Angeles said to be one hundred years old, which still bear full crops every year.

Much of the soil of California is only suitable to the growing of fruits. In order to make fruit growing a success, it is necessary to grow all of the various varieties to which our soil and climate may be adapted; the most important of which, for general culture, is the grape, of its various kinds.

SILK CULTURE.

This is destined to become one of the most important branches of agriculture. The State is indebted to the late Mr. L. Prevost, of San Jose, Santa Clara County, for commencing and successfully carrying out this branch of industry. The mulberry tree thrives wonderfully in the soil of California. The leaves of the tree, the silkworms, the climate, and the silk produced excel that of any other country. The number of trees in the State by last official returns was 374,125, and is rapidly increasing—the production of eggs keeping pace with the same. The demand from France for California eggs on account of their superiority is so large, and the sale of them so profitable to the producer that the manufacture of silk fabrics is not considered at present a commercial advantage, although many fine textiles have been woven. Two crops of cocoons are raised during the year, viz, in May and July, the whole process occupying six weeks. Artificial heat is not needed, which is an immense advantage.

The peculiar adaptability of the climate for raising the silkworm has attracted much attention in Europe, and there is every reason to believe that at some future day the State will take the lead of all silk producing countries.

THE TEA PLANT.

The adaptability of the soil and climate for rearing the tea plant, has attracted the attention of the Japanese, and two plantations have already been started, one near Placerville, El Dorado County, containing 110 acres of land, having 200,000 plants already in the ground; another near Calistoga, Napa County, which has scarcely been commenced. There are 300,000 plants on the ground ready for planting. Both plantations are superintended by experienced Japanese tea cultivators, who are so satisfied of ultimate success, that they have sent home for a number of their countrymen to come out and colonize. The Japanese appear much to excel the Chinese as agriculturists.

THE SUGAR BEET.

This vegetable grows to an enormous size, and is easily cultivated. It is richer by four per cent. in saccharine matter than that of either France or Germany. A great advantage in this country is, that on account of the absence of frost, it can remain in the ground through the winter months, increasing in size, until required for milling purposes; thereby saving the labor and expense of storage, besides retaining its saccharine quality intact. The root undergoes a chemical change when exposed to the air, and gradually loses much of its sweetness.

This branch of industry has for some time past excited great interest, and arrangements have been made for the erection of suitable establishments for milling the root, and the manufacture of sugar from the juice extracted therefrom. The establishment of such an enterprise will be the means of supplying in part the consumption of sugar in California by an article of home production.

AGRICULTURAL IMPLEMENTS.

Agricultural implements, to a large extent, are being manufactured in this State, and are gradually but surely displacing those heretofore sent from the East. As the same rules for farming are not common to this and other parts of the States, but require alteration and modification, so with regard to agricultural implements. What is found to be a very useful machine on the farms of the East is not appreciated here, and is superseded by one better adapted to the peculiar soil, and to the extensive scale on which farming generally (to be profitable) is carried on in California.

LABOR.

Labor for agricultural purposes is plentiful, and can be hired on yearly contracts at rates sufficiently low to afford the farmer a handsome profit. In the city of San Francisco there is a Labor and Employment Exchange which has been established and in successful operation for the past two years. The services rendered to both employer and employed are entirely gratuitous. It is supported by voluntary contributions, and a monthly subsidy from the State.

Chapter IV.

AGRICULTURAL DISTRICTS.

The Valley of San Joaquin—The Southern Counties—Swamp and Tule Lands.

With a view to facilitate the immigrant in selecting suitable land whereon to settle, we devote a chapter specially to the purpose.

SAN JOAQUIN VALLEY.

The following is extracted from an interesting sketch of the great San Joaquin Valley Basin which appeared in the Stockton Independent of May 2d, 1868.

TOPOGRAPHY AND GENERAL FEATURES.

The basin of the San Joaquin river and its tributary streams contains the largest area of arable and pastoral lands, in a connected body in California. Its watershed reaches from the dividing summit of the Sierra Nevada chain of mountains on the east, the Coast Range on the west and south, and the dividing streams of the Sacramento river on the north—embracing the counties of Kern, Tulare, Fresno, Merced, Stanislaus, San Joaquin, Mariposa, Calaveras and Tuolumne. Its shape is that of a parallelogram whose greatest length is 250 miles, running northwardly; greatest width 40 miles, with an area estimated at 24,000 square miles, or 15,560,000 acres, diversified into tillable, pastoral and mineral land. A more minute division shows approximately, 1,000,000 acres of salt marsh and tule lands, 5,000,000 acres of mineral and mountain lands, leaving over 9,000,000 acres that are adapted to cultivation or pastoral purposes, a small quantity only being supposed too sterile for economical uses. The San Joaquin Valley proper, embraces about one-half of this territory the wide foothills and higher elevations of the Sierra Nevada range occupying the remainder—the low altitude and abrupt rise of the Coast Range forming only a narrow plateau. The foothills and lower elevations of both ranges possess many table lands and small valleys adapted to cultivation of the vine and to horticulture, or to sheep husbandry. On their sunny slopes the grape and table fruits attain rare perfection. The land in the northern portion is nearly all adapted to tillage, with or without irrigation, and is moderately well watered by numerous perennial streams, and by the San Joaquin river. It is level or slightly undulating, only a few feet above tide-water, with an occasional low, gravelly knoll and sink or depression, to diversify the general monotony of the landscape. Little timber occurs even along water courses, and that of a poor character except for fuel. This northern portion embraces the finest lands for the cereals and plants of temperate climes, within the valley, which will approximate half its arable extent. The southern portion of the valley presents a more arid surface and sterile soil, broken up by fresh water lakes, extensive swamps, alkaline deserts and detached groups of hills and mountains. The river bottoms are extremely fertile, but contiguous to the San Joaquin river and Tulare lake, extensive swamps exist, that require reclamation before they become adapted to tillage, when their fertility is exuberant. The San Joaquin river meanders its tortuous course nearly centrally through over one-half the length of the valley, and from the eastern slope receives all of its tributaries at any moment, the low elevation of the Coast Range giving origin to only a few small winter streams. Hence, while the eastern slope is extremely fertile, the western part is arid, treeless, and, without irrigation, only susceptible to sheep husbandry. In the swamps of the Tulare region one branch of the San Joaquin has its rise, from which its headwaters are only separated by a slight elevation that the winter freshets overcome. The Sierras to the eastward attain their greatest altitude—some of the peaks, Mt. Whitney and Mt. Kaweah, rising to a height of 15,000 feet—being the most lofty land known on the North American continent. Here, too, along this cyclopean range, the marvels of the vegetable kingdom have existence in the *Washingtonia gigantea*, or "Big Trees" of California, standing like gigantic sentinels, as if disputing supremacy with the towering summits they fringe. The general topography and geological features indicate that this valley has been the bed of a vast inland sea, whose tranquil waters for ages have received the wash and wear of the surrounding mountains, until at the northern and lowest depression deposits of diluvium thousands of feet deep have been made, which have been superimposed by the present soil during the subsidence of the waters. The foothills also bear traces of having been water worn by some mighty stream, and are covered by gravel, decomposed lava, and the humus of ages. From their bases the land gently descends, and does not lose its volcanic soil until reaching the general level of the plain. No great convulsion of Nature has ever upheaved the valley from the peaceful condition the gradual subsidence of waters left it in, but it lies placid and serene as a sleeping child awaiting some event to waken it into life and action. The soil of the whole valley is very unequal. In the upper portion, rich sandy loam, adobe, red ferruginous, and sterile gravelly soil, may all prevail on the same mile square. But the prevailing constituents of the soil render it the finest land for the cereals and fruits of temperate and semi-tropical regions on the continent. In the southern section, and along the foothills, certain specialties of production are highly favored.

The San Joaquin Valley may be said to possess no picturesque scenery. Like the prairies of the West, it is a vast, undulating plain or dead level, with an occasional tree or park of oaks to diversify the general monotony. No timber of account springs up along the streams, no thickets of green shrubbery relieve the eye, no murmuring rills disturb the ear, but through the ferrid plains of autumn the waters sluggishly wonder laden with the ochery sediment of distant placer mines. Yet within the sight at a slight elevation above the horizon the view changes. The mountains rise in Olympian majesty, their bases running off into gentle slopes or rugged spurs, cut up into innumerable configurations of landscape, while their dull brownish outline is relieved by groves of evergreen timber, and their upper summits are sparkling with snow or lost in the empyrean vault of heaven. If the flatness and tameness of the valley is insipid, the grandeur of the mountain scenery inspires a feeling of awe and sublimity. Yet the valleys for a few months of the early year have

a tranquil, modest beauty in their verdurous monotony; but nothing is more desolate than the plains in the autumn months when the herbage has been scorched sere and brown, and even the homely fact of its still existing nutritious qualities does not recompense for the lack of inspiring influences the scene gives to nature. Seen in this phase, so different from all home associations, one wonders not that the early adventurers never dreamed of the riches slumbering in the soil—which were so unprepossessing an aspect—but only believed in the mineral wealth they came to seek. The wonder of the Alpine scenery, the Yosemite Falls, on the headwaters of the Merced, a stream of considerable magnitude, precipitates itself at the first fall, a sheer perpendicular descent of 1,600 feet, and a succeeding fall is 424 feet. There are other falls—one of 700 feet, another of 750 feet, and a third of 300 feet, on a branch of the same stream. They are in the region of elevated peaks and rugged precipices, one of which has a perpendicular descent of 4,000 feet. In this region and the mountain region for 200 miles, the most sublime Alpine scenery is to be found, which annually attracts many curious visitors. The Coast Range does not exceed an average altitude of 3,000 feet, and in fertile portions is covered to the summit with wild indigenous oats that give to them in the spring season a peculiarly lovely grandeur. The plains at this season are clothed in green verdure, into which intermingles the golden lily and myriads of native wild flowers; and the cheerful pipings of the lark, quail, and myriads of feathered songsters make the air vocal with their notes. In the Tulare country, along the Kahwean and King's rivers, the virgin soil gives growth to beautiful groves of cottonwood and sycamore, and their margins are fringed with perennial verdure. Climate and soil conspire to give birth to the most picturesque sylvan scenery, and grandest monuments of Nature. Here will become in future years, the tropical paradise of California.

AGRICULTURE AND PRODUCTIONS.

The large extent, undoubted fertility, and known capabilities of the lands of the San Joaquin Valley, give assurance that agriculture will become the predominant interest of the people. The cultivation of the soil is the first industry of nations, and while there are cogent reasons why it should be the principal in this section, there are subsidiary industries that open large fields for capital and enterprise, the second interest in importance being the development of the rich and extensive gold fields, copper and quicksilver mines, and metaliferous and carbonaceous veins. Water power unlimited in amount, also directs to future important mechanical and commercial manufactures. The systems of tillage pursued in California are not identical with those of any other portion of the United States, and are in a great measure still primitive and experimental. But enough is known to take advantage of the climate, seasons and fertile soil, yet the knowledge is not sufficient to grasp the whole capabilities of the situation. Owing to this, agriculture is barely developed to a condition that it may be said the capabilities of the soil and climate are unlimited for the culture of nearly every known useful vegetable production indigenous to the temperate and semi-tropical zones of the earth. What is true of the whole State in a general sense, may be particularly said of the San Joaquin Valley, which possesses a diversity of soil and climate, plain and mountain arable land, adapting it to an extended variety of cultivation and production. The valley of the San Joaquin is equally as favorable to the pastoral interest, the climate being peculiarly well adapted to domestic animals, and their rapid increase, their prolificness being in a much more rapid ratio than in Atlantic countries.

The principal staples which the soil and climate of this valley favor are the cereal grains. Wild oats are indigenous to the country, and on lands allowed to run wild will run out other small grains, but are only cultivated as a forage plant, which, out while green, makes excellent hay. Barley also thrives well, and in a green state is often cut for hay. But the great staple, from being the "staff of life," and the ease of cultivation over other products in this climate, is wheat. In a moderately rainy season it is capable of perfecting its growth before the heats of summer have evaporated the moisture from the roots, and a crop is nearly sure of being made. No disease, rust, or insect harms the grain, although smut was in early days very prevalent, but by proper treatment has nearly disappeared. There has always been a good demand for the surplus crop of this cereal, in the mines and for export, and its cultivation has been profitable. The system pursued in general vogue in putting in a crop has been to plow the field as soon as practicable after the first heavy December rains, and immediately sow and harrow in before the ground becomes sodden. The growing grain thus has the benefit of all the rains of the season, and requires no other attention till harvest, when it is threshed and sacked on the ground.

In no part of the State does the grape arrive at rarer perfection. Gravelly lands apparently worthless, and southern exposures on the desolate appearing slopes of the foothills, are the favorite situations for the grape, if irrigation can be practised. Every locality in the valley expresses wine sufficient for its own neighborhood, though ignorance of the proper treatment of the juice of the grape has prevented any considerable export of the immature article produced. The wines of the mountains are sweet and strong, and possess a heavier body and finer flavor. Every farmer who indulges in its use expects to make his own wine in this valley. For table use grapes of excellent quality are as common and cheaper than wheat, and some varieties of foreign grapes would tempt an anchorite. The vineyard interest in a few years,

it seems probable, will only be secondary to the grain production, and far more profitable.

Fruits of all descriptions attain to rare perfection and monstrous size in the mountain valleys and on the foothills. The plains also produce fruit in abundance. Apples, peaches, pears, nectarines, apricots, plums, quinces, cherries, figs, etc., thrive luxuriantly, apples and pears often attaining to a weight of twenty ounces, and other fruits relatively in the same proportion as to size. The growth of the ligneous fibre is vigorous and rapid, trees reaching a size in two years equivalent to a six years' growth in the Eastern States, and bear in two and three years from planting. In six years many varieties are at their maximum bearing point. Grafted fruits only are cultivated, and are as exquisite in flavor as beautiful and tempting in appearance. In the fall of the year, apples and pears are so common that everybody revels in the toothsome fruits, and they are so cheap as hardly to pay for transporting to market.

The small garden fruits and berries of temperate climes—the blackberry, raspberry, gooseberry and currant—produce exuberantly, and the strawberry plant will bear every month in the year, except February, in the open air. There is no question that the cranberry plant will succeed well on some of the swampy lands of the upper San Joaquin. The system of culture pursued with respect to fruit is that most approved of by enlightened horticulturists everywhere.

Cantaloupes, watermelons, pumpkins, etc., do well in the moist sandy river bottoms, the watermelon, particularly, arriving at a state of perfection.

Kitchen vegetables and garden sauce, in all their extensive range, and of the most succulent character and mammoth size, may be raised the year round with proper irrigation. Peas, onions, lettuce, radishes, etc., raised in the open air, are common in the markets in February. Cabbages produce enormous solid heads, and are only taken from the ground when needed for use.

In the rich bottom lands of Tulare Lake, Indian corn grows very luxuriantly, and produces equally well with bottom lands of the West.

A third cultivation, which seems likely to give origin to an important manufacturing industry, is raising sugar beets for their saccharine qualities. The sugar beet, in a deep, rich loamy soil, attains a weight of from ten to one hundred pounds, and an average crop reaches twenty tons to the acre. The labor of cultivation is light, and the climate offers peculiar inducements for engagement in this industry. The beet root will net seven per cent. of its gross weight of sugar, which at a moderate calculation will realize \$300 per acre for profit, and expenses of cultivation and manufacture. Germany and France supply the home demand for sugar from the saccharine matter of the beet, and those countries do not favor this industry when brought in comparison with San Joaquin Valley. Observation and analysis have determined the value of this root crop, and it is not unlikely a manufactory will soon be established to demonstrate the feasibility of making beet root sugar in California.

Hemp and flax are indigenous to Southern California, and on the moist, loamy bottom lands thrive luxuriantly. The textile fibre of these plants appears lacking in strength, and flax is only, but quite extensively, cultivated for the oleaginous properties of the seed. The castor bean is also raised in considerable quantities for its oil.

The soil and climate of this valley particularly favor the cultivation of the hop plant, and in San Joaquin county many acres have been planted with this vine, where it produces amazingly. The absence of moisture during the growing season secures the hop from the mildew so fatal in other countries, and the crop averages 600 pounds to the acre. The active principle, lupulin, is a more pleasant and stronger bitter than foreign hops possess, resulting, do doubt, from the ability to cure the strobiles in the open air.

The tea plant easily becomes acclimated in the arable regions of the upper foothills, grows to be a beautiful shrub, and with proper knowledge may become, through the instrumentality of cheap Chinese labor, an important staple of the country. Large quantities of Japanese seeds have been introduced; and the thorough cultivation of the tea plant will be tested in every portion of the State.

There seems no more promising pursuit for man, woman and child, in the San Joaquin Valley, than the culture of the white mulberry tree and the rearing of silkworms upon its leaves. The mulberry tree thrives luxuriantly, and the climate is peculiarly favorable to the propagation and nurture of the silkworm, and the production of the finest qualities of silk cocoons. The absence of all disturbing electrical phenomena, the mildness and equableness of the climate, and the freedom from moisture of the mulberry leaf, so destructive to this sensitive creature, warrant the statement that this is a superior, and probably the best silkworming country on the globe. The worms are healthy, the feed very succulent, the silk of fine texture, and the cocoons unusually large. In the season of feeding and spinning, a woman or child can attend to the worm, and what more particularly recommends the pursuit, is the small amount of capital required to commence upon. The product is always in demand and very valuable, and can be secured here with less labor and less cost than in Italy or France. The pursuit already engages the attention of many ladies, who find it a delightful employment and recreation. The feeding of the worms is through with in a few months, and with common care a failure is not possible, as often happens in purely agricultural pursuits. A silk factory has been established near San Francisco, and domestic silk will soon be turned out, entirely of California production.

The honey bee has been acclimated, and in favorable locations lays up plentiful stores; but the

arid plains for four months of the latter part of the year—flowerless and shrubless—throw it back upon hoarded savings, and unless well situated for bee pasturage, the pursuit is not remunerative. In the timbered region of King's River and Tulare Lake the pursuit is followed with moderate success. The Italian honey bee has been introduced, and has multiplied very rapidly. The bee swarms several times during the summer, and many thousands of swarms have been lost and become wild, taking up their habitations in trees or caverned rocks.

Wherever natural pasturage exists, sheep husbandry is pursued with compounding profits, and the prolificness of the animals is astonishing. Sheep are herded during the day, and driven into corrals or pens at night. The native stock has been much improved by intermixtures with Merinos, Cotswolds, and other fine foreign breeds. The fleeces are heavy, and the animals singularly free from the usual diseases incident to their species.

Improved breeds of English cattle have been imported, and their progeny has been scattered throughout the valley. The increase of cattle is very rapid, consequent upon the early maturity and great prolificness of cows. Neither cattle or sheep require shelter from the inclemencies of the season.

Great attention has been paid to the improvement of the mustang, or native breed of horses, by the introduction of Thoroughbred, Black Hawk and Clydesdale stock animals.

The Essex and Berkshire breed of hogs are common, and immense numbers are raised in the valley, particularly among the oaks of the foothills, and along the wooded streams and tule swamps of the Tulare Basin. They also thrive on the scattered grain of the wheat fields into which they are driven after harvest.

Poultry—geese, ducks, turkeys, etc.—are raised in immense numbers, and form a lucrative branch of domestic produce.

Butter and cheese making are not very extensively engaged in, but can be carried on successfully, and the products are of excellent quality.

THE SOUTHERN COUNTIES.

The following important and instructive letter written by the U. S. Commissioner of the General Land Office, Washington, D. C., in response to enquiries made by the American Consul at Rotterdam, on behalf of a number of inhabitants of that country, who wish to emigrate to California, will be of great interest to the general reader:

UNITED STATES OF AMERICA,
DEPARTMENT OF THE INTERIOR,
GENERAL LAND OFFICE, May 13, 1869.

ALBERT RHODES, *United States Consul, Rotterdam, Holland*—DEAR SIR: In reply to your letter of the 7th ult., requesting information in regard to public lands in Southern California, especially in the neighborhood of Los Angeles, I have to state that the valuable lands in the southern portion of that region, in the counties of San Diego, Los Angeles, San Bernardino, Kern, Santa Barbara, and San Luis Obispo, are to a considerable extent held under Mexican grants, many of which have been confirmed by the United States since we have succeeded to the sovereignty of the country. The counties of San Luis Obispo and Kern may form an exception to this statement, as Government land of excellent quality exists in each; but so much has been recently entered under the pre-emption and homestead laws, and located with college scrip, and still continues to be taken, in consequence of a numerous emigration to Southern California within the past two years, that it would be hazardous to undertake to specify the quantity of public land at present subject to entry, as the next returns from the local officers may show the amount considerably diminished. There is however an abundance of unoccupied land of the best quality in each of the counties named, which, whether belonging to the Government or in the hands of private owners, may be readily obtained at very moderate prices, generally varying from \$1 to \$5 and upwards per acre, according to value.

MEXICAN LANDS, GRANTS, TITLES, ETC.

Lands in the hands of persons claiming under Mexican grants confirmed by the United States, are perfect as to title. Lands claimed under grants not so confirmed, seldom rate at a high figure; and should the title subsequently fail, and the lands be declared a part of the public domain, the laws of the United States extend to parties in possession under conveyance from former grantees, a pre-emption right to enter the land so occupied at the minimum price of \$1.25 per acre, so that in either event the settler will obtain the land at a very low price. Indeed, at the present day no apprehension need be felt about the title of lands in California, as most of the Mexican grants, valid or invalid, have passed through the ordeal of judicial investigation, and have either been confirmed or the lands claimed, declared part of the public domain; and even if an occasional claim should be met with not acted upon, the Acts of Congress make such liberal provision in favor of *bona fide* settlers that no great injury can result in the event of such claim proving invalid.

An emigrant from Europe, entirely unacquainted with the land system of the United States, or the nature of titles in this country, and the mode of recording them, might be liable to make a bad bargain, unless he fully informed himself. But there are abundant opportunities of ascertaining the condition of the title of every tract of land, and a person of ordinary prudence need not go amiss.

GOVERNMENT LANDS, ETC.

Government lands in California may be taken under the pre-emption or homestead laws, the entries being effected in the manner pointed out in

the accompanying circular from this office, dated March 10th, 1869. In the southern part of the State these lands are mostly located to the eastward from the Coast Mountains; but there are, nevertheless, in the western portion of each of the above named counties, small quantities of public land not yet occupied, which may be entered at the District Land Office at San Francisco, excepting lands in Kern County, which must be entered at Visalia, in Tulare County. The localities of the different places mentioned may be readily understood by inspecting the accompanying map of that State; an examination of which will also show the localities of private grants confirmed at the date of the map, the names of which, with corresponding numerals, are placed in the margin.

GOOD LANDS.

It will be observed that the good lands of Southern California are found on the Pacific, in the valleys and on the foothills of the Coast Mountains, extending inland from twenty-five to seventy-five miles, embracing in area susceptible to cultivation and admirably adapted to horticulture, equal in extent to the State of Massachusetts.

CLIMATE, PRODUCTIONS, ETC.

The climate of these valleys, some little distance from the coast, is not surpassed in any portion of the world; the intense heat experienced in the arid plains further to the east being modified here by an altitude of several thousand feet above the level of the ocean. Numerous streams of water flow through the valleys—many of them permanent—furnishing the means of irrigating large bodies of land. The grape vine flourishes here luxuriantly; more than 6,000 being cultivated in Los Angeles County alone, yielding one and a half million gallons of wine, and more than one hundred thousand gallons of brandy, besides large quantities of choice grapes for the San Francisco market.

The grape attains vigorous growth in almost every variety of soil, is remarkably free from disease, and requires no irrigation. It flourishes as well in the foothills and on the sides of the mountains as in the valleys, and produces a stock strong enough to dispense with the necessity of stakes, thus greatly reducing the amount of labor required in a vineyard. A vine is now growing in Santa Barbara County twelve inches in diameter four feet from the ground. At six feet from the ground the stem is divided, the branches extending in every direction, covering an area of 10,000 square feet, and producing annually 12,000 pounds of grapes, in bunches from fifteen to eighteen inches in length, averaging from six to seven pounds each. This vine is of the old Mission grape, and was planted forty-three years ago.

But the soil and climate of these valleys are equally well adapted to the growth of the orange, lemon, lime, citron, fig, walnut, olive, banana, almond, filbert, and currant; and wheat, barley, corn, potatoes, cotton, tobacco, and sugar-cane thrive well. In an orange grove of 2,000 trees, near Los Angeles, the annual crop averages 1,500 oranges to each tree, some of the trees producing as many as 4,000 each. The sides and summits of the mountains contain an abundance of pine, cedar, hemlock, maple and oak; and deposits of gold, silver, copper, tin, marble, alabaster, asphaltum, petroleum, sulphur, salt and coal are numerous.

EXTENT, CULTIVATION.

Of the 4,000,000 or 5,000,000 acres in Southern California adapted to the vine and the mulberry tree, and a great variety of semi-tropical fruits, not much over 100,000 acres are thus cultivated—probably not that of quantity; and although that region is capable of accommodating and comfortably supporting a population of 1,500,000, its present population falls short of 40,000.

WINE AND BRANDY—UNOCCUPIED LANDS—A SUCCESSFUL COLONY.

Hundreds of thousands of acres of the finest lands, blest with a climate equal to that of the fairest portions of Italy, are held in extensive tracts under Mexican grants, and are either entirely unoccupied or devoted to grazing; the proprietors, however, manifesting a willingness to subdivide and sell their claims as rapidly as the increase of settlers creates a demand for the same. As an illustration of what may be accomplished by an enterprising colony of settlers, the village of Anaheim, in Los Angeles County, may be referred to. In the summer of 1857 a company of Germans acquainted with grape culture, bought 1,295 acres of land in the valley of the Santa Anna river at \$2 per acre, dividing it into fifty rectangular lots, of twenty acres each, with streets between them, and subdividing the residue into sixty town lots—one for each of the proprietors, and ten for public purposes. The lots were all fenced with willows, sycamore, and poplars, and about ten acres of each planted with vines. At present there are over 1,000,000 vines growing in this village—most of which are in bearing—already producing annually over 250,000 gallons of wine and some 20,000 gallons of brandy. Of the various kinds of fruit trees there are more than 10,000. Every one of the fifty lots contains a comfortable homestead, and the village has a population of about 400, with a good public school, several stores, and a post office in the town. Each of these lots is worth at the present time fully \$10,000, and is continually increasing in value. The history of Anaheim demonstrates the advantage of settlements by colonies. Had each of the original fifty settlers of the village located by himself, cut off from the encouraging sympathy and mutual counsel of congenial neighbors, it is doubtful whether success would have crowned the efforts of one-fourth of their number; but adopting the colony plan, they have in twelve years advanced to a situation not only of comfort, but of comparative wealth.

There are many opportunities, not only in the county of Los Angeles, but in each of the others named above, and, in fact, in nearly every county in California, to repeat the experiment of the Anaheim settlement, under circumstances even more favorable than existed in that case.

Since 1857 the character of California as one of the best wine-producing countries in the world has been fully established; many foreign varieties of the grape have been tested; and much that twelve years ago rested upon uncertainties has been established by repeated experiments; in addition to which the great continental railway from the Atlantic to the Pacific has been completed, opening a market for the products of the California vineyards.

All these advantages, that did not exist when Anaheim was founded, will render the trials of similar colonies much less severe.

Very respectfully, your obedient servant,
Jos. S. Wilson, Commissioner.

SWAMP AND TULE LANDS.

Among all the agricultural lands of California, there are none so rich and productive as the swamp lands. The State contains 5,000,000 acres of swamp and overflowed tule land, which only needs reclamation by means of ditches and levees, to render it the most fertile soil in the world.

The reclamation of swamp and overflowed land is not, as many suppose, a problem to be solved. The splendid sugar plantations of the lower Mississippi, and the rice fields of Georgia and South Carolina, fully attest what labor and engineering skill have accomplished in our own country, in transforming malarious swamps to useful fertility and pleasant homes.

The value of land that could be cheaply and effectually irrigated, and land enriched by overflow, as on the Ganges and Nile, has been appreciated for many centuries by the husbandry of all civilized nations. Sacred history informs us that the Egyptian granaries, insured by irrigation, were overflowing with corn when their neighbors were famishing for bread. Sesostris, who lived sixteen centuries before the Christian era, added much to the wealth of his people by constructing canals for that purpose. Italy, the "mother of the arts," has the most perfect system of irrigation in all Europe. The great canal of the Ticino, in Lombardy, was constructed in the Twelfth century, and, to quote from a modern writer, "it has carried a volume of water equal to 1,800 cubic feet per second for more than 600 years. This great mass of water has been spread over the surface of the country through a thousand channels, stimulating the productiveness to such an extent as to make the country through which it passes one of the richest and most densely populated which the world has ever seen." Since the famine in India, over 11,000,000 acres of malarious lands have been subjugated by drainage and irrigation, and now sustain a population of 500 to the square mile. Holland has wrested from the ocean the most valuable portion of her kingdom, and is now planning a gigantic scheme to encroach on the waters of the raging Zuyder Zee. The old Romans drained the marshes of the Tiber, "and fed the armies that ruled the world." Over one-half the best meadow lands in England were not many years since a valueless swamp.

The splendid success of the reclamation of Sherman Island has stimulated similar enterprises. The Ride Land Reclamation Company, recently organized, with a nominal capital of \$12,000,000, has purchased 120,000 acres of the same character and value as the land on Sherman Island.

Although there are several million acres of swamp and overflowed land, generally designated "tule," in California, there is not to exceed 200,000 acres of what can properly be termed *fresh water tide lands*, as favorably located, and as valuable when reclaimed, as Sherman or Twitchell Island. By drawing a line on the map across the San Joaquin at Stockton, and five or six miles above the head of Steamboat Slough, on the Sacramento River, and just below Sherman Island, where both rivers meet, and the within area will embrace all the land of that character in the State.

By the action of the tides, which rise and fall from four to six feet every twelve hours, the water is kept pure, and self-acting tide-gates can be used for drainage or irrigation, at pleasure. The trade winds during the summer months are pleasantly modified, but always invigorating; and these beautiful islands, with the charm of perpetual verdure, are exempt from fevers and malarious diseases generally, and are destined in a few years to be the most densely populated and valuable agricultural lands on the Pacific Coast. Being free from roots or stones, and generally on a uniform plain, they are admirably adapted for steam cultivation. The Tide Land Reclamation Company propose at an early day to use the steam plow, with stationary engines. Over 3,000 of these plows are now in use in England, and the old Viceroys of Egypt imported 200 of them seven years since, to his rice fields on the Nile, where he annually cultivates 800,000 acres.

The character of the soil is peculiarly adapted for levees, and should they be covered by water during an extraordinary flood (as in '61 and '62), little or no damage would be sustained. Within a few years our markets will be supplied from these fresh water tide lands with fine clover and timothy hay, which can be placed in San Francisco, owing to advantage of cheap water transportation, and three or four crops yearly, at greatly reduced rates from what is generally paid for the poor article of straw hay that we are now compelled to use.

The question is, what products from these lands when reclaimed, will be the most profitable? Will it be wheat, which matures in one hundred days, and yields from sixty to eighty bushels per acre? Barley, that in less time reaches one hundred

bushels per acre? or timothy, or clover, that will crop eight to ten tons of hay annually? Vegetables and fruits grow in such abundance that the market might be overstocked. It is believed by those familiar with the subject, that rice would find it a congenial soil. Rice, madder, sugarcane and cotton will probably be tested in a small way next year. As pasturage, either for stock or dairy purposes, these lands have unequalled advantages.

Immunity against drouth, healthful and pleasant climate, inexhaustible productive powers of soil, and cheap transportation, are sufficient inducements to secure their reclamation, and in a few years they will be pointed to with pride, as constituting a great portion of the agricultural wealth of the State.

Chapter V.

MANUFACTURING.

General Remarks—Woolen Mills—Boots and Shoes—Sugar Refining—Lumber and Shingles—Flouring Mills—Manufactures in San Francisco—Car and Carriage Building.

GENERAL REMARKS.

Second to the development of agricultural resources in the chain of civilization is the encouragement of home manufactures and such other industries as grow out of the wants of the people. Destiny has marked out for California a high position. In a few years—perhaps during the lifetime of many who read this—she will be the great commercial empire of the Pacific. Home manufactures are the source of England's strength and wealth, the pride and cause of wealth in our Eastern States, and of the power of recuperation which has enabled Prussia, Germany and France to recover from the devastating effects of many a hard fought battle.

There is an abundance of valuable water power in the State which are long will be harnessed in and turned to account. The principal points at which water power is situated, are the falls of Merced river, Merced county; Knight's Ferry, on the Stanislaus river, Stanislaus county; and at Folsom, on the American river, Sacramento county.

The leading interest of the State until a few years back was that of mining, and the high rates of wages then prevailing precluded the possibility of competing with goods of foreign manufacture; consequently everything was imported, much to the detriment and impoverishment of the State. Now, however, that the great harvest days of gold hunting are over, and the accumulation of colossal fortunes by easy means has ceased, wages and the rates of interest for money have fallen sufficiently low to warrant the introduction of capital into, and the encouragement of manufactures; and it is gratifying to observe the steady increase in that direction. California is peculiarly fitted, on account of its internal resources and geographical position, not only to manufacture everything she requires for home consumption, but also to become a large exporter of manufactured goods to Australia, New Zealand, China and Japan; and the day is not far distant when the dreams of such an event will be realized. Capital for manufacturing purposes is being rapidly accumulated and invested in enterprises of magnitude.

WOOLEN MILLS, CLOTHS AND BLANKETS.

The manufacture of woolen is one of the most prominent branches of industry in the State. There are five mills in active operation—three at San Francisco, one at Sacramento, and one at Marysville. The aggregate quantity of wool used by the five mills during the years 1868-9 was nearly 4,000,000 pounds.

Two mills in San Francisco, viz., the Mission and Pacific (Knitting), have been in successful operation for some years. Returns made by the County Assessor show that in 1868-9 those mills used up 3,250,000 pounds of wool. Recently their respective interests consolidated, and the business is now carried on under the supervision of Donald McLellan, Esq., founder of the Mission Woolen Mills (one of the two in question).

The enterprising spirit of Mr. McLellan has suggested many improvements, and the inauguration of a more extended field of operations. With that view a large tract of land contiguous to the city has been purchased, and he will erect three buildings of gigantic proportions to carry out his plans.

The new mills will turn out the finest description of beaver cloths, tweeds, and cloakings; blankets of every description, horse and sluing blankets, kerseys, carriage robes, etc.; ingrain, three ply, fine and superfine carpets (which have hitherto been imported from the Atlantic States), besides every description of knit goods. In addition also, there will be a department devoted to the manufacture of all classes of men and boys' ready made woolen clothing. Some idea of the magnitude of the establishment contemplated may be formed from the fact that it will give employment to upwards of 1,200 persons.

BOOTS AND SHOES.

Of the boot and shoe factories, that of Messrs. Buckingham & Hecht, of San Francisco, is the most extensive. Their building is situated on Market street, opposite the San José Railroad Depot; it is 60 by 120 feet, two stories high. It is a model for compactness and perfect adaptability for the purposes of the business.

This firm employs 170 men and 35 women; it produces annually 130,000 pairs of boots and shoes, embracing almost every variety of style known to the trade. They consume yearly 18,500 sides of sole, and 3,000 sides of wax upper leather, 6,000 wax kip, 12,000 calf, and 31,000 sheepskins,

all of California manufacture, in addition to which they use of imported articles, 9,000 French calf, 8,000 kid and goat skins, 15,000 yards of lastings, and 14,000 yards of Lomene, besides other minor items such as silks, thread nails, etc., to the value of \$10,000 per annum.

Their disbursements for labor amount to \$170,000 yearly, and they give sustenance to 1,200 persons, thus practically and forcibly showing the great importance of home industry.

SUGAR REFINING.

This branch of manufactures is carried on very extensively, but its ramifications are at present confined to San Francisco. During the year 1869 there were used 25,160,000 pounds of raw sugar, and 20,254,000 pounds of refined sugar were produced from it, besides the usual proportion of syrup.

LUMBER AND SHINGLES.

The sawing of lumber and manufacture of shingles, and the business growing out of it, employs more capital than any other branch of manufactures. The principal lumber districts which supplies the coast and adjacent counties, are in the counties of Humboldt, Mendocino and Santa Cruz. Last year there was turned out in the State 267,459,885 feet of lumber, and 67,707,000 shingles. Besides the above named, the business of lumbering is carried on to a considerable extent in the counties of Butte, Placer, Nevada, and San Bernardino.

FLOURING MILLS.

The grinding of wheat and corn is not confined to any particular county, but is scattered all over the State, and is very profitable. The returns of last year show that 1,871,808 barrels of flour and 133,004 bushels of corn meal were turned out from various grist mills in the State.

MANUFACTURES IN SAN FRANCISCO.

Hitherto the principal portion of the manufacturing interests of California have been mostly confined to San Francisco.

There is no place in the United States where the intelligent investment of money in manufactures promises such fine results to its owners and to the community at large. San Francisco is the natural supply point of the Pacific and Rocky Mountain States and Territories, and, for many articles of the foreign countries on the Northern and Southern coasts. She reaches, also, to the mid-ocean islands, Australia, Japan and China. To the extent that she manufactures herself the articles needed to meet her growing trade with all these regions, she will increase the profits of that trade, while multiplying the avenues of home employment and adding to her resources for the support of a large population. A mercantile house that imports from the East or from Europe a certain line of goods, creates nothing, and employs only a few clerks and porters. A manufacturing house, which makes the same goods here, creates a new property, employs hundreds of people more or less directly, and stimulates a dozen different trades, while retaining capital here that would else go abroad. In this way the manufacturer creates and anchors wealth, and there is an expansive quality to his enterprise which touches every interest in society.

In proportion as the city becomes more and more the maker of what she sells, she will enrich herself and the State beyond all that the mines of gold and silver can do. These very mines, indeed, are more profitable by reason of home manufactures, meeting special wants in the most direct and intelligent manner, and keeping their metallic yield among those who have helped to extract it. The foundries and machine shops of San Francisco have enabled miners, especially in quartz, to work with more economy, system and success. The very rapid development of the silver mines of Nevada, leading to such important discoveries elsewhere, would not have been possible without their help, isolated as the State was before the Pacific Railroad opened.

Circumstances like these, proving the importance and profit of manufactures, should encourage capital to invest more in that direction. The great fortunes of the past two decades have been made in commercial, mining and real estate operations. Some of the greater fortunes of the future are to come from internal improvements and manufactures. Those who enter the field now, when competition is least, will lay the foundation for the largest gains, and in addition to having enriched themselves, will be justly regarded as public benefactors. When a new manufacture appeals for moneyed help, it should not appeal in vain. It will, nine times out of ten, if prudently conducted, be found less precarious than most mercantile pursuits. Then the field for manufactures is so much wider and more varied here than elsewhere in the Union. The soil and climate of California favor the production of many staples for manufacture which elsewhere have to be imported, and production and manufacturing may often be profitably united—as in the case of beet sugar, silk, vegetable oils, tobacco. It will be strange if there is not sagacity and enterprise enough in San Francisco to avail of advantages so potent, and which may be used to convert the city, in a few years, into a great manufacturing centre.

The Report of the Assessor for the San Francisco District, for the years 1868-9, is as follows:

Box MANUFACTORIES.....	5
Men employed.....	169
Lumber used (pine, fir and spruce), ft. 5,600,000	
Spanish cedar used.....	160,000
Horse power of engines.....	90
BAASS FOUNDRIES.....	5
Men employed.....	85
Value of manufactures.....	\$143,000

BOOT AND SHOE MANUFACTORIES.....	8
Men employed.....	192
Value of manufactures.....	\$160,000
BREWERIES.....	21
Men employed.....	153
Beer made, barrels.....	120,300
Monthly capacity, barrels.....	9,750
BROOM AND WOODEN WARE MANUFACTORIES.....	7
Men employed.....	66
Brooms made, doz.....	35,000
Pails, doz.....	6,500
Tubs, nests of 4.....	1,650
Zinc, washboards, doz.....	3,800
Barrel covers, doz.....	450
Peach baskets, doz.....	600
Sieves, doz.....	800
Broom handles, doz.....	26,500
Butter moulds, doz.....	400
Cheese safes, doz.....	450
Salt boxes, doz.....	2,200
Syrup kegs.....	8,000
Powder kegs.....	6,000
CANDLE MANUFACTORY.....	1
Men employed.....	11
Candles made, boxes.....	15,000
Capacity per year for candles, boxes.....	25,000
CIGAR MANUFACTORIES.....	70
Men employed.....	1,232
Monthly capacity.....	3,500,000
Cigars made.....	\$8,692,000
CORDBAGE FACTORY.....	1
Men employed.....	50
Horse power of engines.....	150
Hemp manufactured, tons.....	1,500
Capacity of works per year, tons.....	1,750
FLOUR MILLS.....	12
Men employed.....	14
Flour made in 1867, barrels.....	529,400
Pearl barley, tons.....	60
Hominy, tons.....	80
Farina, tons.....	50
Oatmeal, tons.....	150
Groats, tons.....	63
Buckwheat and rye flour.....	950
Feed barley (ground), tons.....	5,000
Run of stone.....	45
Horse power of engines.....	711
Aggregate daily capacity of mills, lbs. of flour.....	2,005
GLUE MANUFACTORY.....	1
Men employed.....	21
Glue made, tons.....	500
Neatsfoot oil made, gallons.....	5,000
Curled hair made, pounds.....	20,000
Capacity per day for glue, tons.....	30
Capacity per day for oil, gallons.....	200
IRON FOUNDRIES AND BOILER SHOPS.....	19
Men employed.....	1,093
Pig iron used, tons.....	9,880
Bar iron used, tons.....	1,854
Sheet and boiler iron used, tons.....	2,904
Rivets of iron used, tons.....	199
LEAD AND SALT WORKS.....	1
Men employed.....	18
Quantity of lead manufactured, tons.....	900
Quantity of shot manufactured, tons.....	200
Capacity of works per year, tons.....	2,000
MALT MANUFACTORIES.....	6
Men employed.....	18
Grain malted (barley) 100 lb. sacks.....	68,250
MATCH MANUFACTORIES.....	5
Men employed.....	43
Matches made, gross.....	95,000
SALT MILLS.....	5
Men employed.....	35
Salt ground (domestic), tons.....	4,500
Salt ground (foreign), tons.....	2,800
Run of stone.....	8
Horse power of engines.....	77
SAW MANUFACTORY.....	1
Men employed.....	35
Steel used annually, tons.....	50
Horse power of engine.....	25
Value of manufactures.....	\$70,000
SASH AND DOOR MANUFACTORIES.....	7
Men employed.....	261
Value of manufactures.....	\$773,000
SAW MILLS.....	8
Lumbersawed, feet.....	24,200,000
Saws run.....	49
SOAP MANUFACTORIES.....	16
Men employed.....	54
Soap made, pounds.....	4,032,000
Washing powder made, lbs.....	225,000
Capacity per month lbs.....	1,000,000
SUGAR REFINERIES.....	3
Men employed.....	264
Horse power of engines.....	250
Raw sugar used, lbs.....	23,160,000
Refined sugar made, lbs.....	20,254,000
Syrup made, gallons.....	627,000
Capacity per day (raw sugar) lbs.....	165,000
TANNERIES.....	15
Men employed.....	122
Tan bark used, cords.....	2,487
Hides tanned, number.....	16,350
Calf skins tanned, dozen.....	950
Kip and sheep skins tanned, doz.....	2,054
TRUNK MANUFACTORIES.....	2
Men employed.....	30
Value of manufactures.....	\$37,000
TYPE FOUNDRY.....	1
Men employed.....	35
Value of manufactures.....	\$28,000
Capacity of works per year.....	\$50,000
TUB AND PAIL MANUFACTORIES.....	20
Men employed.....	20
Power of engine, horse.....	5,000
Native timber used, cords.....	22,000
Barrel covers, made.....	1,200
Salt boxes made, dozen.....	400
Sieves made, dozen.....	3,500
Pails of all kinds, dozen.....	20,000

VINEGAR MANUFACTORIES.....	4
Men employed.....	16
Vinegar made, gallons.....	86,000
WOOLLEN MILLS.....	3
Men employed.....	750
Horse power of engines.....	850
Sets of cards.....	29
Mules and jacks.....	40
Looms.....	122
Spindles.....	11,000
Blankets made, pair.....	94,500
Broadcloth, cashmeres and tweeds, yds.	161,600
Flannel, yards.....	845,000
Flannel shirts and drawers, dozen.....	10,000
Wool used, pounds.....	3,250,000

CAR AND CARRIAGE BUILDING.

This branch of manufacturing industry is being followed up with so much vigor and resoluteness of purpose as to claim for it more than ordinary observation.

The first establishment in importance is the Kimball Car and Manufacturing Company, corner of Fourth and Bryant streets. It covers nearly, if not wholly, an entire block of ground. The smiths' shop is 250 feet in length, and has 18 forges in active operation, supplied with air by one of Root's patent blowers run by steam power. In it all the iron gear for wagons, ears and carriages is turned out. There are also turning lathes and an immense trip hammer for shaping the iron into the forms required. The lathes, hammers and other machinery are driven by a fifty-horse power engine, which also supplies power for all the machinery in other parts of the building. Adjoining the machine shop is one for wood turning, planing, sawing, moulding, boxing and mortising. The car shop is of proportionate magnitude, and in it all descriptions of railroad and street cars are manufactured, which are fully equal to any of Eastern manufacture, from whence all were imported until the Kimball Manufacturing Company embarked in this branch of business. As the price of labor and interest for money lessen in value, admitting of fair competition with our Eastern neighbors, the entire rolling stock of our railroads will be furnished at home, giving thereby additional encouragement to home industries. The repository over the machine shop is 275 feet long and 50 feet wide. It is filled with every description of vehicle from the elegant carriage and barouche to the feather-weight trotting wagon. Besides the above named, there are the Woodworkers' Shop, the Thorough-brace Shop, and the Trimmers' Shop, each of which is replete with all the modern improvements which science has developed.

Chapter VI. COUNTIES.

The counties of California are generally classified as the Southern Counties, Coast Counties, Northern Counties, Mountain Counties and Valley Counties.

SOUTHERN COUNTIES.

The southern counties of California comprise San Diego, San Bernardino, Los Angeles, Santa Barbara, San Luis Obispo, and Kern Counties, which are known collectively as Southern California.

SAN DIEGO COUNTY.

San Diego comprises the most southern portion of the State. It is 100 miles in length, and 150 miles in breadth at its most southern extremity, which separates it from Lower California. It contains 8,500,000 acres, of which the Colorado Desert covers 2,500,000 acres, about 4,000,000 acres are mountains and cañons, and the balance 2,000,000 acres, are level plains and valleys suitable for farming or grazing. Most of the land is yet unoccupied. Some discoveries of gold and silver have recently been made which has drawn a large crowd of prospectors. The developments hitherto do not indicate the presence of precious metals to a very considerable extent. In consequence of a strong belief that the port of San Diego will be the terminus of the projected Memphis and El Paso Railroad, quite a lively town has sprung up called New San Diego, the population is estimated to be 2,000 and upwards. The County Seat is San Diego, or as it is now called, Old San Diego, is situated about two miles north of the new town, and contains between 300 and 400 inhabitants. The old town was established by the Missionaries in 1769. The county is very thinly populated, and consequently its resources are undeveloped; but public attention having been directed thither of late, many large tracts of land have been taken up, and there is quite a lively competition among real estate operators. The harbor of San Diego is second in size to that of San Francisco, and is equally secure, being perfectly land-locked. Vessels of any size can enter and ride safely at anchor. San Francisco and San Diego harbors are really the only two in California; all the others along the coast partake rather of the character of roadsteads. The climate is delightful, and particularly beneficial to invalids suffering from pulmonary diseases.

The returns of the County Assessor for the years 1868-9, were as follows:

Ind. Corn, bush.....	60,000	Grape vines.....	80,000
Wheat, bush.....	45,000	Neat Cattle.....	22,063
Barley, bush.....	75,000	Sheep.....	16,800
Wool, lbs.....	68,000		

The town of San Diego is 500 miles from San Francisco, and is reached by stage or by steamers, which last run weekly. The fare is \$25 cabin and \$15 steerage. Fort Yuma, a military post, is situated at the extreme southeast corner of the county on the Colorado river, at the north of the Gila river.

SAN BERNARDINO COUNTY.

San Bernardino is the largest county in the State, containing over 10,000,000 acres, three-fourths of which is unfit for cultivation, containing desert valleys and volcanic rocks. The land still open for pre-emption is being taken up so rapidly at the present time, that it is impossible to make any record of the quantity still unsettled. The immigrant in want of a farm, will find no difficulty in purchasing from the owners of the numerous large ranchos in this county, rich agricultural land at from \$1 to \$2 per acre. The whole population of the county does not at present exceed 6,000.

In this county, which is admirably suited to the raising of the grape, is the famous Cucamongo Vineyard, situated about 45 miles east from Los Angeles. It contains 160,000 vines, some of which are the oldest in the State. These vines grow at the foot of volcanic hills, in a mixed black soil of rocks and gravel. The vineyard produces port, angelica, and a white wine which bears a resemblance to Madeira. This wine is the most matured and least crude of any California wine, and after it has attained the age of ten years, is equal to the best Madeira. This superiority is partly due to the nature of the soil and climate, but chiefly, we are inclined to think, to the great age of the vine, young vines as a rule make raw, crude wine which no age will soften, while those which have by age attained substantial stems, make a wine more resembling the old wines of Europe.

In the mountains north of San Bernardino, are fine bodies of timber, and several mills in active operation. These forests in time must supply much of the material needed on a Southern Pacific Railroad. Adjoining the Cucamongo Ranch large bodies of land has recently been entered, and are being devoted to the growth of semi-tropical fruit by two parties, one the Eden Dale Company, and the other by the Cucamongo Valley Land Company.

Returns of County Assessor for 1868-9:

Barley, bush.....	150,000	Wine, gals.....	74,500
Ind. Corn, bush.....	58,080	Braudy, gals.....	10,500
Grape vines.....	425,000	Population.....	5,200

The county seat of San Bernardino County is San Bernardino, distant from San Francisco 454 miles. The fare by steamer to San Pedro, rail to Los Angeles, and stage to San Bernardino is \$30.

LOS ANGELES COUNTY.

The most important of the southern counties of California is Los Angeles. It comprises nearly 2,000,000 acres, nearly two-thirds of which are fit for cultivation or grazing purposes. Much of the land now used simply for grazing, would, if brought into cultivation, yield large crops. The products of this county have been so fully enumerated in Commissioner Wilson's letter, that further reference to them is needless. The price of land ranges from \$1 to \$100 per acre. There are still large tracts of land in the possession of Spanish settlers which can be bought at the former figure. In July last the San Fernando Homestead Association bought from Pio Pico about 16,000 acres of land, well adapted for agricultural purposes, for \$180,000. This is one-half of the San Fernando Ranch, situated about 15 miles northeast of Los Angeles. Los Angeles is a perfect paradise for farmers, and when it is connected with San Francisco by railroad, every acre will be brought under cultivation. A railroad connects Los Angeles with Wilmington, a seaport in the harbor of San Pedro, distant 21 miles.

The production of grapes in Los Angeles County is very large, 3,840,000 vines being grown within its limits. From the product of these vines 1,111,200 gallons of wine and 85,800 gallons of brandy were made in 1868-9.

SEMI-TROPICAL FRUITS—ENTERPRISES IN LOS ANGELES.

We extract the following from the San Francisco Bulletin at April 27th, 1870:

The southern half of California is capable of producing enough oranges, lemons, limes, olives, and other specimens of the semi-tropical fruits to supply the wants of all the States of the Union. Before many years the oranges of Los Angeles will constitute a large item in the Eastern freight list of the Pacific Railroad. Great profits have been realized by raising these fruits to supply the San Francisco market, and large tracts of land are being rapidly brought under cultivation for the purpose of increasing their production. In addition to the fruits above named, Los Angeles produces every season, and sends to this city, large quantities of grapes, English walnuts, Italian chestnuts, peanuts, almonds, etc. The orange trees are in bearing nearly all the year, and the yield per acre is very large. At the Lake Vineyard, owned by B. C. Wilson, 600 trees bore on an average 1,200 oranges each. The trees occupied ten acres, and his crop of oranges brought \$21,000 last year. At the Mission San Gabriel are 80 trees which are 60 years old, and which bear 3,000 oranges per year. The product of the Wolfskill Ranch at Los Angeles City, amounted last season to \$14,000, the orchard covering about eight acres. At the mission above named there is a tree 80 years old, 5 feet six inches in circumference, which bore last year 5,000 oranges.

The culture of the grape and manufacture of wine and raisins, also becomes more and more important every year in the southern counties, as well as in other portions of the State. Portions of Los Angeles County are rapidly filling with people interested in this branch of industry. The valley comprises about 800,000 acres, but in 1869 less than 38,000 acres were under cultivation. Within a few months several companies have been formed in this city for the purpose of securing and cultivating large tracts of the land. Among these are the San Pascual Plantation, Eden Dale Company,

the Cocomongo Land Association, and others. Their lands are within about 40 miles of Los Angeles, and some of them only a few miles distant.

Among the principal vine growers may be mentioned the Hon. B. D. Wilson, Sansevain, M. Keller, L. J. Rose, Kobler & Frohling.

The Hon. B. D. Wilson's vineyards being the most extensive, comprising in the neighborhood of 500 acres of bearing vines, the vineyards are at present leased to the Lake Vineyard Wine Co., of San Francisco and New York, for a term of years, and should nothing untoward occur the quantity of wine made will exceed 150,000 gallons; Sansevain is justly celebrated for its Cocomongo wine.

The United Anaheim Wine Growers' Association at Anaheim, in Los Angeles County, is very extensive in its manufacture of almost every description of wine, both sparkling and still, and has a large establishment there, as well as having a depot as large or larger than any of the others in San Francisco.

Mr. Wilson has a very fine orchard of orange trees on his ranch, which brings him a large yearly return.

Returns of County Assessor for 1868-9.

Grape vines.....	3,840,000	Barley, bush.....	203,200
Orange trees.....	25,000	Ind. Corn, bush.....	281,500
Wine, gals.....	1,111,200	Castor Beans, bhs.....	90,000
Brandy, gals.....	85,800	Potatoes, bush.....	89,300
Honey, lbs.....	87,504	Population.....	14,600
Sheep.....	209,000		

The county seat of Los Angeles County is the city of Los Angeles, which has a population of 7,000 inhabitants. It can be reached by steamer to San Pedro, and railroad to Los Angeles. The fare is \$23. Another route is by railroad from San Francisco to Gilroy, fare \$4, and stage from thence, fare \$25—\$29 in all. Los Angeles connects with stages for San Diego, Fort Yuma, Tucson, San Bernardino, La Paz and Clear Lake.

SANTA BARBARA COUNTY.

Santa Barbara county contains about 1,500,000 acres, one-half of which are unfit for agricultural purposes, but are admirably adapted for sheep or cattle. This is one of the most important grazing counties in the State; cattle, sheep, horses and hogs are raised by thousands. Land can be obtained at from \$1 to \$5 per acre.

Returns of County Assessor for 1868-9.

Wool, lbs.....	965,835	Neat cattle.....	11,094
Barley, lbs.....	180,000	Horses.....	4,558
Cheese, lbs.....	88,119	Grape vines.....	350,000
Beans, lbs.....	40,000	Population.....	8,900
Sheep.....	193,167		

The county seat of Santa Barbara county is Santa Barbara, which contains 1,600 inhabitants. It is 280 miles from San Francisco, and can be reached by steamer, which runs weekly. The fare is \$15. Those who prefer land travel can take the railroad to Gilroy (fare \$41), and proceed thence by stage to Santa Barbara. The fare is \$10.

SAN LUIS OBISPO COUNTY.

San Luis Obispo is bounded on the north by Monterey; on the East by Kern; on the south by Santa Barbara county, and on the west by the Pacific Ocean. It contains about 1,500,000 acres, nearly 1,000,000 acres of which is mountainous, and fit only for grazing. The land adapted to agricultural purposes raises grain and fruit in abundance. Land is cheap in this county.

Returns of County Assessor for 1868-9.

Wool, lbs.....	580,230	Sheep.....	83,000
Cheese, lbs.....	221,010	Neat Cattle.....	14,734
Indian corn, lbs.....	37,350	Horses.....	1,998
Beans.....	20,000	Population.....	6,440

San Luis Obispo is the county seat of San Luis Obispo county, and contains 1,000 inhabitants. It is 209 miles from San Francisco, from which place a steamer runs three times a month. The fare is \$15. It can also be reached by taking the railroad to Gilroy, and from thence the stage fare is \$17. San Luis Obispo connects by stage with San Simeon.

KERN COUNTY.

Kern county comprises about 1,500,000 acres, nearly one-half of which is adapted to agricultural and grazing purposes. It abounds in fine timber, is well watered by streams which flow from the mountains, and is destined to become one of the best agricultural counties in the State. Its progress has hitherto been checked for the want of roads, but lately this has been supplied, and communication with a market has been opened. Within a short time a railroad will traverse the whole length of the county. The soil is well adapted to the culture of wheat, sixty bushels to the acre being no uncommon crop. Much of the land is suited to the cultivation of cotton, and good crops have been raised. Ere long a flourishing agricultural community will spring up in the heart of the now sparsely inhabited Kern Valley.

Returns of County Assessor for 1868-9.

Wool, lbs.....	299,496	Neat Cattle.....	37,010
Sheep.....	62,874	Population.....	1,406

The county seat of Kern county is Havilah, a town of about 800 inhabitants. It is 359 miles from San Francisco. It is reached by railroad to Gilroy, and thence by stage, the fare by the latter being \$39. From Havilah a line of stage runs to Shermantown, White Pine, distance 423 miles; Lareland, 40 miles; Soldiers' Wells, 70; Little Lake, 100; Big Lake, 120; and as far as Duckwater—a distance of 407 miles.

COAST COUNTIES.

The coast counties comprise Monterey, Santa

Cruz, Santa Clara, San Mateo, San Francisco, Alameda, Contra Costa, Marin, Sonoma, Napa, Amador, Alpine, Lake, and Mendocino.

MONTEREY COUNTY.

Monterey county is bounded on the south by the Pacific Ocean and San Luis Obispo county; on the east by Fresno and Merced counties; on the west by the Pacific Ocean, and on the north by Santa Clara and Santa Cruz counties. It averages nearly eighty miles in length by fifty miles in width, and contains about 2,500,000 acres. Seven hundred thousand acres are good agricultural land, 97,864 of which were under cultivation in the summer of 1869. The greater portion of the county is devoted to sheep and cattle raising, and still remains in the hands of the Spanish settlers, from whom large tracts suitable for farms can be purchased at from \$1 to \$2 per acre. Wheat can be raised in large quantities in this county, and every variety of fruit and vegetable flourishes.

Returns of County Assessor for 1868-9.

Wheat, lbs.....	1,401,342	Butter, lbs.....	101,800
Barley, lbs.....	943,500	Tobacco, lbs.....	19,300
Beans, lbs.....	61,700	Horses.....	4,646
Potatoes, lbs.....	367,500	Sheep.....	156,503
Wool, lbs.....	625,820	Neat Cattle.....	21,063
Cheese, lbs.....	1,016,200	Population.....	8,478

Monterey is the county seat of Monterey county. It is 100 miles from San Francisco; it can be reached by steamer, or by railroad and stage via Gilroy. The fare is \$7.

SANTA CRUZ COUNTY.

The county of Santa Cruz is more celebrated for its manufactures than for its agricultural products, though it contains some of the richest lands in the State. It comprises 320,000 acres, of which 40,000 acres are the richest bottom lands along the various streams that pass through it, and 50,000 acres of agricultural land which form terraced plateaus caused by the repeated uprisings of the land. Land in this county generally commands a high price—from \$5 to \$50 an acre. There are seven tanneries in Santa Cruz; the California Powder Works are located here, as well as paper mills and other manufactures.

Returns of County Assessor for 1868-9.

Potatoes, lbs.....	85,400	Wrapping Paper, reams	
Butter, lbs.....	64,456		40,000
Gunpowder, lbs.....	400,000	Newspaper, r.....	7,000
Lime, bbls.....	220,000	Lumber, ft.....	19,600,000
Leather.....	\$225,000	Shingles.....	10,000,000
		Population.....	10,000

The county seat of Santa Cruz county is Santa Cruz, distant 76 miles from San Francisco. It is reached by steamer, which runs three times a month—fare \$10, or by railroad to Santa Clara, fare \$1.50, and thence by stage, fare \$3. Santa Cruz connects with stages for Soquel and Watsonville.

SANTA CLARA COUNTY.

This county is bounded on the north by Alameda and San Mateo counties; on the south by Monterey; on the east by Stanislaus, and on the west by Santa Cruz county. It contains nearly 700,000 acres, most of which is in a high state of cultivation, and held at prices which place it beyond the reach of the farmer of small means. The most beautiful farms in the State are to be found here, surrounded by fruit trees of all descriptions, and well irrigated meadows (the water being procured from artesian wells); some of the most picturesque and charming homes in California are in this county. Wheat, hops, grapes and mulberry trees are among the varied products of Santa Clara. Land is as high as from \$300 to \$500 per acre. This county is famous for its medicinal springs, chief among which—as being the most valuable for its medicinal qualities as well as the most palatable—is the New Almaden Vichy Water. This water has attained a high reputation throughout the State, and is very generally recommended by the Faculty. It possesses all the properties of the French Vichy Water, hence its name.

Returns of County Assessor for 1868-9.

Wheat, bbls.....	1,769,247	Strawberry pbs.....	565,000
Flour, bbls.....	227,750	Potatoes, bbs.....	25,630
Hay, tons.....	24,250	Apple Trees.....	825,000
Beets, tons.....	875	Peach Trees.....	80,650
Hops, lbs.....	16,500	Pear Trees.....	65,615
Tobacco, lbs.....	50,000	Plum Trees.....	21,000
Cheese, lbs.....	1,760,820	Cherry Trees.....	16,263
Butter, lbs.....	312,175	Population.....	24,000

San Jose is the county seat of Santa Clara County. It is 50 miles distant from San Francisco. It is reached by railroad; fare \$1.50.

SAN MATEO COUNTY.

San Mateo county embraces nearly the whole of the peninsula of San Francisco, which separates the bay from the Pacific Ocean. It is over thirty miles in length. It was organized in 1856, when it was separated from San Francisco, to which county it formerly belonged. It contains 154,908 acres, 150,000 of which are inclosed, 80,000 being under cultivation. The land is very fertile, and produces large crops of grain, as well as immense quantities of fruit and vegetables. There are in this county a large number of private mansions, surrounded by beautiful gardens. The price of land is high. The chief resources are grain and lumber.

San Francisco obtains its supply of fresh water for domestic purposes from Pillaritos Creek, in this county, distant about twenty miles from the city. Extensive works have been constructed for collecting and distributing the water, which is very pure and wholesome.

RETURNS OF COUNTY ASSESSOR FOR 1868-9.

Wheat, bhs.	450,000	Strawberry p.	3,000,000
Barley, bhs.	390,000	Grape Vines. .	756,378
Oats, bhs.	800,000	Hay, tons. . .	24,000
Potatoes, bhs. . .	600,000	Beets, tons. . .	2,000
Beans, bhs.	10,000	Lumber, ft. . .	10,000,000
Butter, lbs.	150,000	Shingles mde.	24,000,000
Cheese, lbs.	186,516	Population. . .	4,300

The county seat of San Mateo county is Redwood City, distant 28 miles from San Francisco, and connected with it by railroad three times a day. Stages run from here to Searsville and Woodside.

SAN FRANCISCO COUNTY.

San Francisco County is the smallest, but most important in the State. It is the northern end of a peninsula formed by the Bay of San Francisco on the east, and the Pacific Ocean on the west. It covers an area of 26,861 acres. The population is between 160,000 and 170,000. The land adjacent to the city of San Francisco is principally occupied by market gardeners, but there are a few small farms in the county.

San Francisco city is the metropolis of the State of California, the grand center of Commerce, Navigation, Manufactures, Arts, Science, and Literature. No other city in the world is composed of so cosmopolitan a population, or can boast of such remarkable rapidity in development. A quarter of a century ago it was a small village containing less than 100 inhabitants. Its progress dates from the American occupation of California in 1846, followed by the discovery of gold two years later. In 1847 the population numbered 459. Some very elegant and costly buildings attest the wealth and taste of the community; among the most prominent are the Mercantile Library, Merchants' Exchange, Bank of California, California Theatre, the Lick, Cosmopolitan, Occidental, and Grand Hotels, and Bancroft's Mammoth Publishing House. The public markets are liberally supplied. There are numerous benevolent societies, represented by almost every European nationality; they are well managed, and are of great service in checking pauperism. Many have hospitals connected with them. There are six cemeteries, the largest of which is Laurel Hill (late Lone Mountain). The public schools are the pride of the city and are maintained at a cost of nearly half a million of dollars per annum.

For the details on manufactured goods, we refer the reader to the article on manufactures in another part of this work. The city is traversed in all directions by street railroads. The North Pacific Transportation Company run steamers to all points along the coast, from Mazatlan in Mexico, to Victoria in the British Possessions, and to Alaska, also to the Sandwich Islands. The Pacific Mail Steamship Company run steamers to Panama, connecting with steamers to New York and Europe, also a monthly line to China and Japan, with expectation of running two a month. A line of steamers is also established to run to Australia and New Zealand, via Honolulu, Sandwich Islands, and ships of any size can enter and ride safely at anchor in the harbor, and trade is kept up with all parts of the world. Numerous railroads connecting with the interior, have their terminus in San Francisco, and particulars of them may be found on reference to the chapter on railroads.

The returns of the County Assessor for the years 1868-9, in addition to manufactures already referred to were as follows:

Potatoes, lbs. . .	142,460	Flour, bbls. . .	529,400
Turnips, tons. . .	2,190	Lumber, ft. .	24,200,000
Beets, tons.	2,555	Wool used, lbs.	3,250,000
Strawberry vines.	42,000	Population. . .	160,000

ALAMEDA COUNTY.

Alameda County forms the eastern shore of San Francisco Bay for about 36 miles; it contains about 800 square miles, or 512,000 acres. Nearly 175,000 acres are enclosed, and 130,000 under cultivation. There are about 20,000 acres along the bay overflowed by the tide; a company has recently been formed for their reclamation. Alameda creek, which runs through this county, supplies power for several grist and lumber mills. There is one railroad in the county; the San Francisco and Alameda Railroad, opened August, 1865, commences at Woodstock, on the slough at the mouth of the San Leandro creek, and extends to Haywards, sixteen miles east among the foothills of the Contra Costa mountains. This road connects with the Western Pacific at Washington Corners, 13 miles south of Haywards. The soil of the plains in this county is generally black, sandy loam, resting on a substratum of sand and gravel, and is sufficiently moist to grow any description of fruit, vegetables, or grain, without irrigation. The soil everywhere in the county is very fertile. Land is generally held at a high figure, but small tracts of land may be obtained in the neighborhood of the old Mission of San José, at prices within the reach of the farmer of moderate means.

RETURNS OF COUNTY ASSESSOR FOR 1868-9.

Wheat, lbs.	1,533,182	Flour, bbls.	69,590
Barley, lbs.	692,948	Strawberry pils.	5,384,973
Beets, tons. . . .	1,419	Raspberry pils.	654,307
Oats, bhs.	146,765	Grape vines.	176,795
Potatoes, bhs. . .	112,175	Population.	17,796

* San Leandro, a town of 500 inhabitants, is the county seat of Alameda county; it is 18 miles from San Francisco, with which it is connected by ferry and railroad five times a day; fare 60 cents.

CONTRA COSTA COUNTY.

This county is bounded on the north by the San Pablo and Suisun bays and the San Joaquin river; on the east by the western channel of that river; on the south by Alameda county, and on the west by the bay of San Francisco. It contains upwards of 800,000 acres, about 150,000 of which are good

arable land; nearly 70,000 acres are under cultivation. Mountains and hills cover about 250,000 acres, including Monte Diablo, which contains the most important coal mines in the State. There are about 300,000 acres of swamp and overflowed land on the margin of Suisun bay, and along the banks of the San Joaquin river. Portions which have been reclaimed produce large crops of grain, fruit and vegetables. There are many good wagon roads in this county, connecting all parts of it with a market. Good agricultural land can be bought for from \$15 to \$25 per acre, though a large portion is held at much higher rates.

RETURNS OF COUNTY ASSESSOR FOR 1868-9.

Wheat, bhs.	600,718	Coal, tons.	71,000
Hay, tons.	16,107	Grape vines.	302,417
Beets, tons.	575	Sheep.	87,190
Butter, lbs.	170,523	Population.	9,500
Wool, lbs.	142,000		

The county seat of Contra Costa county is Martinez, distant from San Francisco 31 miles, and connected with it by steamer to Benicia, and thence by ferry. The fare is \$1.25.

MARIN COUNTY.

Marin county is very hilly, but abounds in fertile valleys. It is one of the best dairy counties in the State, and produces more butter than any other. It contains about 600 square miles, nearly 400,000 acres, 202,146 of which are enclosed, and 28,556 under cultivation, the remainder being used for pasturage. The owners of land in this county generally hold it at high prices; grazing farms in the hills may, however, be bought at a reasonable figure, and the profits on dairy products are so large that almost any farm will pay for itself and cost of stocking in two or three years.

In this county there is a paper mill and a powder mill. The former was erected in 1856, and the latter in 1866. In 1869 the paper mill turned out 400 reams of colored, 3,750 reams of news and book, and 10,000 reams of Manila and wrapping paper; the whole valued at \$72,500. In 1868 there was manufactured at the powder mill 30,000 kegs of blasting powder and over 2,000 packages of sporting powder.

The State Prison is situated in this county on Point San Quentin, twelve miles from San Francisco.

RETURNS OF COUNTY ASSESSOR FOR 1868-9.

Oats, bhs.	401,240	Butter, lbs.	1,896,400
Potatoes, bhs. . .	223,870	Cheese, lbs.	162,000
Hay, tons.	15,980	Neat Cattle. . .	20,280
Beets, tons.	750	Population.	6,900

San Rafael is the county seat of Marin county. It is 15 miles from San Francisco. The fare by ferry to San Quentin, and thence by rail, is \$1.25.

SONOMA COUNTY.

Sonoma county is bounded on the north by Mendocino and Lake counties; on the east by Lake and Napa; and on the south, southwest and west by Marin county and the ocean. It contains about 850,000 acres, of which 510,782 are enclosed, and 207,405 under cultivation. The climate of this county is extremely even and agreeable, and the soil is very fertile. In the valley of Russian River good crops of Indian corn may be grown without irrigation, this being one of the few valleys in this State where this cereal can be raised with facility. Bodega, in this valley, is famous for its yield of potatoes. 3,500 acres planted in 1868 produced 211,398 bushels.

Sonoma county is famous for its vineyards, and has more vines planted than any other county, no less than 4,112,279 vines being grown within its limits. Much of the wine produced is made into champagne.

Farms can be obtained in some portions of this county at moderate prices, but land generally, especially in the wine-growing districts, is high.

One of the finest and most beautifully located ranches for sale in small parcels is the "Guillicoe Ranch," for sale by Dr. H. W. Spencer, 415 Montgomery street, San Francisco.

RETURNS OF COUNTY ASSESSOR FOR 1868-9.

Wheat, bhs.	2,120,213	Strawberry pils	174,105
Barley, bhs.	212,121	Neat Cattle. . .	25,023
Oats, bhs.	201,357	Wine, gals.	343,136
Indian Corn, bhs.	85,726	Lumber, ft. . .	6,809,000
Hay, tons.	23,978	Shingles made.	3,653,000
Flour, bbls.	48,050	Population.	22,321
Grape Vines. . .	4,112,279		

The county seat of Sonoma county is Santa Rosa, a town of 1,800 inhabitants. It is 61 miles from San Francisco. It is connected by steamer twice a day to Petaluma—fare \$1—and thence by stage—fare \$2.50.

NAPA COUNTY.

Napa county contains about 450,000 acres, of which nearly one-half is valley and upland suitable for cultivation. 41,260 acres were under cultivation in 1868.

There is much rich land in this county, which may still be bought at a low price, though the opening of roads of late has tended greatly to enhance the value of real estate. In the valley, farms are from \$25 to \$100 an acre. Napa is a great vine-growing county, 1,590,255 vines being raised.

The value of real estate in this county has been much increased by the embellishments and improvements bestowed on Calistoga Springs, by Samuel Brannan, Esq. He has succeeded in making this delightful spot the fashionable watering-place of California. The springs are situated in a valley about 26 miles north of Napa City. They are connected by railroad with Vallejo. Mr. Brannan has built a fine hotel, a number of beautiful villa residences, and commodious stabling. The springs nearest the hotel have been enclosed in wooden tanks, and bathing houses have been

erected over several of them. The greater portion of the valley in which these springs are located is owned by Mr. Brannan, who has spent over \$100,000 in adorning it with shrubs and flowers. Calistoga Springs forms the summer resort of the fashionable world of San Francisco; and nothing has been left undone which can add to their comfort while staying there.

RETURNS OF COUNTY ASSESSOR FOR 1868-9.

Wheat, bhs.	601,250	Brandy, gals. . .	46,143
Hay, tons.	10,100	Apple Trees. . .	56,705
Hops, lbs.	17,000	Grape Vines. . .	1,590,255
Butter, lbs.	165,000	Population.	9,600
Wine, gals.	103,365		

The county seat of Napa county is Napa City, which contains about 3,500 inhabitants. It is 44 miles from San Francisco, with which it is connected by steamer to Vallejo, and thence by railroad—fare \$2. Stages run to Sonoma, 12 miles, fare \$1.

AMADOR COUNTY.

This county is bounded by El Dorado on the north; Alpine on the east; Calaveras on the south, and San Joaquin and Sacramento on the west. It is 52 miles in length east and west, and its average breadth is ten miles, and contains a population of 11,400. The chief business carried on in the county is mining, though there are many well cultivated farms, and situated among the lower foothills of Amador are some of the richest valleys in the State. The price of land is not very high; improved farms can be bought at from \$5 to \$10 per acre. The returns of the County Assessor show that 69,240 tons of ore were crushed in Amador county during the years 1868-9.

The county seat of Amador county is Jackson, which has about 1,000 inhabitants. It is 181 miles from San Francisco. It may be reached by steamer to Sacramento, railroad to Latrobe, and thence by stage. The fare is \$13.50.

ALPINE COUNTY.

This county is very mountainous, and the amount of land suited to agricultural purposes is too limited to make it worth the while of the immigrant from the Eastern States to proceed hither in search of a farm. The number of inhabitants does not exceed 400.

The county seat of Alpine county is Silver Mountain. It is 360 miles from San Francisco. It is reached by steamer to Sacramento, railroad to Reno, stage to Carson, and thence by stage—fare \$32.25. Stages run from this place to Big Trees, Murphy's and Stockton.

LAKE COUNTY.

Lake county is bounded on the north by Colusa and Mendocino, on the south by Napa and Sonoma, on the east by Colusa and Yolo, and on the west by Mendocino and Sonoma. It is about 60 miles in length, with an average width of 15 miles, and contains a population of 4,100. The land under cultivation in 1868-9 exceeded 7,500 acres, from which good crops of wheat, barley and vegetables were obtained. Good land is held at from \$20 to \$50 per acre. Clear Lake abounds in fish and wild fowl. There are many dairy farms in this county, and the cheese produced has a high reputation.

There are important milling interests in this county, the most valuable timber claim and milling interests being owned by H. W. Rice & Co.

RETURNS OF COUNTY ASSESSOR FOR 1868-9.

Wheat, bhs.	70,420	Butter, lbs.	28,500
Barley, bhs.	25,475	Cheese, lbs.	23,056

The county seat of Lake county is Lakeport. It is 117 miles from San Francisco. It is reached by steamer to Petaluma, stage to Cloverdale, and thence by stage. The fare is \$7.

MENDOCINO COUNTY.

Mendocino county is bounded on the north by Humboldt; on the east by Colusa and Lake; on the south by Sonoma, and on the west by the Pacific Ocean. Its length is about eighty miles; its average width about forty miles. It contains over 2,000,000 acres, of which 900,000 are fit for cultivation, and 200,000 are good grazing lands, the balance being composed of rugged hills and lofty mountains. At the close of 1868 there were 139,000 acres enclosed, and in 1869, 54,000 acres were under cultivation.

The lumber trade in this county gives employment to one-half its population. There is in this county a considerable amount of land suited to agricultural purposes, still unclaimed, and open to pre-emption. The scarcity of good roads is one cause why this rich county is still uninhabited. All descriptions of grain, fruit and vegetables can be raised. Much of the land open to pre-emption is covered with thick forests, the lumber from which will amply repay the settler for his labor. The country everywhere swarms with game of all descriptions, and delicious fish are caught in the streams and lakes. To the immigrant of small means this county offers tempting inducements, and the network of railways which is fast spreading over the State must ere long be extended to this section. Corn, hemp and tobacco grow vigorously in the valleys. The forests supply abundant feed for hogs, which are raised in large numbers. Land, not far from Ukiah City, the county seat, which will soon be connected with Napa Valley by railroad, is cheap, the price of good improved farms varying from \$5 to \$20 per acre. Large tracts of grazing lands have recently been entered in this county, one of the most valuable of which has been claimed and entered by Francis Avery & Co., of San Francisco, and is known as the beautiful "Eden Valley."

RETURNS OF COUNTY ASSESSOR FOR 1868-9.

Wheat, bbs.	226,000	Hogs.	80,000
Hops, lbs.	120,000	Lumber, ft. . .	60,000,000
Hay, tons.	19,080	Shingles. . .	5,000,000
Sheep.	60,000	Population. . .	8,000

The county seat of Mendocino county is Ukiah, a town of 400 inhabitants. It is 128 miles from San Francisco. It is reached by steamer to Petaluma, stage to Cloverdale, and thence by stage: the fare is \$8.50.

NORTHERN COUNTIES.

The Northern counties comprise Humboldt, Trinity, Klamath, Del Norte, Siskiyou, Shasta, Lassen, Calaveras, Tealume, Mariposa, Mono, and Inyo.

HUMBOLDT COUNTY.

Humboldt county is bounded on the north by Klamath, on the east by Trinity, on the south by Mendocino, and on the west by the Pacific Ocean. It is 56 miles long, north and south, and 60 miles wide, containing 1,800,000 acres of land, of which about five hundred thousand are suited to agricultural and three hundred thousand to grazing purposes, there being about five thousand acres of swamp or overflowed land near tide water. This latter will doubtless occupy the attention of the Tide Land Reclamation Company, when it extends its sphere of operations. The land near the coast is covered with heavy forests of redwood, spruce and pine. The county abounds in bears, elk, deer, and other game. Some of the valleys in this State produce seventy bushels of wheat to the acre, weighing sixty-one pounds to the bushel, and over one hundred bushels of oats, weighing forty-four pounds to the bushel; this is not an unusual yield. Fifteen tons of potatoes to an acre is not over an average crop. The salmon fishery at the mouth of Eel river is the most profitable in the State, the annual catch ranging from eleven hundred to three thousand barrels. Much of the land is well adapted for dairy farms. Good roads, connecting this county with the Sacramento Valley, are being built. Land is very cheap and extremely rich; much is still open to pre-emption. This county offers great inducements to the immigrant, and will doubtless within a short time be thickly settled.

RETURNS OF COUNTY ASSESSOR FOR 1868-8.

Wheat, bhs.	49,767	Strawberry Pl.	58,770
Barley, bhs.	20,840	Butter, lbs. . .	67,820
Oats, bhs.	127,100	Neat Cattle. . .	21,412
Pears, lbs.	58,384	Lumber, ft. . .	30,250,000
Apple Trees. . .	47,860	Shingles. . .	6,120,000
Raspberry Plnts	54,127	Population. . .	6,600

The county seat of Humboldt county is Eureka, a town of one thousand inhabitants. It is two hundred and twenty-three miles from San Francisco. It may be reached by steamer to Petaluma, stage to Cloverdale, and thence by stage—fare \$33.60; or the traveler may take the steamer of the North Pacific Navigation Company, which leaves San Francisco twice a month—fare \$21.

TRINITY COUNTY.

Trinity county is bounded on the north by Klamath and Siskiyou, on the east by Shasta and Tehama, on the south by Mendocino, and on the west by Humboldt. The county comprises twenty-four hundred square miles, only ten or fifteen thousand acres being fit for farming land, four thousand two hundred and eighty-four acres of which were under cultivation in 1868-9. The chief industrial pursuit is gold mining in placer diggings.

RETURNS OF COUNTY ASSESSOR FOR 1868-9.

Wheat, bush. . . .	14,192	Lumber, ft. . .	1,650,000
Potatoes, bush. .	13,091	Population. . .	3,122
Hay, tons.	3,424		

The county seat of Trinity county is Weaver-ville, a town of about one thousand inhabitants. It is about 365 miles from San Francisco. It is reached by steamer to Sacramento, stage to Shasta, and thence by stage.

KLAMATH COUNTY.

Klamath is a mining county, only two or three thousand acres being under cultivation. There is much forest land, however, which could be cleared and turned into farms.

RETURNS OF COUNTY ASSESSOR FOR 1868-9.

Wheat, bush.	1,413	Lumber, ft. . .	4,135,617
Corn, bush.	1,066	Ore crushed, t. .	3,000
Oats, bush.	3,860	Population.	2,500
Pears, bush.	3,881		

Orleans Bar is the county seat of Klamath county. It is 548 miles from San Francisco. It is 65 miles west of Trinidad, the only port in the county which connects with San Francisco by means of schooners in the lumber trade. Stages from Yreka connect with others for all parts of the county.

DEL NORTE COUNTY.

Del Norte county is bounded by Oregon on the north; Siskiyou county on the east; Klamath county on the south; and the Pacific ocean on the west. It is about fifty miles long east and west, and thirty miles wide. It contains a number of small fertile valleys, and a large extent of rich prairies, together with three thousand five hundred acres of swamp and overflowed lands. The number of acres enclosed in 1868-9 amounted to 5,265, of which 1,657 were under cultivation, the most of it being planted with wheat, of which grain there were about 10,346 bushels raised. The county is well timbered with redwood, spruce and pine. Fruit, grain and vegetables of all descriptions flourish here. Land for agricultural purposes can be purchased cheap.

RETURNS OF COUNTY ASSESSOR FOR 1868-9.

Wheat, bbs.	10,346	Potatoes, bbs. . .	16,540
Oats, lbs.	20,057	Population.	3,600

The county seat of Del Norte county is Prescott City, which has a population of about 500. It is 280 miles from San Francisco, with which it is connected by steamer twice a month. The fare is \$16.50, steerage.

SISKIYOU COUNTY.

This county is bounded on the north by Oregon ; on the east by the State of Nevada ; on the south by Lassen, Shasta and Trinity, and on the west by Klamath and Del Norte counties. Its length east and west is 160, and its width 58 miles. It contains 5,300,000 acres, of which 250,000 is suited to agriculture. In the year 1868-9 there were 75,200 acres enclosed, and 24,263 under cultivation. About 1,000,000 acres are covered by valuable forests, and about half as much more by several large lakes, of which Goose, Rhett and Wright are the principal. The principal agricultural lands in the county are located in Scott, Shasta and Surprise valleys. Grain, fruit and vegetables are grown in large quantities, wheat averaging twenty-five bushels per acre, and some fields turning out as high as forty-five. The county abounds in game of all kinds. There is much good land open to pre-emption, and many improved farms are for sale at a low price.

RETURNS OF COUNTY ASSESSOR FOR 1868-9.

Wheat, bhs. 220,500 Butter, lbs. 94,780
Barley, bhs. 110,200 Cheese, lbs. 17,892
Oats, bhs. 168,000 Neat Cattle. 28,500
Potatoes, bhs. 51,400 Lumber, ft. 4,200,000
Corn, bhs. 29,570 Shingles. 4,500,000
Hay, tons. 8,595 Population 9,500

The county seat of Siskiyou county is Yreka. It is 405 miles from San Francisco. It is reached by steamer to Sacramento, railroad to Oroville, and thence by stage; the fare is \$39.

SHASTA COUNTY.

Shasta is bounded on the north by Siskiyou ; on the east by Suisun ; on the south by Plumas and Tehama, and on the west by Trinity county. The county is watered by the Sacramento river, and is one of the best irrigated counties in the State. The number of acres enclosed in 1868 was about sixty-five thousand, of which thirty-five thousand were under cultivation. Ten thousand acres planted to wheat, yielded two hundred and fifty thousand bushels; seven thousand acres planted to barley, one hundred and ninety thousand; and two thousand planted to oats, fifty thousand. Fruit is produced in abundance; the fig, pomegranate and almond thrive in the open air. Shasta has produced the best tobacco grown in the State. Large forests cover the northern and western portions of the county. This land is open for pre-emption, and when cleared will provide fertile farms for many immigrants. Hogs and sheep are raised in large numbers, and there are many fine dairy farms. While much of the land is held at high rates, farms can be obtained in many parts of the county at prices adapted to the farmer of small means.

RETURN OF COUNTY ASSESSOR FOR 1868-9.

Lumber, ft. 4,856,000/Shingles. 413,000

There were no returns of agricultural products or population.

The county seat of Shasta county is Shasta, which contains about one thousand two hundred inhabitants. It is two hundred and seventy-four miles from San Francisco. It is reached by steamer to Sacramento, and thence by stage—fare \$22.50

LASSEN COUNTY.

Lassen is bounded on the north by Siskiyou county; on the east by the State of Nevada; on the south by Sierra and Plumas, and on the west by Plumas and Shasta counties. Lassen county is chiefly rugged mountains, alkali flats, and arid sage plains, the only considerable body of good land in it being that lying along and adjacent to Susan river, generally denominated Honey Lake Valley, with a narrow strip in Long Valley further south. Long Valley is a fine stock region, affording pasture for thousands of head of cattle. Honey Lake Valley produces grain in abundance, and comprises some fine grazing land. The quantity of land suited for this purpose being so limited, we cannot recommend the agriculturist to turn his attention to Lassen county.

RETURNS OF COUNTY ASSESSOR FOR 1868-9.

Barley, bhs. 81,560 Strawberry plts. 253,745
Oats, bhs. 33,392 Neat Cattle. 18,300
Hay, tons. 5,603 Population. 1,550
Butter, lbs. 40,000

The county seat of Lassen county is Susanville. It is 296 miles from San Francisco. It is reached by steamer to Sacramento, railroad to Oroville, and thence by stage. The fare is \$23.

CALAVERAS COUNTY.

This county is bounded by Amador on the northwest; by Alpine on the northeast; by Tuolumne on the southeast, and by Stanislaus and San Joaquin counties on the southwest. It has an average length of forty miles, with a width of about twenty. It is thickly wooded. Some of the forest lands, if cleared, would afford good farms to the agriculturist, and the number of good roads connecting the county with all parts of the State would afford him an opportunity of sending his produce to market. Good agricultural land is however, as a rule, scarce; the county being more rich in mineral than farming lands. In 1868-9 there were 45,914 acres of land enclosed, of which 12,387 were under cultivation. Farms suited to raising all kinds of grain, fruit and vegetables, may be obtained on the foothills and in the valleys at very moderate prices.

RETURNS OF COUNTY ASSESSOR FOR 1868-9.

Wheat, bhs. 6,764 Barley, bhs. 17,209
Corn, bhs. 6,750 Potatoes, bhs. 5,432
Hay, tons. 5,167 Butter, lbs. 22,090
Wool, lbs. 33,600 Strawberry plts. 758,019
Grape vines. 704,471 Wine, gals. 55,132
Lumber, ft. 2,830,000 Population. 11,056
Ore crsh'd, tns. 11,536

The county seat of Calaveras county is San Andreas, and is 152 miles from San Francisco. It

is reached by steamer to Stockton, and thence by stage—fare \$9.

TUOLUMNE COUNTY.

This county has an average length of sixty, with a width of thirty-five miles. It lies between Calaveras and Alpine on the north, and Mariposa on the south; and between Mono on the east, and Stanislaus and Calaveras on the west. It is essentially a mining county, though there are many good farms, orchards and vineyards. In 1868-9 46,025 acres were enclosed, of which 9,412 were under cultivation. There are good roads, and the products of the farms find a ready market in the mining towns and camps east of the mountains.

RETURNS OF ASSESSOR FOR 1868-9.

Wheat, bhs. 9,739 Wine, gals. 50,597
Barley, bhs. 5,612 Lumber, ft. 2,260,000
Potatoes, bhs. 4,888 Shingles. 473,000
Grape vines. 342,317 Population. 6,009
Strawberry plts. 304,975 Ore crsh'd, tns. 35,200

The county seat of Mariposa county is Mariposa. It has a population of about one thousand. It is two hundred and ten miles from San Francisco; whence it may be reached by steamer to Stockton, and thence by stage; fare \$14.

MONO COUNTY.

Mono county is bounded on the north and east by the State of Nevada, south by Inyo and Fresno counties, and on the west by the counties of Alpine, Tuolumne, Mariposa and Fresno. There is much fertile and valuable land in the county, but its distance from market, and the difficulty attending the transportation of produce, has prevented the development of Mono county. There is a beautiful valley stretching through the county for some sixty miles north of the Inyo county line which is some fifteen or twenty miles wide, and perhaps not excelled for agricultural purposes by any valley in the State. The Bishop creek country is in this valley. Grist mills and sawmills are

east by the State of Nevada and San Bernardino county, south by Kern and San Bernardino, and west by Tulare. This county is noted for its fine agricultural lands in the valley of Owen's Lake. It extends from the mouth of the Owens river the whole length of the valley north into Mono county, but owing to the great distance from any other agricultural district, the cereals bring a large price on the ground for home consumption, freight from Los Angeles being six cents per pound to Independence and Cerro Gordo, the latter being the great mineral district of the State for lead and silver.

Olancha, a city laid out on the southwestern shore of the lake, is destined to become a point of great importance, possessing as it does the key to the entrance of the valley, as well as farming land, with an abundant supply of wood and water for the reduction of metals, and will probably have a large transportation by water on the lake of merchandise and ores to and from this point



[We re-publish this map to give new readers the general outline of the counties and location of the county seats.—Ers. Press.]

The county seat of Tuolumne county is Sonoma; a town of over two thousand inhabitants. It is 173 miles from San Francisco. It is reached by steamer to Stockton, and thence by stage, via Chinese Camp. The fare is \$12.

MARIPOSA COUNTY.

Mariposa is bounded by Tuolumne on the north; by Mono on the east; by Fresno on the south, and by Merced on the west. It measures sixty-five miles east and west, and about twenty-eight north and south. It is very mountainous, and contains but little good farming land. Of the twenty-three thousand four hundred and forty acres enclosed in 1868-9 about four thousand eight hundred were under cultivation.

RETURNS OF COUNTY ASSESSOR FOR 1868-9.

Wheat, bush. 10,300 Wool, lbs. 53,000
Barley, bush. 18,500 Sheep. 12,000
Hay, tons. 4,500 Population. 7,000
Ore Crushed, tons 35,000

dispersed through it. It has the reputation of producing the strongest and best flour in the State. There is a considerable quantity of corn and barley raised, as also vegetables. The resources of the county are by no means fully developed at the present time, and there is every reason to think the soil of this county is well adapted for the growth of the grape.

RETURNS OF COUNTY ASSESSOR FOR 1868-9.

Wheat, bush. 15,696 Hay, tons. 1,506
Barley, bush. 53,702 Butter, lbs. 11,000
Oats, bush. 11,000 Cheese, lbs. 2,000
Corn, bush. 1,369 Population. 800
Potatoes, bush. 11,095

The county seat of Mono county is Bridgeport, distant 286 miles from San Francisco. It is reached by rail or boat to Stockton, thence by stage.

INYO COUNTY.

Inyo county is bounded on the north by Mono,

RETURNS OF COUNTY ASSESSOR FOR 1868-9.
Wheat, bush. 8,500 Hay, tons. 800
Barley, bush. 2,870 Butter, lbs. 3,500
Oats, bush. 900 Cheese, lbs. 500
Potatoes, bush. 5,000 Population. 700

The county seat of Inyo county is Independence, distant about 520 miles from San Francisco. It is reached by rail to Gilroy, and thence by stage; fare \$64.

VALLEY COUNTIES.

The Valley counties comprise Tehama, Butte, Colusa, Sutter, Yuba, Yolo, Solano, Sacramento, San Joaquin, Stanislaus, Merced, Fresno and Tulare.

TEHAMA COUNTY.

Tehama is bounded by Shasta on the north, Plumas and Butte on the east, Butte and Colusa on the south, and Mendocino and Trinity on the

west. Its average length east and west is about 78 miles, and its average breadth 38, giving a superficial area of nearly 3,000 square miles. Much of it is well timbered, and it is well watered by creeks flowing from the mountains. Tehama is a farming and stock raising county, and contains some of the best grain growing lands in the State. In 1867 there were 70,715 acres enclosed, of which 16,000 were under cultivation. There are more than half a million vines in the county. Indian corn flourishes. There is much good land in this county which can be purchased at a moderate price.

RETURNS OF COUNTY ASSESSOR FOR 1868-9.

Wheat, bush.... 386,030 Butter, lbs..... 33,604
Barley, bush.... 19,086 Cheese, lbs..... 20,010
Oats, bush.... 7,000 Honey, lbs..... 3,420
Corn, bush.... 2,576 Strawberry Plts., 128,161
Grape Vines.... 246,212 Population..... 5,200
Hay, tons..... 6,112

The county seat of Tehama county is Red Bluff, which has a population of 2,500, and is distant 255 miles from San Francisco. It is reached by rail to Sacramento, and thence by steamer or by rail to Oroville, and thence by stage via Chico; fare \$20.

BUTTE COUNTY.

Butte is bounded on the northwest by Tehama, on the northeast by Plumas, on the southeast by Yuba, on the south by Sutter, and on the west by Colusa county. Its extreme length north and south is a little over sixty, and its average breadth thirty-five miles. It is both a farming and mining county. It contains much rich bottom land along the Sacramento river. It is well watered everywhere. It has good roads and facilities for shipping produce to San Francisco, by the Sacramento river. The ordinary yield of the land is about thirty bushels of wheat, and forty-five of barley to the acre. Much fruit is raised, and there are many large vineyards in the county. An important product of this county is peannts, which are grown in immense quantities by the Chinese. The farmer of small means need not despair of finding a farm suited to his means in this county; and having once settled there, will be amply repaid for his outlay by the agreeable climate, rich soil, and ready market for his productions.

RETURNS OF COUNTY ASSESSOR FOR 1868-9.

Wheat, bush.... 344,480 Peannts, lbs.... 51,500
Barley, bush.... 196,686 Tobacco, lbs.... 11,000
Oats, bush.... 15,210 Butter, lbs..... 56,450
Corn, bush.... 11,770 Wool, lbs..... 166,647
Potatoes, bush.... 19,691 Honey, lbs..... 10,215
Hay, tons..... 8,410 Population..... 14,609

The county seat of Butte county is Oroville, a city of fifteen hundred inhabitants. It is 191 miles from San Francisco. It is reached by steamer to Sacramento, and thence by railroad. The fare is \$10.50.

COLUSA COUNTY.

Colusa is bounded by Tehama on the north, by Butte and Sutter on the east, Yolo on the south, and Lake and Mendocino on the west. It is fifty-seven miles in length north and south, and forty-five miles in breadth. The western part, constituting about one-third of the county, being covered by the Coast Range, is hilly or mountainous; the balance, consisting of rich alluvial, or less fertile prairie land, is nearly all level and well adapted to the growing of fruits and grain; this being almost exclusively an agricultural and stock raising county. Sheep and swine raising is pursued to a great extent. Rich tule lands, easy of reclamation, stretch for many miles along the steamy slough, and other streams running into the Sacramento. They amount in the aggregate to about thirty thousand acres. Farms may be bought in this county at from \$2.50 to \$10 per acre.

RETURNS OF COUNTY ASSESSOR FOR 1868-9.

Wheat, bush.... 1,642,380 Cheese, lbs.... 1,724
Barley, bush.... 506,220 Honey, lbs..... 15,373
Oats, bush.... 8,480 Wool, lbs..... 485,643
Corn, bush.... 5,805 Hay, tons..... 8,525
Potatoes, bush.... 1,250 Population..... 9,500
Butter, lbs..... 18,520

The county seat of Colusa county is Colusa. It is two hundred miles from San Francisco. It is reached by steamer to Sacramento, railroad to Marysville, and thence by stage; fare, \$11.

SUTTER COUNTY.

This county is bounded on the north by Butte, on the east by Yuba and Placer, on the south by Sacramento and Yolo, and on the west by Yolo and Colusa counties. It is only about forty miles long by fifteen wide, and is, for its size, one of the most productive counties in the State. It is thoroughly cultivated, and all the products of California are raised in abundance. A person wishing to buy a farm in this county must have a long purse.

RETURNS OF COUNTY ASSESSOR FOR 1868-9.

Wheat, bush.... 423,187 Butter, lbs..... 56,550
Barley, bush.... 246,781 Cheese, lbs.... 5,390
Oats, bush.... 7,070 Wool, lbs..... 105,460
Corn, bush.... 30,780 Hay, tons..... 7,234
Potatoes, bush.... 6,390 Population..... 4,880
Hops, lbs.... 12,117

The county seat of Sutter county is Yuba City, distant 167 miles from San Francisco. It is reached by steamer via Sacramento.

YUBA COUNTY.

Yuba is bounded on the northwest by Butte, on the east by Sierra and Nevada, on the south by Nevada, Placer and Sutter, and on the west by Sutter county. Its length measured northeast and southwest is fifty-seven, and its average width about eighteen miles. Part of it is still well timbered. The enclosed land amounts to about 57,660 acres, of which 26,343 are under cultivation.

Wheat growing is the chief industry of the county, though immense quantities of fine fruit are produced. Land in this county is generally held at a high price.

RETURNS OF COUNTY ASSESSOR FOR 1868-9.

Wheat, bush.... 53,725 Hay, tons..... 9,197
Barley, bush.... 147,480 Grapevines.... 424,665
Oats, bush.... 40,700 Strawberry.... 155,000
Corn, bush.... 20,550 Lumber, ft.... 3,900,000
Potatoes, bush.... 10,370 Shingles.... 1,500,000
Hops, lbs.... 24,500 Population..... 6,500

Marysville is the county seat of Yuba county. It is a city of six thousand inhabitants, distant 139 miles from San Francisco. It is reached by the steamer to Vallejo, and thence by railroad via Sacramento; fare, \$8.

YOLO COUNTY.

Yolo is surrounded by the following counties, viz: Colusa, north; Sutter and Sacramento, east; Solano and Napa, south; Solano, Napa and Lake lying to the west. This is exclusively an agricultural county; farming, dairying, stock-raising and fruit-growing forming the sole occupation of the inhabitants. It is about sixty miles in length and twelve in breadth. Every acre of it is settled on and held at a high price.

RETURNS OF COUNTY ASSESSOR FOR 1868-9.

Wheat, bush.... 991,220 Cheese, lbs.... 1,318
Barley, bush.... 213,699 Hay, tons..... 14,114
Corn, bush.... 4,000 Grapevines.... 244,080
Potatoes, bush.... 39,125 Wool, lbs..... 139,702
Sweet Potatoes.... 5,000 Hops, lbs..... 34,000
Peanuts, lbs.... 70,000 Sheep..... 48,097
Butter, lbs.... 68,950 Population..... 11,780

The county seat of Yolo county is Woodland, 107 miles from San Francisco, whence it is reached by steamer to Vallejo, railroad to Sacramento, and thence by stage. The fare is \$6.

SOLANO COUNTY.

This county is about thirty miles in length and twenty-eight in breadth. It is bounded on the north by Yolo, on the east by Yolo and Sacramento; on the south by Contra Costa county, the Bay of Suisun, and the Straits of Carquinez, and on the west by Napa county. This is one of the most wealthy, populous and largely productive agricultural counties in California. Nearly all the inhabitants are employed in farming. There are large tracts of tule lands which may be reclaimed at a small expense, but with the exception of these there are but few lands in the county which offer to the agriculturist an opportunity to obtain a farm cheaply.

RETURNS OF COUNTY ASSESSOR FOR 1868-9.

Wheat, bush.... 1,635,481 Grapevines.... 654,396
Barley, bush.... 207,750 Population..... 3,183
Hay, tons..... 20,943

The county seat of Solano county is Fairfield, fifty miles from San Francisco. It is reached by steamer to Vallejo, and thence by railroad; fare, \$3.

SACRAMENTO COUNTY.

Sacramento county is bounded on the north by Sutter and Placer; on the east by El Dorado and Amador; on the south by San Joaquin, on the west by Solano and Yolo counties. Its average length measured north and south is thirty-six, and its width about thirty miles; giving it a superficial area of six hundred and ninety-one thousand, two hundred acres. There is scarcely an acre of land in this county which is not susceptible of cultivation. Stretching along the Sacramento river is a belt of tule land, which in some parts is fifteen miles in breadth. This land, which, when free from overflow, produces the largest crops of any in the State, we hope soon to see brought into cultivation, through the efforts of the TIME LAND RECLAMATION COMPANY, which has already bought a large portion of it with that end in view. Though land in this county is deservedly held at a high figure, in consequence of its fertility, the ample facilities for bringing its products to a market, and other advantages, there are still many opportunities offered the immigrant in search of a farm to obtain possession of a tract of fertile land at a moderate price.

RETURNS OF County Assessor for 1868-9.

Wheat bush 124,626 Hay Tons 17,511
Barley..... 304,639 Butter lbs. 215,412
Oats..... 32,444 Cheese..... 32,940
Corn..... 47,490 Wool..... 262,570
Potatoes..... 33,885 Honey..... 10,170
Onions..... 21,656 Grape Vines.... 1,598,507
Population 35,000.

The county seat of Sacramento County is Sacramento—the Capital city of the State—containing 20,000 inhabitants. Sacramento is reached by steamer to Vallejo, and thence by railroad; fare \$3 or by steamer direct, \$1.50.

SAN JOAQUIN COUNTY.

San Joaquin is about forty miles in length, by thirty-five in width. It is bounded by Sacramento county on the north; by Amador, Calaveras and Stanislaus on the east; by Stanislaus on the south, and by Alameda and Contra Costa counties on the East. San Joaquin is almost exclusively an agricultural county. Of the 895,000 acres comprised within its limits, over three-fourths are capable of producing good crops of grain. There are 200,000 acres of tule land, which, when reclaimed, will add much to the wealth of this county. Every variety of fruit and vegetable is grown here. There is much rich land in this county which can be bought at from \$2.60 to \$10 per acre.

RETURNS OF County Assessor 1868-9.

Wheat hus. 1,750,000 Hay tons 22,000
Barley..... 440,000 Butter lbs. 200,000
Oats..... 870 Cheese..... 20,000
Corn..... 42,060 Wool..... 151,000
Potatoes..... 22,600 Grape Vine.... 526,000
Castor Beans.... 42,000 Population..... 24,000

The county seat of San Joaquin County is Stockton, a city of 10,000 inhabitants. It is 110 miles from San Francisco, with which it connects by steamer and railroad daily; fare \$1.50 and \$2.00.

STANISLAUS COUNTY.

Stanislaus county is forty-eight miles in length, and about twenty-six in breadth; containing 798,720 acres, of which a large proportion is rich farming land. A large belt of tule land, easily reclaimable, stretches along the San Joaquin river. A portion of this county is embraced in the great San Joaquin Valley, which is unexcelled in fertility by any portion of the State. All the products of California grow freely in Stanislaus county. Good land may be obtained at from \$2.50 to \$10 per acre.

RETURNS OF County Assessor for 1868-9.

Wheat bush. 144,000 Hay tons 1,500
Barley..... 854,360 Butter lbs. 20,000
Corn..... 4,500 Cheese..... 5,200
Potatoes..... 1,600 Wool..... 4,978,000
Population 3,644.

The county seat of Stanislaus is Knights Ferry. It is 167 miles from San Francisco. It is reached by steamer or railroad to Stockton, and thence by stage; fare \$13.

MERCED COUNTY.

This county is bounded on the northwest by Stanislaus; on the northeast by Mariposa; on the southeast by Fresno, and on the southwest by Monterey county. It is about 60 miles in length east and west, with an average breadth of twenty miles, forming an area of 1,075,200 acres. The Merced and San Joaquin rivers run through it. In 1868 the amount of land enclosed was 135,000 acres, 33,000 of which were under cultivation. Grain, fruit, and vegetables of all descriptions are produced, and large quantities of stock are raised. There is much good land in this county obtainable at a low price.

RETURNS OF County Assessor for 1868-9.

Wheat husb. 225,000 Hay tons 4,000
Barley..... 276,000 Wool lbs. 473,785
Corn..... 55,000 Honey..... 18,600
Potatoes..... 5,500 Butter..... 8,600
Onions..... 2,100 Cheese..... 2,400
Population 3,000

Snelling is the county seat of Merced County. It is 174 miles from San Francisco. It is reached by steamer or railroad to Stockton, and thence by stage. The fare is \$11.

FRESNO COUNTY.

Fresno county is one hundred and twenty miles in length, with an average width of sixty-five miles; and contains 5,200,000 acres of pastoral, agricultural and mineral lands. It is bounded on the north by Merced and Mariposa; on the south by Tulare; and is flanked by the Sierras on the east, and the coast range on the west. The greater portion of this county is included in the fertile San Joaquin Valley. There are twenty thousand acres of tule land in this county, which are capable of reclamation, which will render them among the most valuable in the world. This county offers immense advantages to the intending settler, and will doubtless, ere long, be covered with the homes of a prosperous agricultural population. There is much rich land for sale and lease, on easy terms. A large tract between San Joaquin river, Fresno City and King's river, comprising some of the most fertile lands in the valley, has been by the San Joaquin Land Association divided into farms, which the immigrant can either lease on easy terms, or purchase at prices ranging from \$2.60 to \$10. This tract comprises some of the best wheat land in the state and the produce of a farm would in one or two years pay back to the purchaser the money he expended in obtaining possession of it. There are many miles of the richest land in California in the vicinity of King's river, and in fact, in all parts of this county. The completion of the railroad which it is proposed to construct through this valley, will quadruple the price of all land, and the opportunity at present offered, is one of which all wishing to purchase farms in this state should avail themselves.

RETURNS OF County Assessor for 1868-9

Wheat husb. 7,465 Hay tons 710
Barley..... 126,240 Butter lbs. 8,700
Corn..... 9,943 Wool..... 271,500
Potatoes..... 114,160 Honey..... 10,260
Population 2,400.

The county seat of Fresno County is Millerton, 175 miles from San Francisco. It is reached by steamer or railroad to Stockton, stage to Hornitos, and thence by stage; fare \$19.

TULARE COUNTY.

Tulare county extends one hundred and thirty miles in a northwesterly and southeasterly direction, and has an average width of one hundred miles, giving it an area of eight million three hundred and three thousand acres. It is bounded on the north by Fresno, on the east by Inyo and San Bernardino, on the south by Los Angeles, and on the west by Santa Barbara and San Luis Obispo counties. Here are lands for all, a fertile soil, a delightful climate, and everything the heart of man can desire. Timber and water are abundant, and the woods provide for thousands of swine. Every description of grain, fruit and vegetables can be raised in profusion. Thousands of acres of swamp land await reclamation to become equal in fertility to the Delta of the Nile. Cattle thrive without housing or fodder, and sheep are raised in large numbers. In 1868, 83,111 acres were in cultivation. This leaves a large proportion of eight million three hundred and twenty thousand acres to the enterprising immigrants. The railroad which is shortly to run through this county will cause an influx of thousands of settlers, who will here make for themselves the most delightful homes in the world. To Tulare county the immigrant in search

of land can direct his steps with the surety of meeting with what he wants. Much of the land is open for pre-emption and improved farms can be bought at very reasonable prices. All this will be changed when the railroad is built, and thousands will not then be able to purchase the land which is now obtainable, for nothing, or by the outlay of a few dollars.

RETURNS OF County Assessor for 1868-9.

Wheat, bush.... 40,884 Butter, lbs..... 12,414
Barley, bush.... 70,584 Wool, lbs. 539,750
Corn, bush.... 9,515 Honey, lbs. 7,850
Potatoes, bush.... 14,000 Population..... 9,000
Hay, tons..... 1,640

The county seat of Tulare County is Visalia which has a population of 1,500. It is 228 miles from San Francisco. It is reached by railroad to Gilroy, and thence by stage; fare \$24.

MOUNTAIN COUNTIES.

The Mountain Counties comprise Plumas, Sierra, Nevada, Placer and El Dorado.

PLUMAS COUNTY.

Plumas county is bounded on the north by Shasta and Lassen counties; on the east by Lassen; on the south by Sierra and Yuba counties, and on the west by Butte and Tehama counties. It has an area of about two thousand square miles. This county is covered with forests of pine, and is one of the best timbered counties in the state. It contains many well-sheltered, fertile valleys, and much rich meadow land, suitable for agricultural and grazing purposes. A railroad, which is shortly to be carried through Beckworth's Pass, over the Sierra, will bring the products of the land within reach of a market. There are over one hundred thousand acres of land under fence, and planted to grain and vegetables. Land can be bought here at a low price, and the forest land is opened to pre-emption.

Quincy is the county seat of Plumas county. It is 276 miles from San Francisco. It is reached by railroad to Oroville, and thence by stage via La Porte. The fare is \$23.60.

Wheat, bush.... 19,170 Butter, lbs. 163,000
Barley, bush.... 3,200 Grapevines.... 2,300
Oats, bush.... 35,784 Strawberry plants. 78,500
Potatoes, bush.... 8,519 Population..... 5,000
Hay, tons..... 13,600

SIERRA COUNTY.

This county is bounded by Plumas county on the North; the State of Nevada on the east; the county of Nevada on the south, and the counties of Yuba and Plumas on the west. This county in soil, climate and topography, much resembles Plumas county. Sierra county presents but few inducements to the farmer, there being but a very small amount of agricultural land with its limits, and the climate being excessively cold.

RETURNS OF COUNTY ASSESSOR FOR 1868-9.

Wheat, bush.... 7,585 Butter, lbs. 47,975
Barley, bush.... 12,257 Cheese, lbs. 2,490
Oats, bush.... 7,900 Grapevines.... 9,000
Potatoes, bush.... 10,240 Population..... 5,000
Hay, tons..... 6,305

The county seat of Sierra county is Downieville, which has about 1,500 inhabitants. It is reached by railroad to Marysville, and thence by stage. The fare is \$18.

NEVADA COUNTY.

Nevada county is bounded on the north by Yuba and Sierra counties; on the east by the State of Nevada; on the south by Placer, and on the west by Yuba county. It is sixty-five miles in length east and west, and fifteen in breadth; covering an area of about one thousand one hundred square miles. This county is very picturesque, having many rolling prairies, wooded mountains, and beautiful valleys. It is well timbered, and the forests abound in flowering scrubs. The soil on the uplands is of a rich ferruginous loam, that of the bottoms a dark vegetable alluvium, well adapted for the culture of fruit. Considerable quantities of grain are raised, and large portions of the land are devoted to the culture of the vine. The chief industrial interest of the county is quartz mining. Good farming land may be bought at a very moderate figure in many parts of the county, and a ready market obtained for agricultural products.

The returns of the County Assessor for the year 1868-9, were very meagre, and by no means reliable, so they are better omitted.

The county seat of Nevada county is Nevada City, which has a population of 6,000. It is 191 miles from San Francisco. It is reached by railroad to Colfax, and thence by stage. The fare is \$10.25.

PLACER COUNTY.

Placer county is bounded on the north by Yuba and Nevada counties; on the east by the State of Nevada, on the south by El Dorado and Sacramento, and on the west by Sutter and Nevada counties. It is eighty miles in length east and west, having an average width of but fourteen miles. Placer contains a good amount of agricultural land, its western part being wholly devoted to farming, sheep, hog and cattle raising. It is well timbered, and much of the forest land when cleared will be found well adapted to agricultural purposes. The chief industry of the county is mining, and here we must observe that in these mining counties the immigrant in search of a farm is most likely to find land unsettled, which he can pre-empt, or tracts which he can purchase at a nominal figure.

RETURNS OF COUNTY ASSESSOR FOR 1868-9.

Wheat, bush.... 74,060 Cheese, lbs. 1,000
Barley, bush.... 21,350 Wool, lbs. 73,120
Potatoes, bush.... 4,200 Honey, lbs. 14,775
Hay, tons..... 8,170 Population..... 13,750
Butter, lbs. 99,050

The county seat of Placer county is Auburn, which has 1,000 inhabitants; it is 156 miles from San Francisco. It is reached by railroad; the fare is \$6.50.

EL DORADO COUNTY.

This county is bounded by Placer on the north; a portion of the state of Nevada and Alpine county on the east; Alpine and Amador counties on the south, and Sacramento and Placer on the west. Its length east and west is sixty miles, its width thirty miles. It has an area of nearly two thousand square miles. The inhabitants of this county are generally employed in mining and lumbering. Nearly all the cereals, fruits and vegetables are raised in the valleys and on the alluvial flats under cultivation. Nearly one-half of this county would be adapted to agricultural purposes if cleared of timber. The immigrant in search of a farm can obtain one at a small expense—or for nothing—in Placer county by settling on a tract of timber land. The county abounds in good wagon roads and communication with all parts of the state is easy. The climate is pleasant, the soil fertile and large tracts are still open to the agriculturist in search of a farm.

RETURNS OF COUNTY ASSESSOR FOR 1868-9.

Wheat, bush.....	8,466	Butter, lbs.....	133,155
Barley, bush.....	2,205	Cheese, lbs.....	15,300
Rye, bush.....	2,004	Wool, lbs.....	10,330
Corn, bush.....	1,714	Honey, bush.....	11,040
Hay, tons.....	6,235	Population.....	9,592

Placerville is the county seat of El Dorado county. It is a city of 4,000 inhabitants. It is 180 miles from San Francisco. It is reached by railroad to Shingle Springs, and thence by stage. The fare is \$10.

Chapter VII, PUBLIC LANDS.

Lands open to pre-emption or private entry—Pre-emption laws—Homestead Act—United States Land Offices.

LANDS OPEN TO PRE-EMPTION.

Are those not yet sold or donated to the State by the general Government. Such land can be purchased at \$1.25 per acre in greenbacks upon complying with the condition of the

PRE-EMPTION LAW.

Approved Sept. 4th, 1861, which provides "that from and after the passage of this Act, every person being the head of a family, or widow, or single man, over the age of twenty one years, and being a Citizen of the United States, or having filed his declaration of intention to become a Citizen, as required by the naturalization laws, who since the first day of June A. D. 1840, has made or shall make, a settlement in person, on the public lands, to which the Indian title had been at the time of such settlement, extinguished, and which has been or shall have been surveyed prior thereto, and who shall inhabit and improve the same, and who has, or shall erect a dwelling thereon, shall be, and is hereby, authorized to enter with the register of the land office for the district in which such land may be, by legal subdivisions, any number of acres not exceeding one hundred and sixty or a quarter Section of land, to include the residence of such claimant, upon paying to the United States the minimum price of such land."

THE HOMESTEAD ACT.

The first Act proved by Congress granting Homesteads was approved May 20th 1862. It provides that; any persons qualified to pre-empt are likewise qualified to apply for and obtain a homestead. Those applying for lands within a railroad reservation are entitled to enter eighty acres; those upon lands outside to 160 acres. Persons applying for homesteads under this Act, may at any time after entry, and before the termination of five years, make proof of entry, improvement, and cultivation, as in pre-emption cases, pay for, and obtain a patent for the land. The initiatory fee is ten dollars and the after expenses for patent from five to eight dollars. The title of the land becomes then vested in the occupant without purchase as in the case of pre-emption. The residence of five years on the land being considered by the Government sufficient to warrant it in donating the land.

UNITED STATES LAND OFFICES.

There are six United States Land Offices in the State of California, one at San Francisco, one at Sacramento, one at Stockton, one at Marysville, one at Visalia, and one at Eureka.

Chapter VIII, PRIVATE LANDS FOR SALE.

Lands belonging to Railroad Companies—Lands belonging to Private Individuals.

LANDS BELONGING TO RAILROAD COMPANIES.

The following Railroad Companies have lands for sale on easy terms and reasonable prices, and particulars concerning the lands can be obtained on application at the offices of the various companies.

The Central Pacific,—Office in Sacramento.
The Southern Pacific,—Office in San Francisco.
The Northern Coast,—Office in Stockton.
The Stockton and Visalia,—Office in Stockton.
The California and Oregon,—Office in San Francisco.

The Western Pacific,—Office in San Francisco.

LANDS BELONGING TO PRIVATE INDIVIDUALS.

Tracts of land both large and small are owned

and for sale all over the State at prices varying from one to one hundred dollars per acre, but as it will be impossible to enter into detail on a subject of such magnitude. We refer our readers to the last chapter in this work. "Suggestions to Immigrants" from which they may learn how to gain reliable information on this important point.

Chapter IX,

RAILROADS.

Railroads Completed—Railroads in course of Construction—Railroads Projected.

RAILROADS COMPLETED.

There are at the present time 1439 miles of Railroad completed in the State as follows:

The Central Pacific from San Francisco to its junction with the Union Pacific at Ogden 880 miles. The Western Pacific from San Francisco to Sacramento 138 miles. The Sacramento Valley from Sacramento to Shingle Springs 48 miles. The California and Oregon from Sacramento to Marysville 52 miles. The California Northern from Marysville to Oroville 26 miles. The California Pacific from Vallejo to Sacramento 60 miles, from Vallejo to Marysville 90 miles, from Vallejo to Calistoga 42 miles. The San Francisco and San Jose 52 miles to San Jose with extension to Gilroy 30 miles. The Wilmington and Los Angeles 21 miles. The San Francisco and Alameda 22 miles. The San Francisco and Oakland 8 miles.

RAILROADS IN COURSE OF CONSTRUCTION.

Only one Railroad is actually being constructed, viz: the California and Oregon of which 40 miles are completed, the work is being rapidly pushed forward and the company is confident of having 150 miles completed before winter sets in.

RAILROADS PROJECTED.

The Southern Pacific Railroad.—To form a communication between San Francisco and San Diego. The exact route is not yet determined upon. The point of commencement will be Gilroy Santa Clara County the terminus of the San Jose Railroad and continue south as near the coast as possible.

The Northern Coast Railroad.—Commencing at Sausalito Marin County in the Bay of San Francisco and running north through the Counties of Marin, Sonoma, and Mendocino to Humboldt Bay.

The Stockton and Copperopolis Railroad.—From Stockton to Copperopolis a mining district in Calaveras County.

The Stockton and Visalia Railroad.—Will traverse the entire length of the San Joaquin and Tulare Valleys passing through the Counties of Stanislaus, Merced, and Fresno to Visalia in Tulare County.

The California Pacific Railroad Company.—Contemplate extensions through Sonoma County viz: Santa Rosa to Healdsburg and eventually to Ukiah and through Colusa County to Princeton and thence to Red Bluff on the Sacramento River.

Chapter X,

SUGGESTIONS TO IMMIGRANTS.

Class of Immigrants needed—Land Matters—Hotels, etc.

Having completed our task of laying before our readers what we believe to be a truthful statement of the wealth and resources of California and the prospects it holds out to the industrious and frugal settler on its soil we conclude by a few words of advice.

First then, we address ourselves to those who labor under the belief that California is a land of gold and plenty, where wages are high, and but little labor is necessary to earn a livelihood.

We recommend such persons to stay away for if they come, and are not willing to work, the community will look upon them as encumbrances and should distress overtake them they will meet with no sympathy.

What California wants is an industrious hard working thrifty population composed of Agriculturists, Vincenturists and Manufacturers with sufficient capital to carry on their several vocations and by so doing add their quota towards developing the resources of the country. No fear need be entertained about hiring mechanics or laborers, for the supply of labor is all the world over equal to the demand. The investment of Capital in industrial enterprises invariably attracts sufficient labor to perform the functions necessary in the premises.

To all who contemplate emigrating to California, the knowledge may be important that it is not a land of drones, but of industrious workers. To the laboring man, the capitalist, the man of active industry, the mechanic and artisan who is looking for a field for legitimate enterprise, the sky, the soil, the mines, the people, will give the kindest and most generous welcome. But for the idle man who expects to live off the industry of others, it is no place—his reception will be cold, and he can neither expect sympathy or tolerance. The country is yet new to human industry, and is a transition state, and requires population, capital and willing hands to develop its resources, when it will become in time, what Nature and manifest destiny have pointed out—the Empire of the Pacific, the most cherished of man and the most blessed of Heaven.

LAND MATTERS.

One of the first things that a stranger who intends to make California his home, desires to know on his arrival is, where to find vacant public lands or lands held for sale by private parties. On the former much has been written by individuals and by the press, efforts have been made by Associations and Societies and Unions to collect information about the public lands and distribute it gratuitously among immigrants and their friends, but up

to this date it is safe to say that no great amount of success has attained any efforts in this direction in placing an immigrant on one of Uncle Sams vacant 160 acres of land.

As a general thing those who know most of the matter of vacant public lands and the various questions of location and entries of the same under the various national and State laws have not been the ones who have written the most on the subject and nearly all that has been written has had a tendency more to mislead than lead aright the searcher after a 160 acre vacant tract.

This kind of knowledge is a special—it can't be acquired on the Street corner nor yet by reading the Newspapers, you cannot learn it entirely at the United States Land Office for their business is limited to selling lands, recording entries, and hearing contests. They know but little of the character of the land, quality of soil, adaptation to that or this crop, and are not put into Office to advise people where or how to go, neither can you learn it from the United States Surveyor General for his duty is confined to surveying the public lands, true he can tell you what his deputies thought of the land when they surveyed it, but nothing from his own knowledge, besides he has not the time even if he had the disposition to go over volumes of manuscript field notes and separate good land from bad for the public and even if he did this he could not tell you what was vacant and what not, and if he did afford you the information you requested of him he would charge you a fee for it. Neither can you learn this information only in part from the State Surveyor General whose duty is confined to the sale and survey of State lands, and there are so many kinds of State Locations that he can't tell to day what lands will be State lands to morrow and he is not the adviser as to the character and quality and vacuity of the same.

In brief there is no short or direct way by which not only the stranger but even an old resident in California can be directed through an easy ordeal to occupy the public domain, but this branch of business is a specialty as much as any other and there are men residing in San Francisco, Sacramento, Marysville, Eureka, Los Angeles and Stockton the seats of the several land offices and other places in the State who keep themselves advised from day to day of the status of the whole land question throughout the State, who note especially each individual tract and the changes and orders in the various land offices, and in the State and U. S. Surveyor General Offices; and who are posted in the State and Federal Land laws governing locations and entries, and who in fact by this means become land brokers and are in our judgment the proper parties to whom applications for the information regarding both public and private lands should be made.

These men constitute a class of Real Estate or Land Agents and Attorneys and who are distributed generally throughout the State playing their calling.

We write in the interest of no man, or firm, or association anywhere but we leave the stranger to find out for himself where his special wants can be best supplied by this class.

The following are the prices of public lands in the State of California,

All lands subject to private entry can be bought at \$1.25 per acre, this kind of land is locateable also with Agriculture College Script, issued by Congress to the States under the Act of July, 1862 limited to three sections in each township and each man can buy all he has the money to pay for. Land is said to be open to private entry when it has been offered for sale by a public proclamation of the President of the United States.

All the even sections within the limits of any Railroad grant and not mineral, are subject to pre-emption in quantities of 160 acres to each man at \$2.50 per acre; a Homestead of 80 acres for \$16 after a five year residence, the rest of the vacant public land surveyed and unsurveyed and not mineral, is subject to pre-emption at \$1.25 per acre or a Homestead of 160 acres for \$16 after five years residence.

A man finding a vacant 160 acres of land, and wishing to make it his home, files in the U. S. Land Office that has jurisdiction over it, a statement in which he sets forth his citizenship and declares his intention to make said land his home, this costs him \$3 fee to file and \$2.50 more if he wants a certificate of the filing, he then improves, cultivates and occupies it and after a continuous residence sufficiently long to show a bona fide say one year, he will be allowed to prove by two witnesses before the Register and receives what he has done since his entry thereon, and if satisfactory, pay his money and get his Patent: but he is not compelled to do this until the land is proclaimed publicly by the President for sale, then he comes in as first purchaser or pre-emptor.

The odd sections in the Railroad grants, are reserved for the Railroad Companies title passing to them when they have complied with the special conditions in their grants. These companies therefore have the sale of these lands and charge according to their value and a title from them is as good as from the United States whenever said lands are listed over and Patented to said Companies.

The State of California has the disposal of all swamp and overflowed Salt Marsh Tide Land, the 16 and 36 sections in each Township, the lands donated her for internal improvements and educational purposes, she sells the swamp and overflowed lands for \$1 Gold per acre and refunds all moneys paid when the lands are reclaimed. It is safe to say that all large bodies and nearly all small bodies of this grant have been sold. Salt Marsh and Tide lands are sold at \$1 per acre, these take capital and time to reclaim and but seldom constitute an investment for agricultural purposes to the small and new beginner.

The 16th and 36th Sections on lands selected in lieu of them are sold at \$1.25 Gold per acre, 20 per cent cash within 110 days of the application and 10 per cent interest on the balance. It is safe to say that there is not a desirable School Section in place of Surveyed lands that has not been either sold or applied for. The internal improvement lands were disposed of some years ago by the issue of School land warrants by the State and sold by her for cash, those not located are on the market in private hands and rate from \$3 to \$3.50 per acre. It is supposed there are only about 15,000, to 20,000 acres of this grant afloat, not located.

The Educational or University lands are sold by the University Agent Gen. H. A. Hegley, at Sacramento for \$5 per acre, 20 per cent cash and ten per cent interest on the balance. This grant was 150,000 acres, about one half possibly has either been sold or located.

Lands where the title has vested in private ownership are for sale by Land agents all over the State, the same as in other States.

Passing from the control of the Mexican to that of the United States Government as California did in 1847, under the provisions of the treaty of Guadalupe Hidalgo with titles of land wholly unadjusted with treaty guarantees that all property landed as others, should be protected, we find ourselves constantly dealing with a set of Laws partly Spanish, partly of the general system, partly of laws enacted for the special laws of California, partly under State Laws, but imperfectly conceived at first, and the subject of constant changes and amendments during the past twenty years; and we ask how under heaven can a man unversed in these several labyrinthine paths walk into California as an immigrant and plant himself securely on a 160 acre tract of land, our reply is, it can't be done without a guide, and it can't be done without being paid for.

The length of this article will not permit us, if it were possible to enter into the minutiae of the land question, but sufficient has been outlined to show any one the absolute necessity of seeking detailed and specific information, regarding land matters, from those who make it their business to acquire it.

HOTELS.

As a stranger on arriving in San Francisco is always beset by Hotel runners, we suggest his making up his mind before-hand, as to the Hotel he will put up at. The three following are respectable and reasonable. The Brooklyn on Bush Street, near Sanson. The AMERICAN EXCHANGE on Sanson Street corner of Halleck and the INTERNATIONAL on Jackson Street between Montgomery and Kearney Streets.

To Eastern Readers.

We fully believe that all the leading and intelligent seeking Mechanics, Manufacturers, Farmers and Miners in the Atlantic States, who venture to subscribe for the SCIENTIFIC PRESS in its present improved standard, will feel more than paid for their \$4 investment. We are adding new names for every issue from various parts of the Union.

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Of Wheat, Vineyard, Fruit, Dairy and Grazing Lands,

FOR SALE BY

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These lands lie in Shasta, Mendocino, Colusa,

Napa, Sonoma, Santa Clara, San Joaquin,

Merced, Fresno, Tulare, Kern, San

Luis Obispo and Los Angeles

Counties.

SAN JOAQUIN VALLEY LANDS.

Much of this land in the San Joaquin Valley is admirably adapted to the cultivation of grain, admitting of the use of machinery.

DAIRY, FRUIT AND GRAZING LANDS.

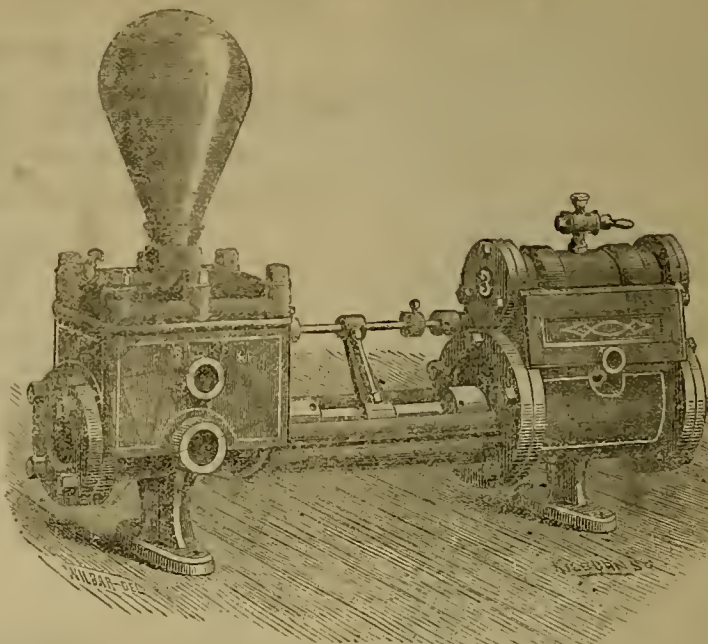
A large portion is all that could be desired for Dairy purposes, with plenty of wood and water, while the remainder is well suited for the Vine and the different varieties of Fruit, or for Grazing purposes.

Much of the above land having been purchased at Government prices, will be sold to actual settlers at figures varying from one dollar and fifty cents (\$1.50) to five dollars (\$5.00) per acre, while great inducements as to price and time will be offered to buyers of large tracts.

ALSO

A few Mexican Grants at prices ranging from seventy-five cents to one dollar and fifty cents per acre.

BLAKE'S PATENT STEAM PUMP.



THESE PUMPS

Have been tested, and found to be indispitably without an equal wherever tried. They are constructed in the most simple style, and built in the most thorough manner—especially calculated for SIMPLICITY, DURABILITY and POWER.

Some of the advantages of the Blake Pump may be summed up as follows: It is POSITIVE UNDER ANY PRESSURE. May be run slow or fast as may be desired. Will discharge more water than any others of the same dimensions. Has no leaky joints, the steam part being cast in one entire piece. The steam valve is perfectly balanced, is cushioned at each end, and slides with the greatest facility. Will start at any point of the stroke, and will discharge all the water of condensation.

The Pump has no crank or fly-wheel, thereby saving a considerable item of expense to the purchaser. Having no wear points, it therefore needs no watching, and is consequently ready to start without using a starting bar or any hand work whatever. The Blake Pump is extensively used

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And as BOILER FEEDERS, wherever steam is employed. In fact, wherever water or other liquids are desired to be raised in large or small quantities, or against heavy or light pressure, it is the

Cheapest and Best Pump that Can be Used.

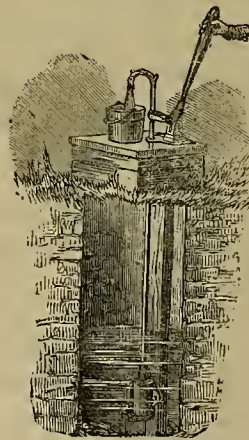
It is offered to the public as the most perfect independent Steam Pump ever invented. TWELVE DIFFERENT SIZES are made, capable of throwing from 1,000 to 180,000 gallons an hour, and adapted to any class of work that might be required. For sale by

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Information to Immigrants.

The California Immigrant Union was established by a number of the most prominent business men of San Francisco, for the benefit of new comers to our State, and to attract hither an agricultural population.

The officers of the California Immigrant Union, at its central office, No. 316, California st., in this city, are prepared to furnish to new comers or those who desire to come to this State, such information as they may require concerning the land laws and regulations and the public lands in the State of California, and how and where they may be found, and to recommend them to suitable persons in the different counties and districts, from whom they may obtain such special and local information as they may require to facilitate their movements. They will also furnish, personally, to applicants, or by letter, reliable information concerning the prices of private lands, in the different counties and districts of the State, and the terms upon which they may be purchased.

Maps and diagrams, showing the location of lands of all classes for sale in different portions of the State, may be examined at the office, No. 316, California street, below Sansome, and such information as may be required concerning the modes of reaching them, etc., will be furnished whenever necessary. Official and other reliable information concerning the different counties is always on hand, and open to the examination of those who desire it, or will be obtained for them, if accessible, without charge.

All letters and communications, addressed to the CALIFORNIA IMMIGRANT UNION, requesting information concerning this State, by persons who are considering the propriety of coming to California to engage in agriculture, will be promptly answered, and, if possible, the required information furnished. The pamphlet published by the California Immigrant Union, entitled "All About California and the Inducements to Settle There," printed in English and in German, has already been sent to nearly every U. S. Consul in Europe, England, Scotland, Wales, Ireland, Canada, Nova Scotia and Australia, and to many of the public libraries in those countries. It has also been sent to every agricultural society library and most of the other public libraries in the United States, where copies may be found and read by those who have not already seen it and are interested in its contents.

Any public library or reading room not already supplied, will be furnished gratis with copies upon request, and its officers will be pleased to receive such applications. It may also be obtained of the American News Co., 117 Nassau St., New York, of Hiram Dixon, No. 8 Battery Place, New York, of Messrs. Geo. A. Croft & Co., 21 Park Row, New York; publishers of the Great Trans-Continental Railway Guide, of John R. Schulten, No. 5½ North Street, Baltimore, at Mr. J. Budd, of the office of the Omaha and North-Western Railway Company, Omaha, and of the Agents of American News Company on the Eastern Railroad lines.

It is published for gratuitous circulation and will be forwarded upon request, to all who may feel interested in its contents, on receipt of the address. The information it contains is of precisely the character needed by emigrants, concerning the climate, soil, and resources of California, and the mode and cost of getting here, the prices of land, land laws and regulations, and various other matters of interest to the emigrating classes. It is entirely reliable, and much of the information it contains is official in its character, and all may be depended on with entire confidence. It covers most of the ground usually gone over in correspondence, and was compiled with express reference to that purpose.

Californians visiting their friends in the Eastern States or Europe, are advised and invited to provide themselves with copies of the pamphlet, that they may be able to answer satisfactorily the numerous questions addressed to them, and place inquirers in communication with the officers of the association. When requested by letter, copies will be forwarded to such useful addresses as may be furnished, whether of individuals, or public libraries or reading rooms that may be found unprovided.

Public spirited men in all parts of California, who desire to aid this useful work, and land owners who desire to dispose of their own land, and to see the neighborhoods around them settled and improved, are invited to become members and contributors to the funds of the association,

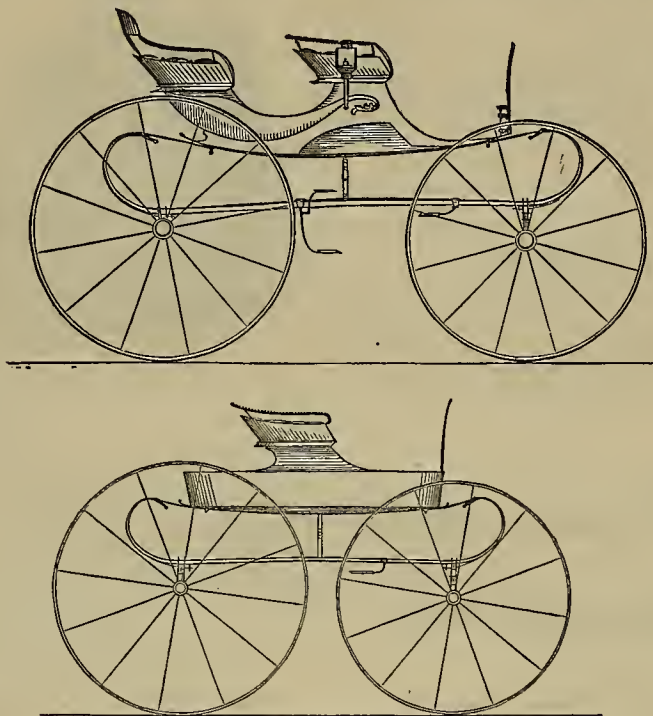
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or local agents or friends to whom new comers, who desire to settle near them, may be sent to obtain such information as they require, concerning public and private lands in the vicinity.

The officers and agents of the California Immigrant Union, will, whenever desired, arrange for cheap transportation of passengers, who may move together in companies, by railroad or steamship, from European or Eastern ports, or from any point in the United States, to California, and also in this State, all the transportation companies being favorably disposed toward our organization, and willing at all times, to further its objects in the most liberal manner. It will also purchase and secure passage tickets, and make remittances of funds to families, and persons in the Eastern States and Europe whom it is desired to bring hither, on the lowest possible terms.

Investigations will be made concerning the title to real estate, and reliable abstracts of title, and legal opinions, thereon procured and proper conveyances drawn for the satisfaction and security of purchasers. It is also offering for sale, quantities of private lands, in tracts to suit purchasers, on very liberal terms of payment, and at prices ranging from one dollar and fifty cents, to ten dollars per acre, and improved farms at prices varying according to the location, and amount of improvements existing. All services rendered to immigrants, are entirely gratuitous. Send for copies of the pamphlets, and address by letter or call personally, upon the officers of the CALIFORNIA IMMIGRANT UNION, at the Central office, No. 316, California street, San Francisco.

Officers of the California Immigrant Union: President, C. T. Hopkins; First Vice President and Manager, C. S. Capp; Second Vice President, Charles Crocker; Vice President Central Pacific Railroad; Third Vice President, L. Gottig; President German Savings Bank; Treasurer, J. Seligman & Co., bankers; General Agent, W. H. Martin.

On the Central Pacific.

[Written for the Scientific Press.]

Being desirous of visiting our neighbors of Utah, who are at once a wonder and a mystery to so many of our friends, and having swallowed a sufficient quantity of San Francisco sand, I have just come on to Ogden, and write to acquaint you of the fact, knowing the interest you take in my movements. I came on here, via the Western and Central Pacific roads, and intend now to travel about this territory that I may see with my own eyes and hear with my own ears what is here going on.

I might dwell at length on my journey thus far;—how I traveled along the pleasant Alameda valley, where the farmers were threshing their wheat, whirled down the heated San Joaquin Plains, past thriving Stockton and up to sunny Sacramento;—how I traveled up, up, up, past Auburn with its quartz and placer mines, where untold sums are still waiting for Von Schmidt's pipes to again make the place blossom like a rose, past Colfax, where our Eastern visitors ought to stop, to view the mining wonders at stage-connected places;—how I rode by Cape Horn on the observation car, gazing in admiration at the sublime scenery;—how I passed Gold Run and Dutch Flat, rattled through snow-shed and tunnel, surmounted the summit, and rushed down past the beauties and aridities of Nevada, her great promises and her achievements, till I have traversed the whole width of the state and reached this point of junction (Ogden) of the two parts of the great trans-continental highway. I might, but I won't.

I look back now with wonder at my journey. In forty-six hours and enjoying every comfort, I have traveled a distance where formerly months were necessary for the trip, and grievous sufferings, even unto death, were to be encountered. I think that certainly everyone who has crossed the plains with an emigrant train, ought now to traverse the line in the comfortable, as well as elegant, cars which the C. P. provides. I don't know but what it would be a good idea for the company to give all such a free ride to and fro, that they may appreciate what has been done. When I

see the enormous heights to be scaled, the deep ravines to be crossed, the long cuts and tunnels, I cannot help admiringly wondering at the energy and perseverance of those who have accomplished this enormous undertaking. They have brought to our State life and strength. They have developed the mines, opened up the broad fields and made of great value that which otherwise would be worth nothing. When others pronounced the work impossible, they persevered, and now they deserve great rewards. The State of California—the whole Coast, in fact—is deeply in debt to the railroad. Of course their work was not a mere deed of philanthropy. They expected large returns and now they are commencing on their harvest. That, however, by no means lessens the credit due them. The confidence they had of our future and the benefits we have received from that confidence remain the same.

The company still shows a most obliging spirit in its dealings. It provides every comfort, it continually reduces the charges as fast as it can, it makes experiments in transporting fruits, grain, etc., for our advantage as well as their own. Many complain because they have taken off the Pullman cars. Well, let these grumblers look at the enormous wear and tear of running these tremendously heavy vehicles; let them remember that there are now palace cars on the line which are almost, if not quite, as comfortable; that the company has these cars built in our State, adding thereby to her wealth and giving employment to many of her sons. Let them meet the officers of the company, ride over the line, see the great deeds accomplished and witness the kindness and courtesy which is shown on all sides. After personally experiencing all which has been done and is now being performed for their sakes, if they do not have a kindly feeling towards the road, at once the foundation and the crowning glory of our advancing prosperity—no matter what the motives of the company may be supposed to be—then they deserve to be cut off from the advantages of the road, to be obliged to cross the mountains and plains in teams, or to ship their freight by steamer, by horse-power or by any other means they can find.

But I am getting pathetic, I find, and therefore think it time to stop. Will keep you informed of my movements and will write you all about Utah. W. H. M.
Ogden, Aug., 1870.

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PACIFIC COAST READERS.

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ROASTING OF GOLD AND SILVER ORES AND THE EXTRACTION OF THEIR RESPECTIVE METALS WITHOUT QUICKSILVER.—By G. Kustel, San Francisco, Dewey & Co. 1870, 12 mo Pp. 150.

The main purpose of this book is to explain the bleaching process for extracting silver from certain ores. Invented by Kustel and Hoffman, and successfully practiced by the latter in Mexico. Several years ago we described the main features of the process, but in this book, a number of new details adapted to different ores and circumstances are given. As roasting precedes bleaching, that is fully treated. The book is worthy of Mr. Kustel's reputation as one of the first metallurgical authorities of our own age, and it will be of service to all who study the methods of extracting the precious metals on this slope.—Daily Alta.

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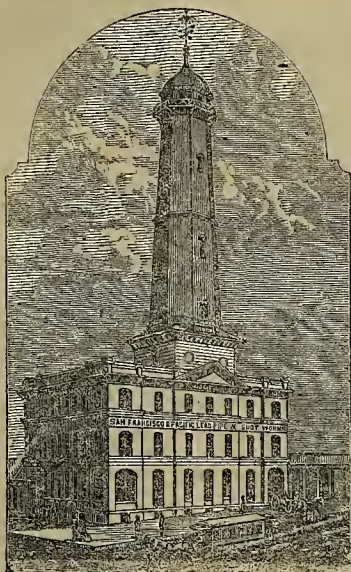
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THE SCIENTIFIC PRESS.—An Illustrated Pacific States weekly, devoted to mining, farming, mechanic arts and industrial progress, generally, but especially in the west. This work is published in San Francisco, at \$4 per annum. Mr. M. is here to canvass for subscribers, with specimens of the work, which we can commend to our readers—the general public.—*Desert Daily News, Salt Lake.*

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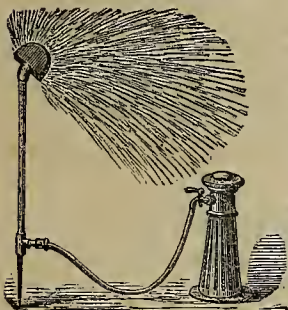
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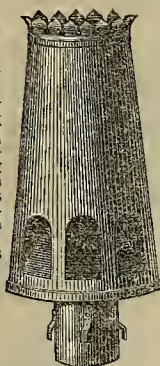
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Prospectus—July 1, 1870.

It is hardly necessary in commencing a new volume, as we do to-day, to remind our readers that we are constantly pushing forward in our efforts to improve the SCIENTIFIC PRESS. We have never relied upon promises of what we propose to do; but have always been able to point to what we have done in the past, as the best assurance of what is in store for the future.

At the opening of the present year we reduced the price of the paper from \$5 to \$4 per annum, believing that the modified condition of affairs on the Pacific slope, growing out of the opening of the Overland Railroad, and other facilities for more frequent intercourse with other portions of the world, fully warranted such a step. Our anticipations have been more than realized in the increase of subscriptions, so much so as to enable us to give an additional amount of reading matter.

Illustrations.

We have also made such arrangements as are now enabling us to greatly increase the number, interest and variety of our illustrations. While this improved feature adds largely to the cost of publication, we feel confident the additional interest and value thereby given to our columns, will be duly appreciated by a discerning public.

The Miner, the Mechanic, the Inventor, the Farmer and the Naturalist, will all find something of constant and practical interest in this direction. The Miner will always be presented with everything new in the way of reducing ores, whether by mill process or by smelting.

All important improvements in Machinery will be promptly presented to the Mechanic, while the Inventor will be as regularly furnished with hints and stepping stones upon which others have mounted, and from which he in turn will be able to see still further and more clearly into the undivided future.

The ideas and instructions that we are here constantly placing before the Farmer will speak for themselves. If the reader will pardon us for a mere hint at the future, we venture the promise that no one thing that is new and of any real practical importance in the mechanics of Agriculture shall be omitted in that portion of our illustrative department.

The Naturalist too will now and then find something to interest and instruct; while the general reader is never forgotten.

How far we have succeeded in making the SCIENTIFIC PRESS acceptable to the public, we can only judge by the words of hearty commendation which we are constantly receiving, not only from our brethren of the press, but from an innumerable private letters, from the readiness with which our patrons pay up their annual subscription and from the rapid increase in the list of subscribers.

A reference to the index published in our last issue affords the best evidence of the wide field of research and instruction in which we are engaged. The present number affords ample evidence of the truth of what we have written, and to strangers our subscribers can fully attest that the present is but an average of our issues on the first of each month.

The carefully digested mining summary which we give each week; the chronicles of scientific and mechanical progress; the large and varied information on agricultural matters, and the many matters of general and special interest, together with the numerous illustrations, in all the various departments, combines an amount of information which for value, interest and variety, will not suffer in comparison with any periodical of the day.

We trust that those for whom the Press is published will exert themselves to enlarge its sphere of usefulness by extending its circulation, and thus strengthening the hands of the publishers for still greater efforts, feeling satisfied that the benefit will be mutual.

July 2d, 1870.

PATENTS ON THE PACIFIC COAST.—To those of our friends who desire to keep posted upon inventions upon the Pacific coast we say, subscribe for the SCIENTIFIC PRESS, published by Dewey & Co., San Francisco, Cal., at \$4 per year. The opening of the railway across the continent has given to all patents a much higher value in that portion of our country known as the Pacific slope, and all interested will find the paper above alluded to a valuable reference. *Mechanic and Inventor, Detroit, Michigan.*

NEW VOLUME.—The San Francisco SCIENTIFIC PRESS has entered its 21st volume, and is one of the most valuable journals published. Containing, as it does, articles on every branch of home industry, the sciences, arts, etc., the Press should find its way into every hamlet in the land. The four dollars expended for a year's subscription to this journal may be repaid by the information gained by the perusal of only one number. *Alpine Chronicle.*

The Scientific Press is devoted specially to matters of machinery, inventions and processes pertaining to the development of mines, and gives free and full discussions of such matters. Terms, \$4 per year. *White Pine News, May 4th.*

SCIENTIFIC PRESS.—The Mining and Scientific Press, which has been a faithful exponent of the scientific, mechanical and industrial interests of our western coast, entered upon its twentieth volume on the first of January, and at the same time adopted the shorter and equally comprehensive title of Scientific Press. This journal has, for some time past, maintained a department specially devoted to agricultural matters, and has filled it with useful and interesting information. *Contra Costa Gazette, Jan., 1870.*

A VALUABLE BOOK FOR INVENTORS AND ARTISANS.—Dewey & Co., publishers of the SCIENTIFIC PRESS and Patent Agents, have just issued a neat little volume of over five hundred well executed cuts of the principal mechanical movements known. These useful representations of the various appliances of power are printed side by side with explanatory notes, which makes the subject clear to every reader. Such a book should be in the hands of every mechanic, and form part of every public school library. It is a handy book, and cheap enough for every farm, shop and factory. Sent to any address from the SCIENTIFIC PRESS office, postpaid, for \$1. *New Age.*

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INTERFERING APPLICATIONS are conducted with spirit and ability on the most favorable terms, by DEWEY & CO. It sometimes happens that an applicant finds his invention has been patented by another, but more recent discoverer. In such cases the prior discoverer can obtain full right to the invention if he can produce tangible evidence of priority.

When patentees are threatened with interference they should consult able and responsible agents before they either allow themselves to be backed down from their rights, or trespass upon the rights of others. We will always counsel and advise in such cases upon the most reasonable terms—often saving clients heavy damages and exorbitant fees.

Advancing Cases.

If any case placed in our hands meets with rejection, we do not wait to write and inform the inventor of this fact, (as is the case with most agents,) but our representative at Washington proceeds at once to examine the stated objections, and if it be not a just and unavoidable decision, the claims of the inventor will be persistently argued before the Examiner, and if possible the decision reversed.

Reasons for Success.

We would especially call the attention of the inventive public to the fact that our Patent Agency is taking out a larger number of Patents than any other agency west of the Mississippi River. We do our work promptly and thoroughly, and refer to our standing amongst inventors as an evidence of our success in our special department. Our work is all done inside of our office, BY COMPETENT AND RELIABLE PERSONS, who have been for years interested and associated with us. We therefore are not compelled (like many agencies) to trust valuable and important inventions prematurely to outsiders, to have part of the case prepared, but inventors can depend that, from the time their cases are first placed in our office, they are kept with proper secrecy until full rights are secured in the Patent Office in Washington. This is an important point in the proper prosecution of Patent business. It is a notorious fact that some prominent agencies trust a considerable portion of their cases to apprentices and amateurs. A deficiency or want of attention to the small details of any kind of business will often prove as harmful as a flagrant violation of the most important rules which govern and control it.

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Publishers and Patent Agents, No. 414 Clay street
below Sansome, San Francisco.

BOOK ON EARTHQUAKES.—A Treatise on Earthquake Dangers, Causes and Palliatives, by Prof. Thomas Rowlandson, comprising Earthquake Dynamics; Earthquake Waves, Sound that attends Shocks, Lime, Mortar, etc., Cosmogony and Seismogony, Phenomena of the Neapolitan Earthquake of 1857, and General Observations respecting Structural Arrangements. Published by Dewey & Co., Scientific Press Office, San Francisco, 1869, containing 96 pages. Price, 50 cents; postage free.

LAYRES' ELEMENTS OF COMPOSITION.—This is a valuable book of 166 pages, containing plain and simple instructions in the art of composition. It should be read by all intelligent persons who desire to write or speak English correctly or eloquently. Printed and sold by Dewey & Co., Scientific Press Office.

SCIENTIFIC PRESS, FROM SAN FRANCISCO
This Mining, Farming and Mechanic Arts Journal, after a most singular absence from our table, has again made its appearance and is heartily welcomed. It is the recognized mining organ of the Pacific coast, and rightly so, since it is conducted ably and honestly in all respects. It scorns humbug and avoids all merely speculative commendations of sudden discoveries in the treatment of ores. The reliability of the Press in all matters pertaining to mines and mining news, makes it a most desirable paper for our people here. Per annum, \$4. *Colorado Herald, July 6th.*

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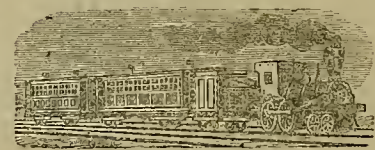


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THE SCIENTIFIC PRESS now stands at the head of such papers on this coast, and is for miners, mechanics, and farmers, a most valuable journal.

It is a 16 page journal, contains the latest and most reliable news from every mining section of the Pacific; gives full descriptions with engravings of every new and valuable mechanical invention, devotes considerable space to the agriculturist, horticulturist, and florist, and keeps its readers well posted on all the facts and improvements in the arts and sciences.

Mr. M. is canvassing this Territory for subscribers at four dollars per annum, and we cordially recommend the SCIENTIFIC PRESS to our citizens and welcome it to our exchange list. *Boise City Chronicle.*

Free Information for Inventors and Patentees.



Our Patent Office Circular, relating to U. S. and Foreign Patents, Caveats, Patent Laws, Rights of Inventors, Valuable Hints, Illustrated Mechanical Movements, etc., comprises 48 pamphlet pages, embracing the following

List of Contents:

Advancing Cases; Advantages, Important; Assignments, Forms, Cost, etc.; Caveats of what they consist; Form of Cost, how Filed effectively; Cost of Obtaining Patents; Confidential Advice; Copies of Patents Assignments, etc.; Copyrights; Dangers of Delay; Designs, Patents for; Engravings and Illustrations; Enche; Condensing Beam—Illustrated; Extension of Patents; Foreign Patents—all Countries; Foreign Inventors; Hints to Inventors; Government Fees, List of; Home Counsel; How to Obtain Patents—Steps Necessary; Hydrostatic Press—Illustrated; Interferences; Influence at Washington; Laws (U. S.) and Decisions Relating to Patents; Lathe, Engine—Illustrated; Letters Patent—of what they consist; Library, Reports, Law Books; Locomotive Engine—Illustrated; Medicines or Compounds, Patent for; Mechanical Movements—Illustrated; Mining and Scientific Press Office; Processes, Patents for; Record of Pacific Coast Patents; Reissues; Rejections—Cause and Remedy; Reports of Patent Office; Rights and Privileges of Inventors and Patentees; Saving of Time; Self-evident Facts; Selling Patent Rights; Springs, Various Kinds—Illustrated; Stamp Battery; Quartz—Illustrated; Telegraph, Patent Business by; Unsuccessful Applicants; Who can Obtain Letters Patents; What Claims can be Patented; Worthless Patents, Candid Reasoning.

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Illustrate your Inventions

IN THE SCIENTIFIC PRESS,

An illustrated journal of Mining, Farming, Mechanic Arts and Industries on the Pacific Coast. It costs no more for a superior engraving by our experienced artists than is usually charged for a less perfect picture. If you wish to introduce a new invention properly before the public, the first steps in so doing are important ones. A full description and correct representation in the Press will go farther and prove more quickly effective than any other means.

The fact that an illustration is admitted into our columns, guarantees the invention important consideration in the minds of thousands of the most intelligent readers—at home and abroad—who would not notice it so favorably or so thoroughly, if at all, when presented through an unreliable medium or indifferent source.

The model of an invention sent to us is sufficient for making a good engraving. Sometimes a photographic view is sufficient; but it is always best accompanied with drawings or a copy of the patent. A first-class illustration has proved to be one of the best and cheapest means of obtaining purchasers for a good machine or a valuable patent.

Cuts ordered for illustration are the property of the inventor who pays for them, and can generally be used for circulars, pamphlets, books, or other newspapers. The engravings to be seen in each issue of the SCIENTIFIC PRESS are a fair sample of the work of the artists who can always be found in our office.

DEWEY & CO.,

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IMPORTANT BOOK!

JUST ISSUED.—Roasting of Gold and Silver Ores, and the Extraction of their Respective Metals without Quicksilver. By G. Kustel, Mining Engineer and Metallurgist; Author of "Nevada and California Processes of Silver and Gold Extraction," and "Concentration of all Kinds of Ore."

Illustrated by numerous engravings. Published and sold by Dewey & Co., proprietors SCIENTIFIC PRESS, San Francisco.

This Book contains 120 pages. Price, \$2.50, gold, or \$3 currency, postage paid.

TREATMENT OF REBELLIOUS SILVER ORES, by Charles H. Aaron—a pamphlet of eight pages of concise reading, of practical value to parties interested in the subject. Printed and sold by Dewey & Co., at this office, for 25 cents, post paid.

THE SCIENTIFIC PRESS.—Mr. W. H. Murtry, special traveling agent for the Scientific Press, is a very sociable and pleasant gentleman. He speaks in high terms of the mineral resources of Owyhee, and predicts for our camp a bright future. After examining the mineral and agricultural resources of Idaho, he will proceed overland to Montana and Colorado. He has secured quite a large list of subscribers for the Scientific Press, which is devoted to mining, farming and the mechanic arts, and is inferior to no publication of the kind in the United States. *Avananche, June 18th.*

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[illegible]

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TITLE-UNITED STATES PATENT:

These lands were all selected by competent persons, as first class wet lands, and are now offered to parties desiring to occupy them, in quantity from one-half section upward, at a price of \$100 per acre, and on a liberal credit. The valley of the San Joaquin is the wheat region of the State, and is destined to become the granary of this coast. * Wheat there is never liable to be destroyed by rust, as it often is on good lands near the coast, and there is exposed to fogs and high winds. The soil is a rich sand beam of great depth, and is perfectly suitable. It is claimed to be superior to the average farming lands in the State, and is inexhaustible to land in other locations that is held at \$40 to \$70 per acre. None of it is for grain, and the surplus is suitable for stock raising and for all kinds of vegetable fruits and berries. The land is well covered with wild clover and alfalfa. There are numerous creeks, and good water can be had by sinking a moderate depth upon any section of either sect. The Stockton and Vallecito Rail Road, and the Southern Pacific by its last survey, will pass through a part of this coast. * With present facilities, the cost of transporting wheat to San Francisco is but \$3 per ton, which rate will be materially reduced upon completion of either of the above rail roads. California has been pictured as the vineyard of the world, and future years will verify the promise. In no part of the State does the grape grow so well as in this section. The grapes are of the best quality, and the vines are well adapted for the production of wine. The valley rail Road are completed, and the road will be in operation through these lands in time for the next harvest.

*Patents and Inventions.***A Full List of Patents Issued to Pacific Coast Inventors.**

[FROM OFFICIAL REPORTS TO DEWEY & CO., U. S. AND FOREIGN PATENT AGENTS, AND PUBLISHERS OF THE SCIENTIFIC PRESS.]

FOR THE WEEK ENDING AUGUST 23D.

ROASTING FURNACES FOR ONES.—John Col-
lom, Empire City, Colorado Territory.

BALEINO-PRESS.—Courad Locher, Oroville,
Cal.

BUCKET FOR PADDLE-WHEELS.—Alfred C.
Lord, San Francisco, assignor to himself
and W. J. Millor, same place.

REFINING-SHEARS.—Enoch J. Mareters,
Shaw's Flat, Cal.

FRUIT-CODER.—Enoch J. Marsters, Shaw's
Flat, Cal.

NOTE.—Copies of U. S. and Foreign Patents furnished
by DEWEY & CO., in the shortest time possible (by tele-
graph or otherwise), at the lowest rates. All patent
business for Pacific coast inventors transacted with
greater security and in much less time than by any other
agency.

Notices of Recent Patents.

DESIGN FOR SEAL STAMP.—J. F. Pages
S. F. After having served for centuries to
embellish the pages of history and of nar-
rative, the sphynx is now brought to serve
the practical purpose of a design for a hand
stamp, for which, it may be said, it is par-
ticularly adapted and appropriate. Mr.
Pages has chosen this as the design on
which he has obtained a patent. The figure
is that of a human head, surmounted by a
heavy cowl or hood, placed on the body of
a lion. The peculiar conformation of this
figure is particularly well suited for the
purpose on account of the disproportion of
weight between the front and rear parts.
Moreover, the broad surface presented by the
cowl is well adapted for striking with the
palm of the hand, in order to give the im-
pression. It might have been thought
that the appropriateness of the design would
have been appreciated long ago; but it
was not, and Mr. Pages is now proprietor
of the idea.

BEVERAGE.—A. S. Taylor, S. F. Probably
there are but few within a reasonable dis-
tance of our office, who have not tasted of
the beverage called "Champagne Mead."
Certainly there can be no one who has not
heard of the pleasant beverage. But it
may not be known to all that it is strictly
Californian in all respects. If they doubt
this, we advise them to test it for them-
selves.

IMPROVED POTATOE DIGGER.—U. R. Har-
low, Farmersville, Tulare County. This is
an improved device which bids fair from
its simplicity and efficiency to prove of
great benefit to the farmer. It is a ma-
chine which resembles, in its general fea-
tures, a common single plow, having the
beam and handle constructed in the same
manner. Two mold-boards are employed,
standing at an angle to each other and up-
on each side of the beam, which plow
along under the hills of potatoes and raise
them with the dirt. Long fingers are ar-
ranged at the upper side of the mold-boards
through which the dirt passes and falls in
the rear, while the fingers are near enough
together to prevent the potatoes from pass-
ing through them, and those succulent ar-
ticles of diet consequently roll off to one
side, out of the way, upon the unplowed
ground. We saw, the other day, another
potatoe digger, apparently inferior to this,
which a French publication had seen
worthy to illustrate. The inference is ob-
vious.

SMASH-UP.—On Tuesday, a train on the
California and Oregon Railroad met with
an accident while on the trestle-work be-
yond the Feather River bridge. One of
the cars got off the track and fifteen freight
cars were thrown over and down a distance
of about 20 feet. Luckily no one was
hurt, except two persons slightly injured.
But the company loses, it is said, some
\$25,000.

Cattleya Mossiæ—A Beautiful Orchid.

We give herewith a representation of the
Cattleya Mossiæ, about one-third of its nat-
ural size. This plant belongs to an orchid-
aceous group of plants, of a somewhat eu-
rious organization, and with habits so un-
like most plants, that, except in few instan-
ces it has until recently been found quite
difficult to keep them alive any considera-
ble time after removing from their origi-
nal places of growth. This difficulty has
recently, however, been so effectually over-
come, that the orchid is fast becoming com-
mon. The flowers of these plants are usu-
ally very beautiful, of quite singular form,
and susceptible of great improvement from
careful cultivation. Species which in their
native homes appear with only two or
three of their curious blossoms in a cluster,
are found, under careful cultivation, to
yield from ten to twenty, and even thirty
blossoms.

No more difficulty is now found in domes-



Cattleya Mossiæ—A Beautiful Orchid.

ticating this plant, than is encountered in
cultivating the hyacinth, tulip or dahlia.
It was formerly thought indispensable to
attach them to a piece of cork or bark, or
to the trunk of a tree; but that treatment
has been pretty much entirely abandoned,
and they are now cultivated in dried peat
or even common garden mold, when well
mixed with decayed woody or fibrous
matter.

The plant here shown is one of the
most magnificent of the entire family; the
color and marking of the flower being
very striking. The petals are of a beauti-
ful rosy lilac. The inside of the tubular
part of the labellum or front segment of
the flower is yellow, the other portion lilac,
beautifully streaked and blotched with
crimson, and the whole is peculiarly frag-
rant. This plant is a native of Venezuela,
and was first sent to a Mrs. Moss, of Eng-
land, after whom the species was named.
We find it figured in the *Rural New
Yorker*, from which journal we have copied
the engraving.

REFINING AND DESILVERIZING LEAD.—
A late French invention is the refining and
desilverizing of lead by means of steam.
According to the patent, as we learn from
the London *Mining Journal*, the lead is
melted in a vessel and then run into a lower
vessel or vat, where steam is introduced
through a central pipe, leading down to
near the bottom of the vessel. The steam,
passing up through the molten lead, effect-
ually oxidizes all impurities, which rise as
scum to the top of the metal, whence they
are removed. The introduction of the
steam at the same time produces a violent
ebullition of the lead, and causes it to
crystallize. When the crystallization has
proceeded to a sufficient extent, the steam
is shut off and the remaining liquid por-
tion of the lead, in which the greater por-
tion of the silver is concentrated, is run off.
A fresh charge of melted lead, holding a
percentage of silver approximating that of
the crystals formed, is now introduced
from the upper or melting vessel, and the

New Books.

THE PRACTICAL AMERICAN MILLWRIGHT
AND MILLER: Comprising the Elementary Principles
of Mechanics, Mechanism and Motive Power, Hydraul-
ics and Hydraulic Motors, Mill Dams, Saw-Mills, Grist-
Mills, the Oat Meal Mill, the Barley Mill, Wool Card-
ing and Cloth Fulling and Dressing, Windmills,
Steam Power, etc. By David Craig, Millwright. Il-
lustrated by Numerous Wood Engravings and Fold-
ing Plates. Philadelphia: Henry Carey Baird, Indus-
trial Publisher, 406 Walnut Street. 1870. 8 vo. 432
pp. Price \$5. By mail, free of postage.

A perusal of a number of chapters of
this book has convinced us, that it is one
of the most successful volumes, intended
for the instruction of hard-working, prac-
tical men which we have ever received.
It bears evidence throughout of hav-
ing been written by one who has him-
self worked out, by personal experience,
the problems continually presenting them-
selves. As he has labored intelligently,
his results are valuable, especially as he is
enabled to get at and explain those points
so often passed over by the theorist, but
so troublesome to the every day mechanic.
He avoids the use of terms which cannot
readily be understood, using only plain,
every-day language. Naturally his style
is often faulty, from a literary point of
view, and he uses such expressions as
"allowing water to get dry," where he
means the object moistened, etc. But such
faults do not injure the object of the book
which "lays no claim to literary merit
further than to convey the knowledge and
experience, gathered in the career of a
hard-working, practical millwright and
miller, in plain, concise terms, without
any algebraic or scientific mystery." We
are ready to commend the volume. It will
help to clear up many cloudy matters
for the millwright, and show him many points
of which he may be ignorant. It gives a
short, concise, plain introduction on me-
chanical power, with practical illustra-
tions, and then takes up the various parts
of mills and milling machinery in detail.
We use it ourselves with profit.

THE YALE UNIVERSITY SCHEME. New
Haven. 1870.

This is a small pamphlet, by Prof. J. D.
Dana, called out by the unexpected pub-
lication of a familiar letter which appeared
to require an explanation, not necessary
when addressed to Yale graduates alone.
It treats of the classical and the scientific
departments at New Haven, showing their
relations to one another and to the Uni-
versity.

HEATH'S INFALLIBLE GOVERNMENT COUN-
TERTERT DETECTOR. Boston, Mass., and Washington,
D. C. Published by Leban Heath.

This is gotten up in very fine style, per-
mission having been obtained from the
Secretary of the Treasury for the use of
certain plates for the illustrations.

BARBAROUS DESTRUCTION OF FISH.—The
Fresno *Expositor* states that parties in
Merced county have stretched wire nets
across the San Joaquin river, in which
they catch salmon as they run up stream,
and feed the fish to their hogs. As a con-
sequence, the running of fish in Fresno
county is entirely suspended, whereas,
they should be passing up in large num-
bers.

PAUL'S ELECTRIC PROCESS.—By a refer-
ence to our advertising columns it will be
seen that this process is able to speak for
itself in its practical working. Actual re-
sults are here recorded. Mr. Paul seems
to be cutting down the costs of building
quartz mills, as well as doing better work.
This is what the country wants.

THE CROPS IN IRELAND.—Are said to pre-
sent a most favorable appearance—includ-
ing grain, grass, and roots. Late rains have
done a great amount of good.

THE copper works at Vershire, Vermont,
are employing from 250 to 300 workmen,
yield about 125 tons of ore per week, and
claim to be the only copper mines in the
country which pay expenses.

Professional Cards.

JOHN GORMAN,
NOTARY PUBLIC.
COMMISSIONER FOR
Nevada, New York, Etc.
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JOHN ROACH, Optician,
Has removed from 522 Montgomery street to
540 Washington street,
East of Montgomery.
Surveying Instruments made, repaired and adjusted
2v17-5m

GILES H. GRAY, JAMES M. BAYEN,
GRAY & HAVEN,
ATTORNEYS AND COUNSELLORS AT LAW,
In Building of Pacific Insurance Co., N. E. corner Cal-
ifornia and Leidesdorf streets,
SAN FRANCISCO. 4v16

REMOVAL.

DR. BEERS, Dentist,
Has removed from Tucker's Building to
109 Montgomery street, three doors
north, opposite the Occidental. 2v20-3m

Dr. J. H. PAINE, Dentist,
Wadsworth House, No. 225 Bush street,
between Cosmopolitan and Occidental
Hotels, San Francisco.

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A. H. JORDAN,
Architect, Designer and Draughtsman,
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1v14-9v

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BARTLING & KIMBALL,
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Paper Rulers and Blank Book Manufacturers.
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Screen Punching of all kinds and qualities for Quartz,
Cement, Flour and Rice Mills, at Eastern prices. 1v20

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HOBBS, GILMORE & CO.,
Manufacturers of Boxes,
Market Street, bet. Beale and Main.
For sale—Mahogany, Spanish Cedar, and other Woods.

J. M. STOCKMAN,
Manufacturer of
PATTERNS AND MODELS,
(Over W. T. Garratt's Brass Foundry,
S. E. Corner of Mission and Fremont sts.,
1v14-1v16

THOMPSON BROTHERS,
EUREKA FOUNDRY,
and 131 Beale street, between Mission and Howard
San Francisco.

LIGHT AND HEAVY CASTINGS,
of every description, manufactured 2v16-9v

SAN FRANCISCO GLASS WORKS.

NEWMAN & DUVAL, Proprietors.
Office and Works, foot of Fourth Street.
These Works will be in full operation on or about the
12th of September. Orders for all varieties of
Green and Black Hollow-ware, Glass, such as Demi-
johns, Carboys, Soda, Wine and Brandy Bottles, etc.,
etc., will receive prompt attention. Private Moulds
made to order from \$10 to \$30. 2v21-4t

L. SCHUMANN,
PIONEER
Meerscham Pipe Manufacturer,



No. 341 KEARNY STREET,
Between Bush and Pine streets, San Francisco.
The first and only Manufactory on the Pacific Coast.
MEERSCHAUMS MOUNTAIN WITH SILVER. Meerscham
Pipes Boiled and Repaired. Amber Mouth-pieces Fitted.

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M. BURKE, PROPRIETOR,
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Job work of all kinds in the Drug and Spice Line
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give it a trial, feeling confident that they will find it of
very great value. By those who have used it thor-
oughly, one pound is pronounced to be equal to two
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ment Report of the Department of Agriculture for 1865,
it stands in the following relation to other feeds as to
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August 2, 1869. THOMAS MOONEY, President. 6v19-1m

Railroads and Steamers.

Central Pacific Railroad.

Time Schedule, August 9, 1870.

EASTWARD.		Express Train Daily.	Pass'ger Sunday excepted	Mixed.*	
Pan Francisco	Leave	8:00 A.M.	4:00 P.M.	7:00 P.M.	
Oakland	"	8:30 A.M.	4:30 P.M.	"	
San Jose	"	7:45 A.M.	4:55 P.M.	"	
Stockton	"	12:12 P.M.	7:15 P.M.	"	
Sacramento	Arrive	1:50 P.M.	9:30 P.M.	7:40 A.M.	
Sacramento	Leave	2:10 P.M.	"	8:10 A.M.	
Marysville	Arrive	4:00 P.M.	"	1:15 P.M.	
Chico	"	6:45 P.M.	"	4:45 A.M.	
WESTWARD.		Express Train Daily.	Pass'ger Sunday excepted	Mixed.*	
Colfax	Leave	5:00 P.M.	"	4:40 P.M.	
Reno	"	1:15 A.M.	"	5:45 A.M.	
Winnemucca	"	3:10 A.M.	"	7:15 P.M.	
Battle Mountain	"	1:00 A.M.	"	3:50 A.M.	
Carlin	"	3:10 P.M.	"	10:00 A.M.	
Elko	"	4:40 P.M.	"	12:30 P.M.	
Keilton	"	1:30 A.M.	"	7:45 A.M.	
Ogden	Arrive	6:00 A.M.	"	5:00 A.M.	
LOCAL TRAINS.					
3:00	Leave	San Francisco	Arrive	10:40 7:30	
3:20	"	Oakland	"	10:12 7:05	
4:40	11:05	"	"	8:40 5:35	
5:30	12:00	arrive	San Jose	leave	7:45 4:35
From		From	From		
SAN FRANCISCO.	OAKLAND.	BR. OAKLYN.			
B 6:50 A. M.	B 5:40 A. M.	B 5:30 A. M.			
D 8:00 "	D 6:55 "	D 6:45 "			
D 10:00 "	D 9:00 "	D 7:00 "			
D 11:00 "	D 10:00 "	D 8:00 "			
D 12:00 P. M.	D 12:00 P. M.	D 11:00 "			
D 3:00 "	D 2:00 P. M.	D 2:50 P. M.			
D 4:00 "	D 3:00 "	D 3:50 P. M.			
D 5:00 "	D 4:00 "	D 4:50 P. M.			
D 6:45 "	D 5:20 "	D 5:10 "			
D 11:30 "	D 6:55 "	D 6:45 "			
From		From	From		
SAN FRANCISCO.	BARRETTA.	HAYWARDS.			
B 7:20 A. M.	B 5:45 A. M.	B 4:30 A. M.			
E 9:00 "	E 7:25 "	E 7:00 "			
B 9:20 "	B 7:45 "	B 8:30 "			
E 11:30 "	E 9:30 "	E 9:10 "			
L 1:30 P. M.	L 11:30 "	L 11:00 "			
L 4:30 "	L 3:35 P. M.	L 3:55 P. M.			
L 6:00 "	E 6:15 "	E 6:45 "			
Sundays excepted.		Sundays only.	Sundays only.		
D to Oakland only.		C to Fruit Vale only.	C to Fruit Vale only.		
A. N. TOWN, Gen'l Supt. C. P. R. R.		T. H. GOODMAN, Gen'l Passenger Agent, Sacramento.			



GOING NORTH—DAILY (SUNDAYS EXCEPTED).		GOING SOUTH—DAILY (SUNDAYS EXCEPTED).	
New World Leaves San Francisco.	Trains Arrive at Callistoga.	Trains Leave Callistoga.	Trains Arrive at San Francisco.
7:30 A. M.	11:45 A. M.	11:40 A. M.	1:00 P. M.
4:00 P. M.	7:15 P. M.	8:30 P. M.	9:30 P. M.
ON SUNDAYS.		ON SUNDAYS.	
8:30 A. M.	12:20 P. M.	12:45 P. M.	5:00 P. M.
GOING SOUTH—DAILY (SUNDAYS EXCEPTED).		GOING NORTH—DAILY (SUNDAYS EXCEPTED).	
Trains Leave Callistoga.	Trains Arrive at Callistoga.	Trains Leave Callistoga.	Trains Arrive at Callistoga.
5:00 A. M.	6:45 A. M.	6:15 A. M.	10:30 A. M.
1:15 P. M.	2:45 P. M.	2:15 P. M.	7:30 P. M.
ON SUNDAYS.		ON SUNDAYS.	
10:15 A. M.	3:40 P. M.	2:30 P. M.	6:45 P. M.
TICKETS for sale at 315 Montgomery street or on board steamer New World R. S. MAYNARD, Superintendent.		TICKETS for sale at 315 Montgomery street or on board steamer New World R. S. MAYNARD, Superintendent.	
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Vallejo, April 24, 1870		Vallejo, April 24, 1870	

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The frame is up and partially enclosed and ready to roof, and will be ready for the reception of pupils after the July vacation next year. Messrs. Bngbee & Son are architects. J. W. Willur is the builder, and and T. H. Lufkin the overseer. The building is both extensive and commodious and is unique in appearance, (something unusual in large buildings). The center or main portion has a frontage of 43 feet, with two wings on each side, measuring 36 and 47 feet each. The north and south wings are 134 feet in depth, having large octagonal bay windows immediately behind the main portion of the Institute there is quite a large building to be used for a dining room, which connects by a corridor with the veranda in such a way that it might be considered a part of the main establishment. There is to be yet another building erected in rear of the dining room for kitchen purposes. The Institute is three stories high, the lower story being 16 feet and the others 15 and 12 respectively. It is surmounted by a French roof, the second story floor being supported by a truss, and the lower story being unobstructed by supports, making one of the most spacious halls in the country, and measuring 47 by 134 in the clear.

A magnificent hall, 12 feet wide runs through the entire length of the building. It is so constructed with regard to light, that there will be no dark rooms in the whole Institute. It will be fitted with gas and water pipes. An extensive reservoir will be constructed on one of the adjacent hills to contain the supply of water conducted from a never-failing mountain spring in the immediate vicinity.—[Oakland News.]

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About twelve years ago says Carter's Circular, San Francisco, one of our surveyors had occasion to make a survey of land near the ocean. The tract surveyed was then nearly half a mile distant from any sand drifts. A short time ago he was called upon to make another survey at the same place when to his astonishment he found that it was covered with sand-dunes, the drifts having advanced inward over a half mile since his first visit, twelve years before. At this rate, if they were not checked, it would not take very long for the aggressive sand-drifts to cover every foot of the entire peninsula on which the city is built.

Marysville has a population of 4,800.

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[Issued July 1870.]

ROASTING OF GOLD AND SILVER ORES AND THE EXTRACTION OF THEIR RESPECTIVE METALS WITHOUT QUICKSILVER.

BY G. KUSTEL,

MINING ENGINEER AND METALLURGIST,
Author of "Nevada and California Processes of Silver and Gold Extraction and Concentration of all kinds of Ores."

CONTENTS:

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Classification of Ores; Important Silver Ores; Difference between Real Silver Ores and Argentiferous Ores; Important Combinations; Means of Desulphurization; Means of Reduction; Desulphurization of Ores Not Efficient; What a Chloride is, and How Chlorination is Effected; Means of Separating the Metals from Chlorides.

II. ROASTING OF ORES.

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Every vein miner and millman will find much in it which will show him how to avoid many difficulties, and how to make many improvements, and throughout the book passages are continually occurring which will meet each one's individual troubles to a very considerable extent.

The book is not only a valuable condensation and simplification of much that has already been published, either in German or English, but it goes beyond all others in giving now and practical improvements in the treatment of ores. In the various descriptions and explanations, hints and remarks are being continually made which give it a peculiar value for the coast, and that which is new is founded on good theoretical knowledge, and proved by a large practical experience with our various ores.

It is divided into four parts: I. The Introduction, treating briefly of ores, and of Desulphurization, Reduction and Chlorination in general; II. Roasting of Ores, entering into a detailed description of the various furnaces and processes, and giving explanations of the latter; III. Extraction of Silver by Lixivation, showing how this is done, and when it is advisable, especial reference being also had to amalgamation; and IV. Extraction of Gold by Chlorination.

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Any of the above Books will be furnished by return mail or express, on receipt of price, in coin, postage added. Any other books desired will also be furnished at the lowest San Francisco retail prices. Address, DEWEY & CO., Scientific Press Office, San Francisco.

The Scientific Press, published at San Francisco, has entered upon its 21st volume. It is a journal devoted to art, science, mining and agriculture. It should be the constant companion of every farmer, miner and mechanic on the Pacific coast. We consider it one of our most valuable exchanges and are pleased to note its signs of prosperity. *Tuolumne City News, July 8th.*

W. H. MURRAY, traveling agent for the San Francisco Scientific Press, arrived in town on Sunday from a protracted visit to the mining districts in the northern country and Idaho. He reports mining matters generally in a flourishing condition, and he is particularly impressed with Copo district. He goes to Mineral Hill and Eureka from here.—*Elko Independent, July 6th.*

\$1. Postage Paid. \$1.

A CHEAP AND HANDY BOOK

—FOR—

Mechanics, Inventors and Students.

SCIENTIFIC PRESS

NEW EDITION

—OF—

507 Mechanical Movement.

PUBLISHED BY

DEWEY & CO.

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Machine—Bohenberger's, Drilling, Polishing, Punching, Warp-dressing; Main, Flexible Water; Maintaining Power; etc.—Gas (wet and dry), Water; ill—Barker's, Crushing, Tread, Wind; Miscellaneous ones not; oil—oil—muting Traverse, Rocking, Self-reversing, Shuttle; Motions—Feed, Link, Parallel, Pump, Traverse, Variable Traverse.
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Test, Friction; Thrutle, Spinning; Toggle-joint; Tongs, Lifting; Tread, Steam; Truss, Steady.
Water Machines for Raising; Weir, Self-acting; Wheel Cam, Lantern, Persian, Pin, Rag, Sprocket, Steering, Waved; Wheels—Crown, Mangle, Paddle, Water; Windlass—Chinese, Friction; Windmills; Wipers.
This book is bound in cloth, and embraces 122 pages. The illustrations are plain, and each figure is clearly described on the page opposite to it. It is a low-priced book for its kind, and there are few persons who have to do with machinery, or are interested in understanding the science and principles of motion, who will not be benefitted and satisfied by its purchase.
A liberal discount made to the trade. Single copies, \$1—sent postage free. Address orders,

Advertising and Subscription

Rates for the Scientific Press.

SUBSCRIPTIONS IN ADVANCE.—One year, \$4; six months, \$2.50; single copies, 10 cents; Monthly Series, \$4.50 per annum; Quarterly Series (stiff paper binding) \$5.

ADVERTISING RATES.

We shall adhere to the following rates for advertising in the SCIENTIFIC PRESS from this date:

in the SCIENTIFIC PRESS from this date:				
	1 week.	1 month.	3 months.	1 year.
One sq. (10 lines agate).....	\$1 50	\$ 3 00	\$ 8 00	\$ 32 00
Two squares.....	3 00	6 00	15 00	60 00
Three squares.....	4 50	9 00	20 00	75 00
One-fourth column.....	6 00	12 00	28 00	100 00
Half column.....	12 00	20 00	54 00	200 00
One column.....	20 00	40 00	100 00	400 00

RATES BY THE LINE.

One inch.....	2.00	5.00	10.00	36.00
Two inches.....	3.75	7.00	18.00	70.00
Three inches.....	5.25	12.50	27.00	105.00
Four inches.....	6.75	16.00	36.00	140.00

Per line.—One week, 25 cents; one month, 80 cents; three months, \$2; one year, \$5.

Per line, ten lines or more.—One week, 20 cents; one month, 30 cents; three months, 80 cents; one year, \$3.20. MINING AND LEGAL ADVERTISEMENTS will be inserted at special rates—less than one-half the cost of daily publication.

Particular attention will be given to preparing engravings, inserting advertisements in conspicuous, novel and attractive form. We will otherwise assist advertisers in getting up their notices, when desired.

All advertisements in the Press appear in both the MONTHLY and QUARTERLY SERIES of the SCIENTIFIC PRESS, which (by special arrangement) are placed for FREE READING in the principal hotels, steamboat and steamship saloons, depots, and public reading rooms and libraries in San Francisco and the Pacific States. Many volumes are also bound, thus affording permanent advertising.

The Press now receives the largest and best advertising patronage of ANY WEEKLY PAPER west of the Rocky Mountains.
In regard to the value of advertising in our journal, we refer with pleasure to those who can speak from experience—our advertisers. Better references, or more reliable names, cannot be found in the advertising columns of any newspaper in the world.

DEWEY & CO.,

Patent Publishers and Agents.

of the most useful institutions in the city. They are now enabled to buy their Groceries and Provisions 20 per cent. cheaper than ever before, and the very best articles in the market. The store is located at 115 Sutter street, Lick House Block.

San Francisco Metal Market.

PRICES FOR INVOICES.

Jobbing prices rule from ten to fifteen per cent. higher than the following quotations.

THURSDAY, Sept. 1, 1870.

IRON.—Duty: Pig, \$9 per ton; Railroad, 50c per 100 lbs.; Bar, 1@1½¢ per lb; Sheet, polished, 3¢ per lb; common, 1½¢@1¾¢ per lb; Plate, 1½¢ per lb; Pipe, 1½¢ per lb; Galvanized, 2½¢ per lb.

Scotch and Eng. Pig Iron, ½ ton...\$28 00 @ \$30 00

White Pig, ½ ton...28 00 @ 30 00

Refined Bar, had assortment, ½ lb...03 @ —

Refined Bar, good assortment, ½ lb...04 @ —

Boiler, No. 1 to 4...04½ @ —

Plate, No. 5 to 9...04½ @ 01½

Sheet, No. 10 to 13...04½ @ 05

Sheet, No. 14 to 20...05 @ 05½

Sheet, No. 24 to 27...05 @ 06½

COPPER.—Duty: Sheathing, 3½¢ per lb; Pig and Bar, 2½¢ per lb.

Sheathing, ½ lb...— @ 26

Sheathing, Yellow...— @ 21

Sheathing, Old Yellow...— @ 11

Composition Nails...21 @ 22

Composition Bolts...21 @ 22

TIN PLATES.—Duty: 25¢ cent. ad valorem.

Plates, Charcoal, IX, ½ box...12 00 @ —

Plates, I C Charcoal...10 00 @ 10 60

Roofing Plates...10 00 @ 10 60

Banca Tin, Slabs, ½ lb...— @ 42

STEEL.—English Cast Steel, ½ lb...— @ 70

QUICKSILVER.—½ lb...— @ 8

LEAD.—Pig, ½ lb...— @ 7½

Sheet...— @ 10

Pipe...— @ 11

Bar...— @ 9

ZINC.—Sheets, ½ lb...— @ 10½

BOMAX...— @ 35 @ 33

Machinists and Foundries.

FULTON

Foundry and Iron Works.

HINCKLEY & CO.,

MANUFACTURERS OF

STEAM ENGINES,

Quartz, Flour and Saw Mills,

Hayes' Improved Steam Pump, Brodie's Improved Crusher, Mining Pumps, Amalgamators, and all kinds of Machinery.

N. E. corner of Tehama and Fremont streets, above How ard street, San Francisco.

3-47

THE RISDON

Iron and Locomotive Works.

INCORPORATED.....APRIL 30, 1868

CAPITAL.....\$1,000,000.

Corner of Beale and Howard Streets, SAN FRANCISCO.

Steam Engine Builders, Boiler Makers, Machinists, Foundrymen, and Manufacturers of Car Wheels equal to the best imported, and guaranteed equal to Eastern Wheels.

Directors: S. F. Butterworth, Wm. Norris, Lloyd Tevis, Joseph Moore, Wm. Alvord, Chas. E. McLane, John N. Risdon.

JOHN N. RISDON.....President.

JOSEPH MOORE.....Vice President and Superintendent.

LEWIS R. MEAD.....Secretary.

21st 17-19

UNION IRON WORKS,

Sacramento.

WILLIAMS, ROOT & NEILSON,

MANUFACTURERS OF

STEAM ENGINES, BOILERS,

CROSS' PATENT BOILER FEEDER AND SEDIMENT COLLECTOR,

WILCOX'S PATENT WATER LIFTERS,

Dunbar's Patent Self-Adjusting Steam Piston PACKING, for new and old Cylinders.

And all kinds of Mining Machinery.

Front Street, between N and O streets, 1st

SACRAMENTO CITY

CALIFORNIA BRASS FOUNDRY,

No. 125 First street, opposite Minna, SAN FRANCISCO.

ALL KINDS OF Brass, Composition, Zinc, and Babbitt Metal Castings, Brass Ship Work of all kinds, Spikes, Sheathing Nails, Rudder Braces, Hinges, Ship and Steamboat Bolts and Gongs of superior tone. All kinds of Cocks and Valves, Hydraulic Pipes and Nozzles, and Hose Couplings and Connections of all sizes and patterns, furnished with dispatch.

PRICES MODERATE.

P. OALLAHER. J. H. WEED V. KINOWELL

WM. W. CANTY, JNO. BUSH, F. PRETORIOUS, JNO. CONNER.

MINERS' CO-OPERATIVE BOILER SHOP.

229 FREMONT STREET,

Between Howard and Folsom, San Francisco.

— ALL KINDS OF —

High and Low Pressure Boilers Built.

SHEET IRON WORK, ETC., ETC.

Repairing promptly attended to.

17v20-6m WM. W. CANTY, Manager.

California File Manuf'g Co.

437 BRANNAN STREET, bet. Third and Fourth.

W. WUSTHOFF, L. KRAMER, M. HARRIS, J. BURKE.


REAPER AND MOWER SECTIONS, BARS AND KNIVES COMPLETE.

At a saving of 50 per cent. New Files of every description on hand and made to order. Old Files re-cut, and warranted equal to new. Orders from the country promptly attended to.

9v19-47

JOHN WRIGHT & CO.,

DEALERS IN PICKS AND PICK HANDLES.



Sole Agents for Washoe Tool Company.

Nos. 13 and 15 Fremont Street, at Nelson & Doble's, San Francisco.

LIST OF PRICES OF PICKS:

No. 1 Round Eye Surface, 4 lbs.....\$16	No. 16 Drifting.....4 lbs.....16
" 2 " " " 4½ ".....16	" 17 " " " 4½ ".....18
" 3 " " " 5 ".....16	" 18 " " " 5 ".....18
" 4 " " " 5½ ".....18	" 19 " " " 5½ ".....20
" 5 " " " 6 ".....20	" 20 " " " 6 ".....22
" 6 " " " 6½ ".....22	" 21 Poll.....4 ".....18
" 7 " " " 7 ".....24	" 22 " " " 4½ ".....18
" 8 Flat Eye Surface.....4 ".....16	" 23 " " " 5 ".....20
" 9 " " " 4½ ".....16	" 24 " " " 5½ ".....20
" 10 " " " 5 ".....16	" 25 " " " 6 ".....22
" 11 " " " 5½ ".....18	" 26 " " " 6½ ".....24
" 12 " " " 6 ".....20	" 27 " " " 7 ".....30
" 13 " " " 6½ ".....22	" 28 Coal.....2 ".....15
" 14 " " " 7 ".....24	" 29 " " " 2½ ".....15
" 15 Drifting.....3½ ".....16	" 30 " " " 3 ".....16
No. 31 Coal.....3½ lbs.....16	

Also, PICK EYES, ready for the steel, for the Blacksmiths, which will be sold cheap.

I wish to call especial attention to

MY NEW ADZE EYE PICK,

Which was made under my own supervision while in New York.

For Beauty, Strength and Durability they are unequalled.

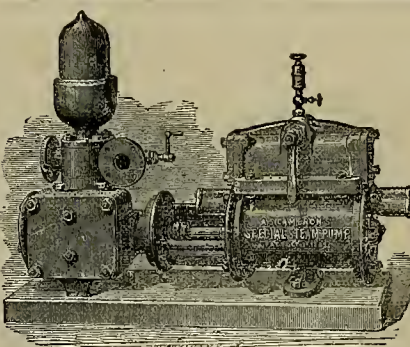
JOHN WRIGHT.

WE HAVE A LARGE STOCK OF

Extra Number One White Hickory Drifting Pick Handles, WHICH WE OFFER CHEAP.

CALL AND EXAMINE FOR YOURSELVES.

8v20-qlam3w



CAMERON'S

STEAM PUMPS.

PICKERING'S

Engine Regulators.

GIFFARD'S

INJECTORS.

BARTOL'S

STEAM TRAP.

SURFACE

CONDENSERS.

DAVID TODDART,

114 BEALE STREET.

GEO. T. PRACY'S

MACHINE WORKS,

109 and 111 MISSION STREET,


SAN FRANCISCO.

MANUFACTURER OF

PRACY'S IMPROVED

PATENT STEAM ENGINE

GOVERNOR.



These Governors are the most sensitive built, running at a high velocity and maintaining a uniform speed.

SOLE AGENT FOR

L. W. POND'S CELEBRATED TOOLS,

— SUCH AS —

Lathes, Planers, Drills, Horing Mills, Mill-lag Machines, Etc.,

Which I will offer at very low rates. Also,

MORSE'S TWIST DRILLS.

AND CHUCKS OF ALL KINDS.

MANUFACTURED OF

Steam Engines, and Mill Work Generally.

Sole Agent for TAFT'S PATENT SHEARS AND PUNCHES.

3v21

The Merchants' Exchange Bank

OF SAN FRANCISCO.

Capital, One Million Dollars.

A. N. COLEMAN.....President.

G. H. WHEELER.....Cashier.

BANKING HOUSE,

No. 418 CALIFORNIA STREET.

25v20-47

McAFEE, SPIERS & CO.,

BOILER MAKERS

AND GENERAL MACHINISTS,

Howard st, between Fremont and Beale, San Francisco.

Flue or Tubular Boilers, with plain circular or spiral courses. Upright Flue or Tubular Boilers, Locomotive and Marine Boilers, and Wrought Iron Tanks of every description.

Hydraulic Pipe supplied at reasonable rates. In ordering, give the quantity of water to be supplied, height of the fall, and total length of pipe, so as to enable the firm to determine the diameter of the pipe and thickness of iron to be used.

Repairs.—Boilers, Smoke Stacks, Pipes, etc., put in repair with promptness.

To Boiler Makers and Machinists in the Interior.—The firm is prepared to furnish estimates of Boilers, supply new Heads, Drilled and punched, and attend to the selection and forwarding of Iron for Boilers, Pipes and other purposes.

Plans, Drawings and Specifications.—The firm is prepared to make out Plans and Specifications, receive estimates, and superintend the Erection of any Machinery that may be entrusted to their care.

To Inventors.—The firm is prepared to assist in developing the plans of those who have the ideas, but not the practical experience necessary to put the same in form, by making Drawings of their Inventions, giving them the benefit of their practical knowledge in the construction of Machinery, and attending to the manufacture and introduction of their inventions.

1v16r

MACHINERY

— AT —

GREATLY REDUCED RATES.

Miners' Foundry & Machine Works,

235 TO 245 FIRST STREET,

SAN FRANCISCO.

This Establishment is now working upon the

CO-OPERATIVE PLAN,

And are thereby enabled to manufacture

MACHINERY, CASTINGS & BOILERS

AT EASTERN PRICES,

And better adapted to the wants of the Pacific States. Ascertain our prices before purchasing.

8v20q

ENCOURAGING REMARKS.—One of our readers writes: "Incorporating an agricultural department into your paper has made it acceptable and really useful all over the country west of the Rocky Mountains, and probably further; and for my part I do not see how an intelligent farmer, miner or mechanic can do without it."

PACIFIC

Rolling Mill Company,

SAN FRANCISCO, CAL.

Established for the Manufacture of

RAILROAD AND OTHER IRON

— AND —

Every Variety of Shafting,

Embracing ALL SIZES of

Steamboat Shafts, Cranks, Piston and Connecting Rods, Car and Locomotive Axles and Frames

— ALSO —

HAMMERED IRON

Of every description and size.

Orders addressed to PACIFIC ROLLING MILL COMPANY Post Office, San Francisco, Cal., will receive prompt attention.

The highest price paid for Scrap Iron 9v143m8p

50,000 ACRES

CHOICE FARMING AND GRAZING

LAND!

IN SHASTA VALLEY

In Tracts of 160 to 20,000 Acres.

Abundance of Rain and Running streams all the year round—the whole valley ALWAYS covered with a rich growth of grass.

PRICES VERY LOW -- TERMS EXTREMELY EASY

For full particulars, maps, etc., apply to

YOUNG & PAXSON,

30 No. 424 Montgomery St., San Francisco.

TREES,

FRUIT AND ORNAMENTAL.

1870..

THE LARGEST AND MOST COMPLETE STOCK

— IN THE —

UNITED STATES.

Orders for large or small quantities promptly filled, Packing performed in the most skillful and thorough manner. SMALL PARCELS forwarded by Mail when desired. Nurserymen and Dealers supplied on liberal terms. Descriptive and Illustrated priced Catalogues sent prepaid on receipt of stamps, as follows:

No. 1—Fruits.....10 cents.

No. 2—Ornamental Trees.....10 cents.

No. 3—Greenhouse.....5 cents.

No. 4—Wholesale.....FREE.

Address, ELLWANGER & BARRY,

5v21-11a ROCHESTER, N. Y.

BRIGHAM & HAWES,

Foot of Third Street, San Francisco.

DEALERS IN

Fine Granite, Building and Street

Paving Stone.

The trade supplied at WHOLESALE or RETAIL.

ALSO CONTRACTORS.

Work done to order at short notice. 7v21-3m

To Those Using Steam Power.

The Gardner Automatic Stop Governor will give you perfect regularity of speed and positive insurance against all accidents, resulting from Slipping or Breaking of the Governor or driving belts. Cost less than any other FIRST-CLASS GOVERNOR.

The Dreyfus Cylinder Lubricator

Will save 80 per cent. of Tallow, is automatic in its action and will give the Cylinder a steady supply of Tallow or Oil whenever the Engine is in motion. No wrter or leakage. Cost from \$5 to \$40, according to size.

The Nathan & Dreyfuss Patent Oil

Cups

Will save 90 per cent. of Oil. They are easily applied to all Shafting and all other bearings. For further information apply to

WILKIE DARLING, General Agent,

629 Washington St., San Francisco.

MONEY

EASILY

MADE

With our Stencil and Key-Check Outfit.

STAFFORD MFG CO.

66 FULTON ST.

N. Y.

Circulars FREE.

7v21-3m

PAIN KILLER

PROP.

PERRY DAVIS & SON

PROVIDENCE, R. I.

1840 1870

This Valuable Family Medicine has been widely and favorably known in our own and foreign countries upwards of THIRTY YEARS!

It has lost none of its good name by repeated trials, but continues to occupy a prominent position in every family medicine chest.

It is an External and Internal Remedy. For Summer Complaint, or any other form of bowel disease in child or adults, it is an almost certain cure, and has without doubt, been more successful in curing the various kinds of Cholera than any other remedy, or the most skillful physician. In India, Africa and China, where this dreadful disease is more or less prevalent, the Pain Killer is considered by the natives, as well as European residents in those climates, a sure remedy; and while it is a most efficient remedy for pain, it is a perfectly safe medicine, even in unskillful hands. Sold by all Druggists. Price 25 cents, 50 cents, and \$1 per bottle.

Directions accompany each bottle.

9v21-2t

New York Metal Market.

[CORRECTED WEEKLY FROM THE AMERICAN ARTISAN.]

NEW YORK CITY, SATURDAY, AUG. 20, 1870.

IRON.

Plg. Scotch, No 1 (cash), per ton... \$33 50 @ \$36 50

Plg. American, No. 1 (cash)..... 32 00 @ 33 00

Plg. American, No 2..... 30 00 @ 31 00

Swedish, ordinary sizes..... 115 00 @ 125 00

Common..... 72 00 @ 80 00

Refined..... 77 50 @ 95 00

Horse-shoe..... 85 00 @ 120 00

Hoop..... 105 00 @ 145 00

Scroll..... 87 50 @ 115 00

Nail-rod, per lb..... 7 1/4 @ 7 1/2

Spring..... 7 1/4 @ 7 1/2

Tire..... 7 1/4 @ 7 1/2

STEEL.

Bar, best cast, warranted, per lb... 16 1/2 @ 17 1/2

Sheet, best cast..... 16 @ 17

Sheet, second quality..... 14 @ 15

Sheet, third quality..... 12 @ 13

Saw-plates, circular..... 27 @ 28

Double-shear, warranted..... 23 @ 24

Single-shear..... 19 @ 20

Montague & Co. (cast bars)..... 18 @ 19

Machinery, found..... 11 @ 12

German, best..... 14 @ 15

German, goat..... 12 @ 13

German, eagle..... 10 @ 11

Blister, warranted..... 10 @ 11

Blister, common..... 15 @ 16

Jessop & Sons', common..... 17 @ 18

Double-refined..... 20 1/2 @ 21

Stone-as shape..... 26 1/2 @ 27

Notice.

To the Readers of the

SCIENTIFIC PRESS

Special attention is called to this

FURNITURE WAREHOUSES

George O. Whitney & Co.,

Nos. 31, 317, 319 and 321

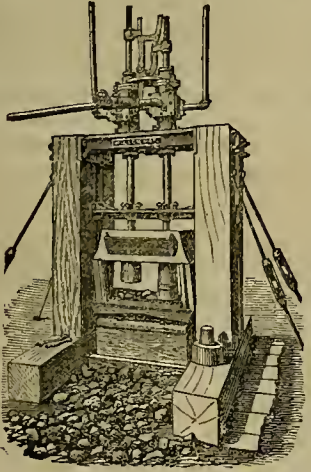
PINE STREET, SAN FRANCISCO.

The largest and most complete stock on the Pacific Coast. At Wholesale and Retail. 8v213m

Machinery.

THE WILSON

Patent Steam Stamp Mill.



This extraordinary Mill, now so justly popular in the East, is now offered to the miners of this Pacific Coast. Having been in operation now for about two and a half years, the Company feel confident that this

WILSON STEAM STAMP MILL,

For Durability, Efficiency,

AND ECONOMY OF WORKING,

HAS NO EQUAL.

The Wilson Steam Stamp Mill is the only Steam Mill that has had the severe ordeal of practical working, and proved itself eminently successful. It is now in operation in several of the Eastern States and Territories, and gaining an enviable popularity. The whole machine is so simple as to be readily understood by the most ordinary minds. In fact, its simplicity is its durability. The expense of crushing rock or cement with this Mill is less than one-half the expense of any other Stamp Mill, and less than one-half the cost. For further particulars inquire of

FURMAN R. WILSON,

San Francisco.

Or of THE WILSON STEAM STAMP MILL CO., 326 Walnut street, Philadelphia, Pa.

Notice.—All persons are hereby warned not to manufacture or use any Steam Stamp Mills that are an infringement on the Wilson Patents, as they will be prosecuted to the utmost rigor of the law.

F. R. WILSON,

20v19-1f Supt. W. P. S. S. M. Co., Philadelphia.

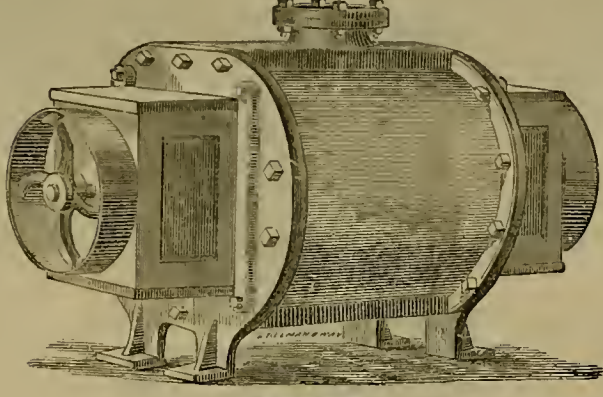
Thursday Evening.

Owing to the time necessary to mail the present large edition of the SCIENTIFIC PRESS, we are obliged to go to press on Thursday evening—which is the very latest hour we can receive advertisements.

ROOT'S PATENT FORCE BLAST ROTARY BLOWER.

MANUFACTURED BY KEEP & BARGION.

At the Globe Iron Works, Stockton, California.



Patented Nov. 1st, 1864 July 24 1866 and Oct. 9, 1866.

Awarded the First Premium at the Paris Exposition.

ADAPTED FOR

Smelting,

Foundry,

Mining

and

Steamships.

REQUIRES

Fifty Per Cent.

LESS POWER

Than any Blower

Now in use.

One of these Blowers may be seen on exhibition at W. T. Garratt's Brass Foundry, corner of Mission and Fremont streets. They are also in use at the Almaden Quicksilver Mine; Gridley's Foundry, Gold Hill, Nevada; Aena Iron Works, San Francisco, and many other places.

CAUTION.—Purchasers will find it to their advantage to apply direct to the Stockton Agency, as certain parties, not authorized to manufacture the Blower, have put in the market machines of inferior construction, which do not answer all the requirements of the genuine article.

Quartz, Saw and Grist Mill Irons, Steam Engines, Horse Powers, High and Low Pressure Steam Engines, Steamboats and Propellers, made at short notice.

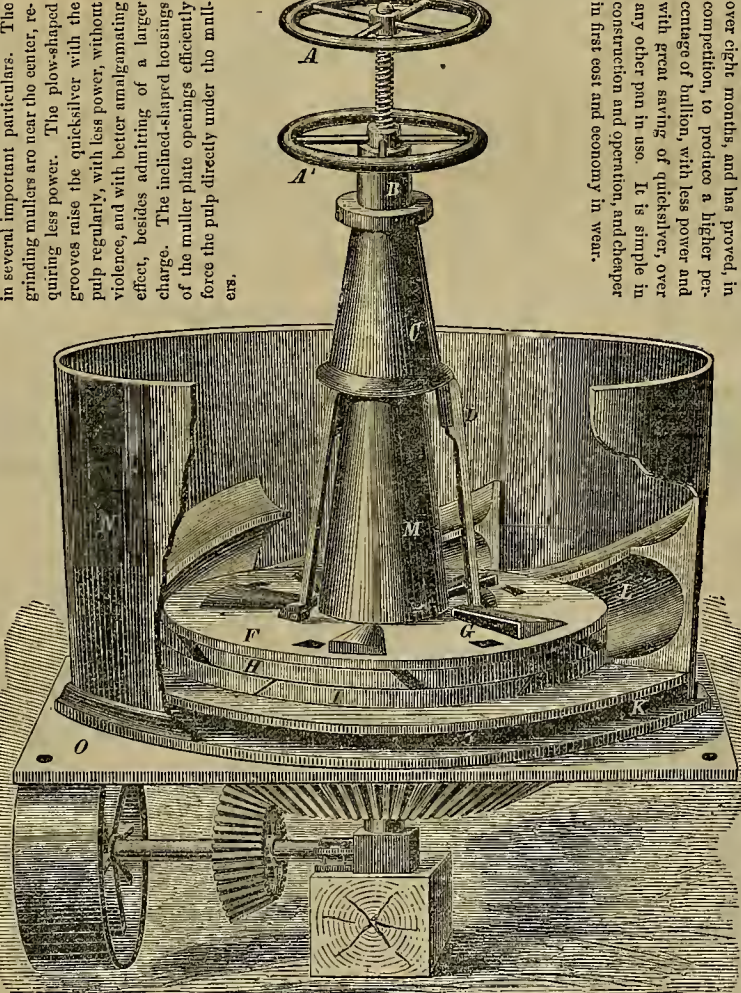
For circulars and further information, address

KEEP & BARGION,

Globe Iron Works, Stockton, Cal.

4v163m

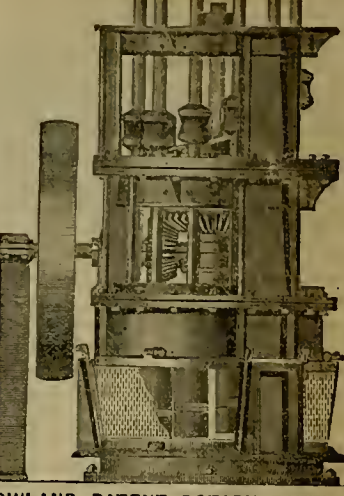
STEVENSON'S PATENT MOULD BOARD AMALGAMATING PAN.



This Pan is far superior to all others in several important particulars. The grinding millers are near the center, requiring less power. The plow-shaped grooves raise the quicksilver with the pulp regularly, with less power, without violence, and with better amalgamating effect, besides admitting of a larger charge. The inclined-shaped housings of the miller plate openings efficiently force the pulp directly under the millers.

It has been constantly running for over eight months, and has proved, in competition, to produce a higher percentage of bullion, with less power and with great saving of quicksilver, over any other pan in use. It is simple in construction and operation, and cheaper in first cost and economy in wear.

Manufactured at the Golden State Iron Works (Co-operative), 19 First street, S. F., Where it can be examined and further particulars be learned; or persons may apply to the inventor and patentee, Mr. C. O. STEVENSON, at the Douglas Mine, GOLD HILL, STATE OF NEVADA, where the Pans have long been in constant operation.



HOWLAND PATENT ROTARY BATTERY

of 12 stamps. It requires no frame to put it up. Guaranteed to crush 1 1/2 to 3 tons per day to the stamp. The best Battery ever used for amalgamating gold, or crushing silver ores, dry or wet. Can be put up on a mine in running order for one-half the price of this straight battery, and in three days after its arrival at the mine. 12-stamp battery, 20,000 pounds, with frame complete, price \$3,000; 6-stamp battery, 8,000 pounds, price \$1,300. All prices named to be paid in currency. Every mill run at shop before shipping.

California Stamp Mills.

All the various styles of Pans, Amalgamators, Separators, Settlers, Concentrators, Dry or Wet for working Gold, Silver or Copper Ores, the same as built in California and at lower prices. SHOES AND DIES made of the best white iron. Send sizes and we will make patterns and forward Shoes and Dies at low prices. Engines, Boilers and fixtures, and other Machinery made to order. Also, Howland's Patent Rotary Valve Double or Single Engines.

Irons for the best California 10-stamp mill, straight battery, complete, \$1,600. Irons for low mortar, old style mill, much less. Send for a Circular.

MOREY & SPERRY,

Address 95 Liberty street, New York.

N. B.—Mr. W. H. HOWLAND, formerly of the Miners' Foundry, is now in San Francisco for a short time, and will receive orders for mining and other Machinery of Eastern manufacture at the lowest rates and most favorable terms. Orders may be left at S. W. HOWLAND & CO'S, 413 and 415 Mission street, between First and Fremont, San Francisco. 4v21-3m

VARNEY'S

PATENT AMALGAMATOR

These Machines Stand Unrivaled.

For rapidly pulverizing and amalgamating ores, they have no equal. No effort has been, or will be, spared to have them constructed in the most perfect manner, and of the best material now in operation, not one has ever required repairs. The constant and increasing demand for them is sufficient evidence of their merits.

They are constructed so as to apply steam directly into the pulp, or with steam bottom, as desired.

This Amalgamator Operates as Follows:

The pan being filled, the motion of the miller forces the pulp to the center, where it is drawn down through the aperture and between the grinding surfaces. Thence it is thrown to the periphery into the quicksilver. The curved plates again draw it to the center, where it passes down, and to the circumference as before. Thus it is constantly passing in a regular flow between the grinding surfaces and into the quicksilver, until the ore is reduced to an impalpable powder, and the metal amalgamated.

Settlers made on the same principle excel all others.—They bring the pulp so constantly and perfectly in contact with quicksilver, that the particles are rapidly and completely absorbed.

Mill men are invited to examine these pans and settlers for themselves, at the office, 229 Fremont street, San Francisco. 1v1

SILVER-PLATED

AMALGAMATING PLATES

FOR SAVING FINE GOLD.

SAN FRANCISCO

Gold and Silver Plating Works.

QUARTZ MILL MEN,

Miners, Hotel-keepers and Others,

ATTENTION!

The SAN FRANCISCO PLATING WORKS are prepared to furnish and silver-plate Copper Amalgamating Plates of all sizes, and in any quantities, at the very lowest rates. FULL WEIGHT OF SILVER deposited, and satisfaction guaranteed in every respect. Particular attention given to plating goods for BUILDERS, PLUMBERS and GUNSMITHS. Old Goods of all kinds re-plated for hotels, restaurants, etc.

The finest quality of Sheet Copper expressly for mining purposes furnished and cut to any size at the lowest rates. Full assortment of Plated Goods and Cutlery for sale at low rates.

E. G. DENNISTON, Proprietor.

HAVILAND, HOOPER & CO., Agents, Crockery and Glassware Dealers, 345 Pine street, near Montgomery San Francisco. 1v20-3m

ALL work done at the lowest prices.

SEVERANCE HOLT & CO.,

MANUFACTURERS OF

Diamond-Pointed Drills

AND DRILLING MACHINERY,

For Mining, Quarrying, Shafting, Tunneling, Prospecting, Draining, Grading and Submarine Blasting. Special attention given to Deep Boring for testing the value of Mines. Also to Boring Artesian Wells. Office, 318 CALIFORNIA STREET, San Francisco. 25v20-3m

QUARTZ MILL AMALGAMATING

PLATES, plated with fine silver in an improved manner, at the very lowest rates. The best American copper furnished and cut to order. Old plates bought or worked. Old plated goods, of all kinds, repaired and replated. Work guaranteed and at Eastern prices.—Articles can be sent and returned by Express, by

CHAS. WEST,

No. 139, 3d Street, S. F.

AGENTS—MORRIS & WHITE, 30, Fremont, St. S. F.

SCIENTIFIC PRESS.

AN ILLUSTRATED JOURNAL OF SCIENTIFIC AND INDUSTRIAL PROGRESS,
Mining, Farming and Mechanic Arts.

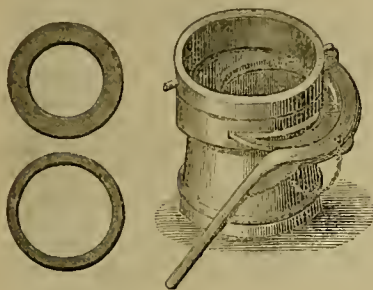
BY DEWEY & CO.,
Patent Solicitors.

San Francisco, Saturday, September 10, 1870.

VOLUME XXI.
Number 11.

Harris' Adjustable Pipe Nozzle.

Hydraulic "is," a California word for a California process. Although the enormous power of water has long been known, yet it was reserved for our pioneers to apply it in this way for the purpose of extracting the most precious of metals from the grave where it lay buried. That Californians claim the process as their own peculiar property and a matter of pride to



the Coast, was well illustrated several weeks ago, when a fine panorama of sights and scenes of our State was exhibited. As the grand views of some of our most noted natural beauties were unrolled to their gaze, the audience were appreciatively enthusiastic, but when the canvass displayed an illustration of one of our huge flumes and of the powerful streams of water washing down the hillside, the applause was deafening.

Having once commenced to employ this process, the attention of our miners has since been continually applied to perfecting it in its details. One of the inventions in this direction is here illustrated. The larger figure represents the discharge-end of an hydraulic nozzle. On this is pivoted a curved lever, to which is fastened by a pin, as shown in the cut, a ring which has a seat formed on the inside circumference, in which set other smaller rings of different sizes, two of which are shown separately in the drawing. In the nozzle is a slot for the entrance of these rings. The object is to diminish or increase the size of the stream thrown, without being obliged to shut off the head of water,—a thing often very desirable in hydraulic mining. With this apparatus, it is only necessary to fit the ring for giving the desired sized stream in the ring held by the lever, and then to introduce this ring into the nozzle by turning the lever. The cut, for the sake of clearness, shows the holding ring introduced part way into the nozzle.

This nozzle has been tried in Plumas, Sierra and Butte counties, and is pronounced "an entire success" by parties who have used it, as may be seen by a reference to our advertising columns. The object for which it is intended is certainly an important one. For further information apply to Messrs. Harris and Klemmer, La Porte, Plumas county.

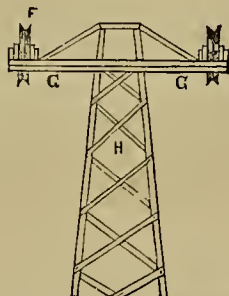
WHEAT SHIPMENTS FROM VALLEJO.—The 13th ship, for the season, has just completed her loading with wheat at Vallejo.

Wire Tramway.

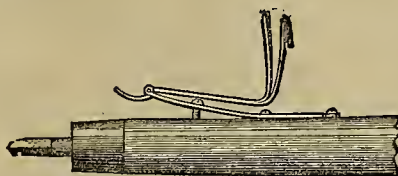
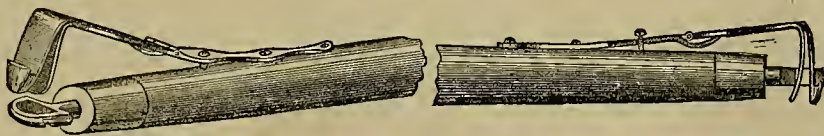
We gave a description, on the 20th of August, of the Hodgson wire tramway. We add to-day a couple of rough diagrams, which will give our readers a clearer idea, perhaps, of the contrivance. Fig. 1, shows the apparatus for supporting the ropes. This is an iron standard, H, which supports a platform, G, on which are two pulleys, F, one at each end. The pulleys support the wire-rope, which is endless, so that the loads go down on one side of the standards and return on the other.

Fig. 2 shows the way the load is carried. The box-head, A, rests generally on the wire-rope, I, as shown, and is carried along with the rope. The box, E, is suspended to the box-head by means of a curved arm, D, which maintains the box in equilibrium and enables it to pass the supporting posts and pulleys. The box-head has four wheels, B, which run on rails, C, placed on the platform, G, Fig. 1, when a post is reached, and thus enable the box-head to pass the pulleys.

FIG. 1.



HODGSON'S WIRE TRAMWAY.



PALMER'S INFALLIBLE TRACE LOCK.

The above shows the general idea of this part of the tramway. We hope to be able to get soon the details of the one to be erected at White Pine, which have been promised us. This line will be working before a great length of time has elapsed, as we are assured, and will be undoubtedly the forerunner of other similar improvements in our mining districts.

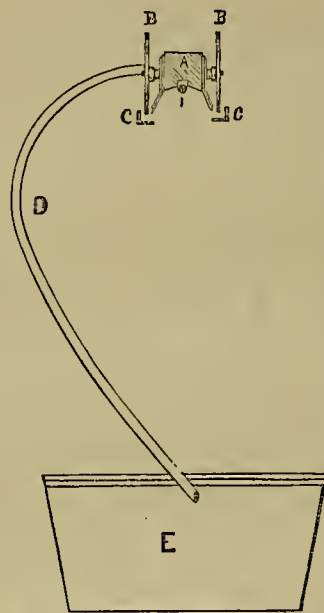
During the month of August the Manhattan twenty-stamp mill, at Austin, Nevada, produced \$123,000 worth of bullion. As this mill does not work Sundays, this is \$5,500 per day.

An Infallible Trace Lock.

The necessity for a device for securely fastening a trace in position on a whiffle-tree more reliable than the ordinary strip of leather, has long been felt, and its absence has been the cause of many deplorable accidents destructive to both life and property.

It is a part of the experience of every person driving horses, that the traces frequently become unfastened even in cases where extraordinary precaution is taken, and in such instances it only requires that the animal driven should be restive, spir-

FIG. 2.



there is no motion of the animal, harness or vehicle that can cast it loose without breakage, while, as can be seen, it will readily yield to the movement of the finger and thumb when required.

This simple device seems to fulfill all the purposes intended, furnishing absolute security against accidental detaching of a trace, and being light, cheap, ornamental, and easily applied. We learn that arrangements are being perfected in Cincinnati for its manufacture on a large scale. Parties wishing full information or right to manufacture in Pacific States, should address O. Palmer, Esq., Cincinnati, Ohio, or R. C. Myers, Covington, Ky.

CHLOROFORM.—A single manufactory of chloroform in Edinburgh is stated to make daily as many as 8,000 doses, or some two and a half millions yearly.

THE WEST INDIA CABLE.—The shore end of this cable was successfully landed at Santiago on the 31st of August.

ARIZONA ITEMS.—Mr. G. T. S. Curtis, of whom we spoke in our issue of August 6th, has shown us letters containing additional confirmation of the successful working of the mines of Lynx Creek. Messrs. C. C. Bean and J. Atcherson (of this city) have bought the Eureka mill put it in first-rate order and are running it at a net profit of \$20 per ton, or some \$250 per day. The Big Bug mill, which is again running, is turning out weekly from \$2,200 to \$3,000. The placer mines about Lynx Creek and Big Bug district are paying from \$5 to \$12 daily to the man. "The Bradshaw mines," says a writer, "are paying rich. McCracken, Taylor & Co. came in the other day with 112 ounces of gold, taken from six and a half tons of ore worked in an arastra." The general mining news are very good. The Indians are very quiet in Stoneman's district, and

"will be kept so." Mr. Kelly, also lately from Arizona, says that the Heintzelman mine is to be run by Chicago parties, and that the Moss ledge is to be taken up by an English company. The Indians have been making some trouble and are reported as active around the Burro mines, we hear. By the way, we have heard a theory advanced by an Arizonian lately, that the first step to be taken with regard to stopping Indian troubles, ought to be to remove the soldiers! With no quartermaster's department, the Indians would have much greater trouble in getting supplies, ammunition, blankets, etc.

We have been shown some very beautiful specimens of gold from the Mayflower ledge. This is situated some two and a half miles from the Prescott stage road, in Martinez district, Yavapi county, and was discovered by Mr. Dennis May, last February. The ledge crops out some two miles, and shows rich in gold. An assay certificate shown us gives a total value of \$609.07 per ton; of this, \$602.79 in gold. A company is about to work the ledge, having leased a 10-stamp mill in Wickenburg for the purpose, and expect to treat some 600 tons monthly. A shaft is now down about 20 feet.

ited or vicious, to insure a first-class runnaway, to point a paragraph in the daily press, usually under the head of "serious accident."

The subject of the accompanying illustration is the "Infallible Trace Lock," patented by Oliver Palmer, of Cincinnati, April 5th, 1870, a glance at which will explain its operation: It is intended to supersede the yielding strip of leather so long in use, so liable to be broken or misplaced, and furnish a substitute that will be cheap, ornamental and durable, while assuring safety in cases where ordinary vigilance would fail.

When unlocked, it springs back entirely out of way (as shown in the lower figure), and is ready for instant use. When locked

Communications.

IN THIS DEPARTMENT we invite the FREE DISCUSSION of all proper subjects—correspondents alone being responsible for the ideas they advance.

Battle Mountain District.

[Concluded from page 154.]

Coming back to Battle Mountain, we see the Little Giant, a silver mine of good repute, well and favorably known throughout the State. It has a five-stamp mill, but, from some defect in its working process, does not do justice to the mine, its tailings sometimes assaying from one hundred to one hundred and twenty-five dollars per ton. Its worthy proprietor, Mr. Fox, however, intends erecting new works, by which the ore can be reduced through the roasting process, when, without doubt, the Little Giant will stand high upon the records among the valuable mining properties of this State.

To the westward of Little Giant, in a locality known as Cottonwood Cañon, is a wonderful ledge, called the Columbia. It is of almost pure antimony and of immense size, being eight feet in width. It is most admirably located, up the side of the mountain, about three hundred feet from the bottom of the Cañon, in which a fine stream of water runs the year round,—a great consideration in this district. A tunnel can be run to it with great facility, or its ores can be precipitated from the top through a chute into wagons below. It is a new mine, and its principal owner, a gentleman of capital, from New York, fully convinced of its great value, is working it vigorously. A shaft has been sunk about twenty-five feet, and there is no reason, so far, to believe that his most sanguine expectations will not be realized.

Back to Battle Mountain again and beyond, to the eastward, are several fine copper ledges, the most prominent of which is the Washington. This is indeed a promising mine, far more so than that of the Battle Mountain Mining Company, at the same depth and stage of development. It is owned by A. Duane McDonald, Esq., an indefatigable and persevering worker, who can congratulate himself upon having become the owner of a most valuable piece of property at a small outlay. The ledge holds copper, is 1,200 feet in length, crops out nearly the entire distance and carries gold and silver in considerable quantities. Its course is north and south, dipping to the eastward about twenty-five degrees. The croppings are strong, varying from three to ten feet in width, and a number of cuts and excavations on the ledge show it to be a well defined and true vein. An incline sunk to the depth of fifty feet near the center of the ledge, which is about six feet in width, shows a regular and well defined vein of from three to four feet in thickness, carrying a large percentage of carbonate and sulphuret ore, with a good showing of red oxide of copper at the bottom of the shaft. This claim is situated three and a half miles from, and at elevation of about 800 feet above, the nearest shipping point on the C. P. R. R. A spring of good water is about a mile distant, and could be brought to the mine at a trifling expense. Other good ledges are in this neighborhood. Some of them have yielded from 20 to 40 per cent ores, quantities of which have been shipped to and sold in San Francisco.

Should parties ever conclude to erect works for smelting these ores, the facilities for obtaining water and fuel at reasonable prices, in close proximity to a shipping point, render it, in my opinion, a peculiarly advantageous point for investment of capital.

Many other localities in this district are well worthy of notice, and, should you consider this communication entitled to a place in your columns, you may hear from me again some future time. D. W.

Battle Mountain, Nev., Aug. 19, 1870.

From Utah Territory.

[Written for the Scientific Press.]
Ogden.

This city, the junction of the Union and Central Pacific and Utah Central railroads, is a place of no little importance. Located in 1850, at a point 36 miles from Salt Lake City, 740 from Sacramento and 1032 from Omaha, it has now a population estimated at 6,000 (including that just about the place), two good hotels—the Ogden House and the White House, a large Tabernacle, a school house, flour mills, and a well-edited semi-weekly newspaper—the *Ogden Junction*. There are some large stores here and a number of business houses. The Zion's Coöperative Mercantile Institution, a branch of the main house at Salt Lake City, is quite a successful affair, which declared a dividend of 12 per cent. the first six months, and one of 8 per cent. the next half year. The smaller stores buy their goods of the large, wholesale establishments, and retail them to their customers, and they too are carried on on the coöperative plan. The prices are set very low. The farmers carry their produce to the stores and exchange this for what they may need, as there is a scarcity of money in the place.

The Ogden Mills, owned by Mr. L. Farr, are located a short distance from the city. They have here four pairs of stones, with which they can grind some 80 bushels daily. The motive power is furnished by water, there being a centre-vent wheel, six feet in diameter.

The Weber Mill, situated some distance below the other, is a three-story stone building, contains 4 run of French burr-stones and is run by two turbine wheels. When they are at work, and they are very busy at present, they average some 8 bushels per hour.

Not far from this place are the Woolen Mills, which are not running now, but will be in operation in a short time.

Around Ogden are a number of pleasant villages:—North Ogden, Willard, Plain City, Slaterville, Lynne, and a few others, all farming communities lying within a radius of from two to ten miles.

On the Utah Central Railroad.

Shortly after the completion of the Pacific Railroad, operations were commenced on the Utah Central. This was begun in May, 1869, and finished Jan. 10th, 1870. The first sod was turned and the last spike was driven by the President of the road. This spike, by the way, was made of iron manufactured in this territory. The officers are: President, Brigham Young; Vice-President, Hon. Wm. Jennings; General Superintendent, Joseph A. Young; Gen. Freight and Passenger Agent, David O. Calder.

Leaving Ogden, at 5 P. M., on this road, we have a very fine ride through beautiful scenery. The land between Kaysville (16 miles distant) and Ogden is now unproductive, but as experience has shown that such land needs only water to make it valuable, a company has organized and is now constructing a large canal to irrigate the whole area. After Kaysville we come to Farmington, then Centreville and then Wood's Cross, and finally reach Salt Lake City at half past seven.

Considering all the circumstances, this Utah Central is a wonderful road. Built out here by a moneyless people, it is well constructed, well managed and a monument to the industry and perseverance of the builders. I found the trip most comfortable and pleasant, and was shown much kindness on the way. Still I couldn't keep from wondering continually how the people could undertake such a (for them) huge enterprise. Perhaps I shall find out before I leave the territory.

The view we get, on the road, of Great Salt Lake is very fine. Stretching north and south a hundred miles with a width of nearly forty, surrounded by high mountains, the expanse of water is grand. The nearest point we reach to this object of attraction is near Farmington, where, if we stop, we shall be able to find a good bathing place not far off. It would pay one well to examine the banks all around the lake, which show plainly that the water once stood much higher than it does now, and to sail on or lave oneself in the liquid, which is wonderfully buoyant, as it may well be, holding nearly a fourth of its weight of solid matter, over 20 per cent. being common salt. W. H. M.

Bull Run District.

[Written for the Scientific Press.]

EDITORS PRESS:—I have previously given you a general description of this district and of the principal mines. Affairs look quite promising here now. There are about 200 men in the district and the population is on the increase, for a number of new discoveries have been made of late. The mines are looking well. Indeed, as we descend below the surface, we find better looking mineral than we did at the surface. We find, moreover, plenty of ore. There are now from five hundred to one thousand tons on the different dumps, and any quantity more in sight in the mines. Nearly thirty seven tons of ore were shipped from here last month, some of which went to Reno and some to San Francisco for reduction.

Shafts have been sunk as deep as one hundred feet, and tunnels have been run in one hundred and fifty feet, so there is no longer any doubt as to the character and continuity of the ledges. Some of the veins show native gold in the ore, which is especially true of the Montana, which carries large flakes of both gold and silver. But we have considerable base metal, and some of the minerals prove a great trouble to the miner. Thus it foiled the miners here to distinguish between galena and antimony at first, until they learned by experience.

We want mills here and capital to develop the mines. When we get these our district will make more of a noise than it has hitherto. MINER.

Bull Run, Aug. 26, 1870.

Street Pavements.

A report on this subject was made last month by a Committee of the Board of Supervisors of this city, and this has been since published. While the report does not contain definite results, for so little can really be said authoritatively as yet on this subject, yet it forms in many respects a valuable document. The stone pavements commented on, are the Belgian, Russ and cobble; the wooden ones are the Nicolson, Stow, Stafford, De Golyer, Converse, Kemp, Howard, Bartlett, Tiedeman, Smith, Keystone, Rhomboid and Cylindroid, and London; and of others, the Van Doren Concrete, Knapp Concrete, and Bonnet and Skinner Asphalt. There are also articles on different processes of preserving wood and on various kinds of wood for pavements.

Of these, the cobble, Nicolson, Stow and Perry have been tried in San Francisco. The Stow seems to have given the most satisfaction, although this is not yet a success, and if would seem that preserving the wood would be a considerable improvement. The Committee believes that sand, securely confined, furnishes the best possible foundation for wooden pavements, and that the Bethel and Robins process (represented as being substantially identical) are the best methods of preserving wood. They recommend that various pavements should be given a fair, practical trial, as the best means of determining on their respective merits.

The comparative cost of laying wooden pavements is set down as follows:

In New York.	Per Square Yard
Nicolson.....	\$4 50
Brocklebank & Trainor.....	4 50
Stafford.....	6 00
McGonegal.....	4 50
Stow.....	5 00
In San Francisco.	
Stow laid with Redwood.....	2 35
Stow laid with Robins preserved.....	2 25
In St. Louis.	
Nicolson (burntized).....	3 05
And according to other authority, it costs to lay	
Cobble pavement.....	\$1 80
Macadamized.....	45
4-inch plank.....	91%

per square yard, in this city.

The Western Union Telegraph Company has offered to loan its wires to the War Department on liberal terms for the purpose of carrying out an extended system of reporting observations of storms along the seaboard on the northwest lakes.

Academy of Sciences.

The regular meeting of the Academy was held on Monday evening, Prof. Whitney presiding. A large number of contributions were made to the cabinet. Among these may be mentioned a crawfish from the Bay, mineral specimens, a specimen from this forest of petrified trees near Calistoga, a large number of books and pamphlets, and a collection of skulls, mummified hands, painted cloths, nests, etc., which have been discovered in graves in Peru.

The consideration of the contributions occupied almost the whole meeting. Dr. Gregory Yale, in presenting the crawfish (among other things), said that it was remarkable in that it was not generally found north of Santa Barbara. In connection with the petrified wood, a description of the occurrence by Mr. Chas. Dennison, which has previously appeared, was read. But the principal topic of the evening was the matter of the Peruvian specimens. Dr. Aug. Le Plongeon who has been occupied for several years in researches in Peru, presents these to the Academy. He called attention to the shape of some of the skulls presented, which were of different races of the Ancient Peruvians living in the times of which we have now as records only a few traditions and the ruins of some magnificent monuments of art and skill. One of the skulls had no suture and another had an extra bone at the union of the occipital and frontal bones, an occurrence said by Dr. Stout, later in the evening, to be by no means uncommon. There were mummified hands which were tattooed, such having never before been discovered. There were curious paintings on cloth, the colors being still very distinct, and spinning needles, nets, an article of dress decorated with feathers, and other interesting articles.

Dr. Le Plongeon then read extracts from a pamphlet which he intends presenting to the Academy. He gave a glowing description of the old city of Cusco, with its rare old antiquities showing the great extent of art and civilization which must have existed at the time of the Inca Monarchy. The Dr. was followed by others who spoke of the present and future prospects of Peru.

Mr. Hanks showed a peculiar substance which he had received from Battle Mountain, Nevada. This had been sent him by a gentleman who stated that it runs out of the rock in a certain place, where there was collected now some two tons of the dried matter. Mr. Hanks had made a partial examination of the substance, without arriving at definite results as to its exact nature. The dried gum or resin he said, has a yellow, waxy luster and a bitter and astringent taste. On platinum foil (over a flame) it swells, melts and then burns with a yellow smoky flame, leaving a pure white ash, which reacts alkaline to test paper. It is partially, if not wholly, soluble in water, giving a deep red solution. This solution, evaporated on platinum foil, leaves, at a gentle heat, a residue like copal varnish, which at a higher heat burns like the original substance. A larger quantity treated with boiling water dissolves readily and the solution gives off the peculiar odor of the gum. The aqueous solution becomes turbid on standing. The gum has such an affinity for water that it deliquesces on being left exposed to the air. It is soluble in alcohol, giving an amber colored solution, which becomes turbid on standing, burns with a deep orange flame, without smoke, and with but little odor, leaving a resinous residue. This residue burns with a yellow smoky flame leaving a pure white ash. The exhausted residue, when calcined, gave off a smoke like that of burning wood, but without the least bituminous odor. The ash does not effervesce with acids. Under the microscope this residue resembles woody fiber and is doubtless vegetable. In the ash are found grains of sand and other mineral substances.

The substance was examined with interest by the persons present. Mr. Hanks will continue his examination until he gets satisfactory results. The occurrence of a similar appearing matter at Lake Tahoe was spoken of.

Mechanical Progress.

PNEUMATIC MESSAGE CARRYING.—The latest improvements have been made by Siemens Bros., of London. In their arrangement, "carriers are not sent backwards and forwards through a single pipe, but a circuit is made, through which the carriers always travel in one direction, and if they be not stopped by the attendant at the receiving station, they fly back to the station whence they started. The advantage of this plan is that several carriers can be traversing the pipe at the same time. Another is that the same air or gas can be continually used in the pipes. The velocity of the transmission of the carriers diminishes with the square of the length of the pipe, and the denser the air the slower it goes. Hence, on very long circuits it is an advantage to be able to use hydrogen gas, which, says Mr. Siemens is four times quicker than air at the same pressure, hydrogen being four times lighter."

BOLT-HEADING MACHINE.—We find described in the *London Engineering*, a heading machine "of American design," in one of the shops of the extensive Stamp End Iron Works, Lincoln. We quote: "This machine consists of a vertical screw, enclosed in a frame which forms guides for four 'tups' corresponding to four anvils on the sides of the machine. As the central screw revolves these 'tups' are lifted, each of them, as it reaches the top of its travel, being disengaged from the screw, and held in its raised position by a simple detent. A bolt to be headed is placed head-end uppermost in one of the anvils, and the corresponding 'tup' is released by pressing on a treadle, when it falls, and the heading die attached to it forms the head of the bolt. As soon as the blow has been struck the screw, which is continually revolving, raises the 'tup' again, ready to be again released when necessary. The four 'tups' can of course be fitted with dies suitable for different sizes and forms of heads, and the machine is a simple one, capable of turning out a large quantity of work."

DUTY OF THE CORNISH PUMPING ENGINE. At a late meeting of the North of England Institute of Engineers, J. B. Simpson, after remarking upon the fact that one of these engines had been erected in Newcastle, and describing its construction, proceeded to name the especial points in which it differed from other pumping engines. He said that "it is generally worked at a high rate of expansion; that there is a steam jacket attached to the cylinder; that the cylinder is covered with felt, and in addition to this, a covering of ashes or clay about one foot thick, and then a covering of brickwork to prevent radiation, and that there is a drain pipe from the jacket to carry away the water from the condensed steam to the boilers; that the boilers and pipes are all arranged so that there is the least possible radiation of heat—the boilers being generally covered up with fine ashes or common clay. In three trials made with the engine to ascertain its duty, it was found that the effective duty varied from 4½ lb. per horse-power per hour to 5 lb. When the balance beam was attached and the arrangements completed, it was found that the effective duty was increased from 4½ lb. to 3½ lb., equal to a saving of 16 per cent., and which, taking the feed of water at 860 gallons per minute, would amount per annum to 420 lb., and at 4s. per ton, to a saving of £80."

CAST IRON PISTOLS.—We take the following from the Birmingham correspondence of the *Engineer*:—"It is remarked that the Belgians have a very soft and easily workable malleable iron, which they know how to cast to perfection, and they make a very liberal use of it indeed in the manufacture of their revolvers. The bodies, the barrels, and sometimes even the chambers, are made of it, and every workman knows how much easier it is to file up a clean casting in soft iron than a lump of wrought iron, however shapely it may be forged. This is a very important item in the cost. Soft as the iron may be, the pistols are made very light, but the metal is evenly distributed. Even the bammers and triggers are made of cast iron. The springs have not much strength, but sufficient to strike a pin cartridge; and for pin cartridges the Belgian revolvers are invariably made."

"They are at the outset cheaper than English revolvers, but they do not last so long, and therefore in the long run they are dearer."

AN ENGLISH KNITTING MACHINE.—The *London Engineering* gives an abstract of a paper read by Mr. Arthur Paget, describing a "self acting machine for knitting hosiery by power." We may possibly give some idea of its construction by an extract from this, although we do not give the accompanying diagram:—"In the sketch the knitted web is shown hanging on the needles, which are fixed side by side in a row of the necessary length. The thread tube has a motion to and fro across the needles, and the thread deposited by it is carried down between the needles by the sinkers, so as to form a series of loops. The sinkers are of thin steel, and they are arranged so that they can rise and fall between the needles. The line of thread having been deposited over the needles, the latter retire, and the new loop over each passes under the barb or part of the needle which is turned over. Later on, a presser bar descends and closes this turned over portion, so that its point enters into a groove formed in the top of the needle to receive it; and the retiring motion of the needle still continuing, and the sinker being raised, the old loop on the needle is by the action of the 'knocking-over bit' caused to pass over the closed barb of the needle, and thus over the new loop (which is inclosed within the barb) also. The sinker then descends again, and the web being then between it and the 'knocking-over bit,' is held close to the latter as the needle advances with the barb released, the new loop being thus made to take up the position occupied by the old loop at the commencement of the circle of operations."

A LAST WORD ABOUT BOILER COMPOSITIONS.—At the annual meeting of the Institution of Mechanical Engineers at Nottingham, Eng., G. F. Marten read a paper on boiler explosions, from which we give a single paragraph:—"Much mischief is often done by the injudicious use of composition in the boiler designed to prevent incrustation, especially where there is no blow-off cock, or where its use is neglected. A hard deposit on the boiler is, in the writer's opinion, not so injurious as the softer muddy deposit produced by the composition. A hard scale is equivalent to thickening the plate, and although sufficiently mischievous, the injury to the plates is much more rapid when a thicker but more spongy deposit entirely prevents contact of the water. The money spent in boiler compositions would be better applied in securing a supply of proper water, or in filtering and purifying the water before it enters the boiler."

RUSSIAN CANNON.—A correspondent of *The Engineer* has recently visited the Abochhoff Cast Steel Works at St. Petersburg. He describes, among other things, a 9-inch breech-loading turret gun, weighing 15 tons 2½ cwt., of crucible steel, and hooped, which had fired 700 rounds, and was still without defect, except very slight scoring. In remarking upon the manufacture of cannon at these works, he says:—"The latest improvement made has been the tempering of the tube and breech piece in oil, by which process the additional tenacity imparted to the steel is very remarkable, as shown by carefully conducted experiments in the testing house. Thus for example, of two contiguous pieces of the core of an 8 in. gun, No. 165, one tested untempered gave as elastic limit 38,000 and an extension of 0.115 in. while the other piece tempered in oil stood 79,000 lb and an extension of 0.148 in."

NARROW GAUGE IN PENNSYLVANIA.—At the Thomas Iron Works at Aokendangua, Pa., is a road built to carry cinders from the blast furnaces, which a correspondent of *Van Nostrand's Magazine* thus describes:—"The road is 2 feet 6 inches gauge. The engines were built at the Baldwin Locomotive Works. The steam cylinders are 9 inches diameter, and 12 inch stroke; driving wheels 30 inches diameter with steel tires two inches thick. Our cinder cars are four-wheeled, weighing when loaded 3 tons 5 cwt., gross; wheels only 16 inches diameter. The engine weighs, when ready for work with tank full of water, 8 tons 4 cwt., gross. One of them will haul with ease up the gradient of 211 feet per mile, 8 of the cinder cars, making an aggregate of 26 tons, and that with a boiler pressure of only 120 to 125 pounds per square inch."

Scientific Progress.

TEST FOR PLANE SURFACES OF GLASS.—The following is from Prof. Gibbs' "Optical Notices" in *Silliman's Journal*:—"When a plano-convex lens of long radius of curvature is placed upon a plane surface of glass and the system is illuminated by an obliquely incident beam of monochromatic light as, for example, by a sodium flame, the well known phenomenon of Newton's rings is observed with remarkable distinctness and perfection of definition. The symmetry of the rings will depend, in part, on the perfection of the figure of the lens, in part on the plane surface. An extremely minute deviation from a perfect plane will produce a marked distortion of the circular figure of the ring nearest the center. That this distortion is or is not due to the lens may be determined by rotating the lens round its optical axis normal to the plane. No change of figure will be seen if the lens is perfect in form and the inequality is in the plane surface only. Different parts of the plane surface may of course be tested in succession, by moving the lens from point to point."

BROMIDE OF SODIUM.—In reference to the preparation on the large scale, of this substance, which now promises to be extensively used in medical practice, M. Castelhaiz says: "The best plan is to prepare first, bromide of ammonium, by causing bromine to fall drop by drop into dilute, but pure, liquid ammonia contained in a series of Wolff's bottles, in order to prevent the loss otherwise inevitably resulting from the volatilization of the products formed by the great heat disengaged on the bromine and ammonia uniting. The liquids, after saturation, are evaporated in a cast-iron retort, to which an earthenware receiver is fastened, wherein are collected the vapors of water, any excess of ammonia, and some bromide of ammonium which is accidentally carried over. The bromide of ammonium thus obtained is converted into bromide of sodium, by being mixed with pure carbonate of soda, and the application of sufficient heat to volatilize and sublime the carbonate of ammonia formed by the reaction. This mode of preparation yields after re-solution of the bromide in water, and evaporation similar to that used for chloride of sodium, perfectly pure and anhydrous bromide of sodium."—*Chemical News*.

CONSERVATION OF FORCE IN PHYSIOLOGY.—The following is an extract from M. Mayer's discourse at the Re-union of Innsbruck:—"The principle of the conservation of matter and force has all its rigor, without doubt, in physiology. The living organism can create or destroy neither matter nor force, nor can it transform one into another the known elements of chemistry; but vegetable can, by peculiar processes, produce ternary and quaternary combinations, which, for the most part, cannot be obtained by artificial means. There certainly are in living nature, creations, generations, in a word, activities, for anything analogous to which in the domain of physics we should seek in vain. So that the principle *ex nihilo nihil fit*, so rigorous in physics, can no longer be maintained with so much certitude in physiology, and still less in philosophy. * * The French physicist, Adolphe Hirn, who, at the same time with Joule, Colding, Holtman and Helmholtz, discovered the mechanical equivalent of heat, arrived at the conclusion, which I find as beautiful as true, that there are three categories of existence: first, matter; second, force; third, the soul, or the spiritual principle. When once we have succeeded in realizing that there are not only material objects, but also forces, and forces in the definite, accurate sense of modern science, as indestructible as the substances of the chemist, we have but one step further to take, and that perfectly natural, to recognize and admit spiritual existences."

GASES UNDER PRESSURE.—The following is from the *Chemical News*: Cailletet has studied the compression of air and hydrogen from 1 to 800 atmospheres. Up to 80 air is more compressed than it should be if it followed the law of Mariotte, and at 680 it occupies only two-thirds of the space which it ought theoretically to do. In these experiments, the glass tube containing the gas was enclosed in an iron one, and was lightly girt. The mercury used to transmit the pressure whitened the gilding, thus indicating the point to which the gas had been compressed.

CAUSE OF THE BRILLIANCY OF FLAME.—Among the good thiaga recently exhumed by Prof. Wurtz are the following "forgotten results" of Doebereiner:

"HYDROGEN GAS, under common pressure, burns both in atmospheric air and oxygen gas, with a feeble and scarcely visible flame. The flame becomes more brilliant only when brought into contact with a more solid substance, unsuceptible of becoming red hot, such as platinum foil, oxide of zinc, lime, magnesia, etc. Davy infers from phenomena of this sort, that the brilliancy of all flame is owing to the presence of a solid incandescent substance, which is formed or disengaged during combustion, and that a gaseous substance never can be heated so as to emit a vivid light. The cause of these opposite phenomena may be found in the different modes by which heat acts upon various substances; elastic fluids and volatile substances expand by enfloride and disperse it, while solid bodies resist the repulsive action, and absorb and condense the heat so as to become luminous. But, if this view be correct, gaseous substances, disengaged by combustion, ought, when forcibly restrained from expansion, to exhibit incandescence and splendor. An experiment, at once simple and brilliant, confirms the justness of this conclusion. If a mixture of two volumes of hydrogen and one of oxygen be confined in a strong globe of one or two cubic inches in capacity, perfectly dry internally, and well closed, and then kindled, it burns with as brilliant a light as that of phosphorus in oxygen gas. If the detonating gas be compressed into the globe to two atmospheres, it emits, when kindled, the splendor of lightning. Even in open day, the effect is like that of the most vivid lightning; and by night, it is so much like a burst of sunshine, that oyster shells heated with sulphur become phosphorescent when exposed to it. If there be moisture in the globe, or if the cock be left open, the light is very feeble, because in the first case the light is absorbed by the moisture, and in the second, dispersed by the sudden exhalation. The kindling of the explosive mixture is best effected by the electric spark. * * The wires of such an apparatus should approach the nearer as the gas is more compressed, for the spark in condensed gases will not pass through so great a space. The facts induce the author to seek for the cause and condition of the brilliancy of flame, not in the presence of solid, incandescent matter, but in the forcible accumulation or condensation of caloric, and he thinks it not hazardous too much to propose this point of view as a photological axiom. He has not examined the luminous effect of burning, in this manner, gases, which by combustion with oxygen, give permanently elastic products. It is rare to find globes of glass strong enough, and of uniform resistance. Tubes are not suitable, as they present too large a surface, and consequently absorb too much heat."

SPONTANEOUS GENERATION.—H. Cbarlton Bastain has described in *Nature* some recent experiments of his, intended as a modification of Schwann's. He says:—"The withdrawal of all air from the flasks in which the boiled solutions were contained, rather than the admission of calcined air, seems to be the kind of modification which was desirable. Then the contamination of the boiled fluids with possible atmospheric germs would be as effectually provided against as if air had been allowed to enter after it had been calcined, and there would be even greater freedom for the commencement of evolutionary changes, on account of the diminished pressure upon the fluids *in vacuo*." A number of two ounce flasks, thoroughly cleaned, were three fourths filled with different filtered liquids, such as beef juice, vegetable infusions, and saline solutions. The necks of the flasks were then, by means of blowpipe and spirit lamp, drawn out until each was less than a line in diameter. They were then cut across, and the contents of each flask boiled for some minutes, the neck being held in the spirit lamp flame; its minute orifice was finally hermetically sealed with the blowpipe, and the heat immediately withdrawn from the body of the flask. Mr. Bastain thinks that even if the vacuum thus produced should not be quite perfect, the air which entered having passed through the blowpipe flame, would have been effectually calcined. The flasks thus prepared were suspended in his study, and kept at a temperature of from 75° to 86° Fah.; one set for four hours at 300°. In most of them, including some of these last, living organisms were found.

Mining Summary.

The following information is gleaned mostly from journals published in the interior, in close proximity to the mines mentioned.

California.

ALPINE COUNTY.

FULL FORCE.—*Miner*, Aug. 27th: The Mt. Bullion tunnel will start up with three shifts and two extra men, on Thursday.

EXHEQUER.—This Co. has bought D. Davidson's mill on Silver Creek for \$20,000, half cash and half stock.

TARSHISH.—This morning the workmen in the lower tunnel struck into a large pocket of very rich soft ore, identical with that in the upper works.

LEVATHAN.—Affairs go steadily forward and an additional force is to be put on.

AMADOR COUNTY.

BUTTE CANAL.—*Ledger*, Sept. 3d: Another gang of one hundred Chinaman have been put to work.

BUTTE COUNTY.

FORBESTOWN.—Telegram, Sept. 2d: Bowen & Gaskell's claim, realized \$10,000 from the first cleaning. One piece of gold weighed nine ounces. They have been three years opening the mine, at great expense, but will get their money all back in a few weeks.

CALAVERAS COUNTY.

PALOMO.—*Chronicle*, 3d: We learn that the proprietors have shut down one of their batteries and commenced sinking the main shaft one hundred feet deeper.

CHLORINATION.—Garland's Chlorination works, in Lower Rich Gulch, are now in successful operation. And the sulphurets from the Palomo and Alexander are being worked. We are informed that \$75 per ton is the average yield.

BRO BAR.—This is again proving itself rich. George Kelton, has for years been working the principal mine with poor success. During the present dry season, he succeeded in turning the river, on the Calaveras side, and has leased the mine to Chinamen "on shares," they to pay him forty out of every hundred dollars taken out. We are informed that the yield has been \$100 per day for a considerable time.

NEW MILL.—The mill of Lewis & Bro. near Railroad Flat, commenced operations on Monday. The battery, of five stamps, will be employed for crushing low grade ores. All of the better rock is taken to West Point and worked in Thoss' mill.

INDEPENDENCE.—Cor. of same: Sundermeier & Co. have run a level south on their vein one hundred feet. They have a large pile of good looking rock on dump. Gamble & Co. have been running a level south eighty feet from their main shaft. They are at present raising surfaceward. Cornell's claim, has a shaft fifty feet deep. They are still sinking, and quartz is looking well. Burr's Steam Mill has ceased operations. W. V. Clark's Mill, so soon as it is in perfect order, will be set to work on custom rock at three dollars per ton.

EL DORADO COUNTY.

GOLD DUST.—*Democrat*, Aug. 27: Shipped through W. F. & Co. from Placerville during the month ending 24th, \$37,880.

INYO COUNTY.

LONE PINE.—*Independent*, Aug. 29: The works of Cervantes & Co. consist of a battery of five stamps, an amalgamating pan, one concentrator, galamadore furnaces, and a large basso, or furnace of the old Mexican pattern, with blower. They start up this week. The Cerro Gordo ore will be hauled to the lake, 8 miles, then boated to within 5 miles of the works, whence it will be hauled again.

Assays of Kearsarge ore, by Bousfield, show a total gold and silver per ton of from \$130 to \$3,400.

LASSEN COUNTY.

THE SUSANVILLE *Sage Brush* says that J. S. Ward saw, at the new mines near Big Valley, \$780 weighed, which was the result of three hours' work of one man with a rocker; also one pan of dirt washed from which was obtained \$157, counting gold at \$16 to the ounce.

MARIPOSA COUNTY.

ITEMS.—*Gazette*, Sept. 2d: The John Snow mine, near Sebastopol, continues to yield largely: Jarvis Streeter, who has leased half the mine for one year, and Ben Aeilkema, owner of the other half, took out \$950 last week. The rock is crushed with a hand mortar... Law & Garvey, of Buckeye, have just erected a whim over their mine, and hereafter will be troubled but little from water. They contemplate working their mine on the eight-hour shift system.

NEVADA COUNTY.

ALTA HILL.—*Gazette*, Aug. 30th: The Mount Hope Gravel Co. have struck gravel four feet thick which yields four bits to the pan. In three hours yesterday, they took out \$200.

GRANITEVILLE.—Same of Sept. 2d: Black and Irwin are taking out twenty-five tons of excellent ore daily from the Banbury ledge. They run their mill day and night. The Erie Co. are putting up a new 10-stamp steam mill. They have a 4-foot ledge of \$17 ore.... The Birchville have their steam hoisting works completed, and intend sinking an incline 400 feet. They have a ten stamp steam mill, and their rock has paid \$15 to \$40 a ton.... The Forest Rose are running a tunnel for their ledge, to tap it at a depth of 150 feet.

OMEGA.—*Transcript*, Aug. 30th: John Hinds brought down yesterday between \$50,000 and \$60,000 worth of gold, the result of the final clean up for the season of the Omega Water and Mining Co.

HYDRAULIC YIELD PER CUBIC YARD.—Marselus & Maltman, of the Manzonia hydraulic claims, have made an estimate of the number of cubic yards of earth washed in their claims during the season, and thence make the average yield per cubic yard, 15 cents.

PERRIN.—Grass Valley Union, Aug. 30th: Perrin's mill sends in \$1,500 worth of gold cleaned from the plates below the batteries. This is a week's run.

ENTERPRISE.—In March, this Co., at Buena Vista Slide, commenced a tunnel to find a bed of gravel known to be in the hill. The tunnel has been put in 550 feet. At 370 feet the workmen began to raise. Last Thursday the miners struck through. Saturday, the water had drained sufficiently to get at the gravel. A bed four feet thick, was found, and a bushel of it washed out gold to the value of \$3.25.

GREEN MOUNTAIN CO.—This Co. works the Greenhorn ledge on Osborne Hill, which up to April last had been idle for 13 years. Since that time, the amount of rock crushed is 242 tons with a result of \$25,275.05. The shaft is down 60 perpendicular feet. The ledge is one foot wide.

EUREKA.—Same of 31st: The mine gives for the twelve days ending Saturday, \$26,500. The amalgamators below the batteries, only, were cleaned up.

GREENHORN.—The Co. have suspended operations until water can be procured for crushing purposes. Work on the shaft has stopped until steam hoisting works can be erected.

THE SITUATION.—The Same of Sept. 1st: Wisconsin shaft is down 500 feet.... The Idaho is running day and night.... The Empire makes a good showing.... The Seventy-third sent up on Tuesday another batch of specimens worth \$1,000. The unselected rock will go \$100 to the ton.... Last run of the Greenhorn gave \$2,000 from 74 tons.... The Bowery has yielded \$83 per ton average from top down.... Alison Ranch mill is constantly running.... So is the North Star.... Spring Hill mine has applied for a patent. The ledge is 2 feet thick.... Combination Co's tunnel is in 150 feet.... Phoenix rock shows well in free gold.... Phil. Roberts & Co. four in number, on Little Wolf Creek, work their own gravel claims alone, and get \$5,000 every winter.... The Sulphurets works of Hill, of Days & Clark, of Burr, and of the Eureka Co., are all running most of the time. Wolf & LeClair have works of a new style just finished.

SEVEN-THIRTY MINE.—Same of Sept. 4th: A crushing of 39 tons of quartz, has just been put through at the Gold Hill mine. The result was \$4,927.00, or \$126.35 per ton.

PLUMAS COUNTY.

ITEMS.—*Appeal*, Sept. 3d: Heath and Freeman are putting up a 24 stamp mill in Indian Valley, and a 32 stamp mill is to be erected in American Valley. New ledges are frequently discovered.

SAN BERNARDINO COUNTY.

MORE ORE.—*Guardian*, Aug. 27th: On Thursday, a wagon load of ore arrived from Clark District. We must say that, for richness, it surpasses anything we have seen in California.

SAN DIEGO COUNTY.

BULLION FROM JULIAN.—*Union*, Aug. 31: A. Pauly & Sons received during the week ending Tuesday, 105½ ounces of gold bullion—83½ ounces from the Parsons & Cotton mill, and 22 ounces from the McMechan mill.

GILA PLACER MINING CO.—Messrs. Nickerson & Pettingill, have made arrangements to erect machinery to raise water from the Gila to work the placers at old Gila City, of which the Company own 160 acres.

SIERRA COUNTY.

CAMPIONVILLE.—*Messenger*, Sept. 3d: Mr. Ramm, a member of the Humboldt Co., at American Hill, showed us some specimens which are exceedingly rich. The shaft is down 220 feet, add tunnel run in on the ledge, about 175 feet. They are building a mill to run by a Hurdy Gurdy wheel with 394 feet pressure,

SISKIYOU COUNTY.

ITEMS.—Yreka Union Aug. 31st: Lash & Co., have made one clean up since starting their new mill. They crush from 12 to 15 tons every twenty-four hours.... There are now on the Humbug, between French Flat and the Klamath, but one company of white miners. This is Spangler, Moore & Co. Their claim has yielded \$12 per day to the hand all summer.... The number of Chinese on the Humbug is increasing.... On Virginia Bar are 3 companies at work this season.... The streams are all lower than ever before.

TRINITY COUNTY.

ITEMS.—*Journal*, Sept. 3d: The prospecting shaft is down 50 feet.... Messrs. Lorenz and Lucassen have contracted to work the McGillivray claims on shares. McGillivray furnishes the water, lumber, etc.... A number of Diggers are at work in the bed of Hayfork creek, and occasionally make four or five dollars in a day panning out.

TUOLUMNE COUNTY.

RICH.—*Sonora Democrat*, 3d: J. W. Anderson, in working an abandoned quartz vein on Curtis' Creek, last week, took out some very rich quartz. The specimens shown us were fully one-half gold.

YUBA COUNTY.

ITEMS.—*Appeal*, Aug. 31st: The prospects of the Dexter Co. are good. One hundred and fifty tons paying rock in sight.... R. L. Cray will have the Blue Point tunnel, at Sucker Flat, completed in six weeks. It will be a mile long, and furnish facilities for prospecting a strip of country two miles in length.

Nevada.

COPE DISTRICT.

ITEMS.—*Elko Independent*, Sept. 3d: At Lone Mountain, 25 miles north of Elko, ore is being taken out for shipment.... Hope Ledge, at Bull Run, is showing very fine ore.... Norton mill approaches completion.... Drew's mill, at Mountain City, is at work on rich ore from the Ida Gossage.... Machinery is being set up in the Vance mill.

HUMBOLDT.

ITEMS.—*Register*, 3d: L. C. Pease shipped 14 tons ore from Winnemucca district.... L. B. Webb, at Gold Run, has purchased the first extension of the old Golconda mine.

RAILROAD.—Buell's offers for certain mines have been accepted. He will immediately commence operations.... The Dalles mine shows very rich chloride ore.... The Bullion still looks well. A large force is at work.

ELKO DISTRICT.—*Silver State*, 2d: The Butte mine is looking better than ever. The vein is from three to five feet in thickness, of exceedingly rich ore, and there is now 1,000 tons on dump. The Alpha mine is still yielding rich ore in considerable quantities. The Hard Cash is developing into a valuable property. The south shaft shows a vein two and a half feet in thickness at depth of 25 feet.

The Monitowoc and Arizona mines are sending to mill 70 tons of ore per day.

REESE RIVER.

SILVER BEND.—*Reveille*, Sept. 1st: W. F. Leon, of the Eldorado mine, is in this city with 75 tons of ore, to be reduced at the Manhattan mill, and it is estimated that the average will reach \$200.

HIGH.—A lot of ore from the Victorino mine in Bunker Hill district, yielded \$190.59.

BULLION.—During August the Manhattan mill produced bullion of the value of \$123,000. As the works are closed on Sunday, this gives \$5,500 per day, for a mill of twenty stamps.

MINERAL HILL.—*Elko Independent*, Aug. 31st: D. R. Northey reports a rich discovery last week on the west side. Same, of 2d, says the new mill is nearly ready, and has already whistled. New discoveries are daily made.

It is reported that a new company will soon organize here for the reduction of silver ores, and will open the Boston mill. The cause is said to be the high charges of the Manhattan Mill Co.

WASHOE.

OVERMAN.—*Enterprise*, Sept. 4th: Very little has been done toward the development of the body of ore struck. Connection will probably be made during the week, which will give a good supply of good air, and the value of this new discovery determined. The ledge where striking is six feet in width and contains high grade milling ore with a small quantity of the richest on the Comstock, showing considerable wire silver.

OPHIR.—The rich ore reported last week near the Walsh shaft is still of uncertain value.

HALK AND NORCROSS.—About 200 tons per day extracted, the greater portion from the 7th level.

OCCIDENTAL.—The new mill is kept constantly running on ore from the lower level.

CHOLLAR-POTOSI.—Gross yield for the week, 1,157 tons—sample assays being \$70. Eleven hundred and sixty tons shipped to mills on the Carson. The mine continues to yield well from every portion where it is worked. The bullion yield for the last week is \$83,000, and for the month, \$249,552.

GOULN & CURRY.—About 70 tons per day extracted, the greater portion from the newly developed body of ore on the D street level. Six to eight tons per day is sacked, which will pay several hundred dollars per ton.

CROW'S POINT.—Daily yield 40 tons, from the upper levels. It shows some improvement in quality. A drift south at 1,100 foot level has been commenced.

KENTUCK.—No work has been done for several weeks. Good ore is known to exist near where the fire occurred, which is still burning.

YELLOW JACKET.—Daily yield 200 tons, from the 800 and 900-foot levels. Drifting at the 1,000 foot level northward is vigorously prosecuted.

CONSOLIDATED VIRGINIA.—The difficulty from water in the lower tunnel has been overcome, and drifting progresses.

SACRAMENTO & MEREDITH.—All matters in connection with the mine and mill seem to be satisfactory.

SIERRA NEVADA.—The bullion yield continues to improve and the works progress as usual.

BELCHER.—The usual amount of prospecting at the 73d and 152-foot levels. The work of opening the 420-foot level progresses.

SAVAGE.—Daily yield 35 tons, rather low grade, from the lowest level.

WHITE PINE.

REVIEW.—*News*, Sept. 4th: Mining affairs have been more healthy than at any time since the organization of the District—legitimate operations only being undertaken. Many of the best claims have passed into hands of wealthy companies, and these are consummating plans upon a basis insuring permanency.... The Matteson furnaces are sure to be a success. The portions of the machinery ordered from the East will soon be on the ground. Seven mills are now running, and a 40-stamper will soon be in course of construction.... The bullion shipment for the past week has been \$50,401.38.

ITEMS.—The Ward Beecher is working 30 men and taking out 30 to 40 tons ore daily, which nets \$40 a ton. Friday, was struck ore which resembles the rich ore of the Eberhardt, and large pieces were taken that were nearly pure silver.... In Silver Wagon, the ore from shaft No. 4 is paying \$80 a ton.... Last working of Hidden Treasure ore gave \$74 per ton.... Schorharie turns out six tons daily of ore that looks worth \$40 per ton.... Matilda ledge on the surface is 18 feet wide—assays from bottom of shaft, where it is 4 feet wide, \$80.... Bowie & Brown, Blue Hill, has 40 tons on dump, assays from which, show \$250 per ton.... Eberhardt has only 4 men employed; merely to keep things in order.... Silver Wedge will increase its force next week.... Aurora South has an immense quantity of ore exposed.... Of the Base metal mines, Trench is taking out very rich ore. The furnace will fire up this month.... Jones and partner, near the Trench, in a mine belonging to Col. T. W. Robinson, are taking out some of which is worth \$1,000 per ton.... Gloucester has 40 tons first class ore on dump.

PROCE BULLION.—A Hamilton telegram of Sept. 5th: says W. F. & Co. shipped 14 bars bullion to-day from the Meadow Valley mine.

EUREKA.—*Sentinel*, Sept. 3d: Col. Robbins has purchased the Fairview, which bids fair to be one of the big mines.... The mill of Carpenter & Co. at Sierra will soon be running.... Fred, Elliott of Reno has purchased the Emerald dump, and is sucking it. It will average \$300 per ton.... The Dunne furnace and separating works are progressing.... A rich discovery made within the last 30 days on a hill west of Eureka, shows ore up to \$780 per ton.... Several other strikes are noted.

Montana.

PHILIPSBURG.—*Helena Gazette*, Aug. 29th: The small "White Pine Furnace" did so well that Mr. Saunders says he will erect a ten ton furnace of the same pattern immediately.

HIGHLAND.—Wm. Flowers came in yesterday, bringing two hundred and fifty ounces from the astras on the Only Chance lode; which, with 150 ounces previously, make 400 ounces as the total production of the astras for one month.

ANGENTA.—The furnace is turning out two hundred pounds of silver, or six thousand dollars worth monthly.

PILGRIM BAR.—Cor. of same: The clean nps last week were about \$3,700 to each claim.

CANLE CITY.—*New North-West*, Aug. 26th: The mill will start up again soon. The shaft will be sunk deeper. Some 56 miners are at work.

TOP O'DEEP.—Water is very light. Walter, Eddy & Co. are taking out \$20.00 per day to the man. Waterman & Co. are taking out plenty of dust. Allen & McGee have struck rich pay on No. 5. Gibbs & Co. are taking out \$200 to \$400 per day with 6 men.

ITEMS.—Virginia Montanian, Aug. 25th: Gilbert and Co's claim in Lincoln Gulch pays \$2,000 per week.... A nugget of the value of \$750 was taken out of Pierce and Wilber's claim in Wigwam Gulch.... New diggings on Beaver Creek have 3 feet gravel that prospects seven cents to the pan. Ninety claims have been recorded....

MANISON COUNTY.—On Wisconsin Creek, Hanna, Orr and Co. are working nine men, pipping and ground sluicing, and averaging to each hand \$9 to \$12 per day.

Helena telegram, Sept. 6th: A few days since Bohn and Co., of this city cast a gold brick, weight 2,282 ounces. The coin value is \$41,829.

Arizona.

BRADSHAW DISTRICT.—Prescott *Miner*, Aug. 20th: Messrs. McCracken, Taylor, Hogle and Fine got to town Monday with one hundred and twelve ounces of gold, worth \$17 per ounce, which they had just cleaned up from six and one-half tons of Del Pasco ore, ground by them in an astras. This makes the yield per ton \$291; and if the gold panned out be added, over \$300.

ITEMS.—The Bureka ten-stamp mill will be started early the coming week.... The Big Bug mine is running. The mine is yielding rich ore.... The Vulture is doing splendidly.... A new ledge has been near the head of England gulch, which promises well.... The placer miners have plenty of water.... At Weaver, Mexicans are taking out huge pieces of gold.

WICKENBURG.—Cor. of same: The first ton of ore crushed from the Mayflower, by an astras, gave \$126.64 in gold. Another run of four tons will soon be cleaned up.

Colorado.

ITEMS—Boulder News, Aug. 31st: Eric Bot-tolton cleaned up 25 1/2 ozs. of gold from one cord of ore, from a lode recently discovered on Gold Hill. . . . Joseph Pfeiffer got 22 ozs. of 8 1/2 r tori, from a cord of top ore from No. 1 north, on the Central.

ITEMS—Herald, 31st: The Prize lode has within the last two weeks yielded over 30 tons of first class ore, besides 10 cords of stump-mill ore, which runs from 5 1/2 to 6 ozs. . . . Alex. Campbell expects to take out 55 ounces of gold this week, at an expense of \$275. He has taken out on the 20th of June to the 20th of August 35 lbs. and 3 ozs.

GRAND ISLAND.—The Cariboo lode produced \$6,700 from July 1st to Aug. 19th. The mine has been holed for 30 days at \$125,000. . . . The lode has 18 inches ore, worth \$1,400 per ton. . . . The Penmarver shows similar ore but not so much of it. . . . The Boulder County will yield an immense amount of \$75-ore. . . . Trojan is about the same thing.

The Register of 31st says: Ben. Hinds & Co., who discovered the Trojan, have struck it rich. Ulysses Pugh shipped a lot of ore from the Sovereign lode yesterday, for reduction. Prospector are coming in at the rate of between forty and fifty a day.

Idaho.

LOON CREEK.—New North West, Aug. 26th: We learn that there are 400 to 500 miners in the camp—plenty of water. The claims are paying as follows: Lundy's \$17 per day; James Forrester, Tuttle's & Dyer's, \$30; Pat Kimley's, \$22; Jas. Keenan's, \$15; Mullan & Co's, \$17; Chins B. Arthur's, \$17. Forrester, Tuttle & Dyer took out \$5,000 in one week, with 30 men. Charles & Murray took out 100 ounces in one week, 10 men working. The gold assays \$17.20 coin. About three miles are being worked. Claims below are paying five to eight dollars per day.

OWYHEE.—Avalanche, 27th: Work suspended on the Poorman and the Empire. . . . Chariot is yielding \$125-ore. . . . Maloney shaft is 160 feet deep. The dump shows 100 tons rich ore. . . . Last Idlewild ore worked \$58 per ton.

Lower California.

SAN RAFAEL.—San Diego Union, Sept. 1st: Several small parcels of gold dust have been brought up during the past week. We learn that an exceedingly rich quartz lead has been discovered in that section.

A telegram of 5th, says J. J. Miller reports that miners picking dirt 3 miles to water make wages, and some as high as fifteen dollars per day.

Machinery for the copper mines is to be shipped from S. F. by the Lower California Colonization Co.

Oregon.

STEAMBOAT DIGGINGS.—Jacksonville Sentinel, Sept. 3d: Al. Sturges exhibited to us, several large nuggets, and over \$800 of amalgam gold. They have been to work at their claims for nearly two years, but have struck it at last.

Utah.

SALT LAKE Telegram, Aug. 31st:—Thirteen ear loads of ore from the Eureka mine, Little Cottonwood left this morning, part going East and part going West.

Another, Sept. 1st: A very rich silver ledge has been discovered at Rush Valley, fifty miles west of this city, said to exceed anything yet. The people in that section are much excited and are leaving their farms. Mines on other ledges near are leaving them for the newly discovered which are five miles from Gen. Connor's mines at Stockton.

TINTIC.—The Salt Lake Tribune says the "Mammoth Lead" Co., sent two tons ore to San Francisco, which yielded \$120 per ton. A piece from same lead assayed fifty-six dollars in silver. Croppings from the "Union" assayed seventeen dollars in silver.

The San Francisco Glass Works.

The San Francisco glass works, which were destroyed by fire some two or three years since, on Townsend street, between Third and Fourth, are now being rebuilt near the old site at the foot of Fourth street.

The works will be in operation in a few days. From 30 to 40 men and boys will be employed, and from two to three hundred dollars worth of ware turned out daily; consisting of all kinds of green and black hollow ware, such as demijohns, carboys, wine and brandy bottles, soda bottles, patent medicine bottles, etc., etc. The proprietors of the works are Messrs Newman & Duval. The old works, under the skillful management of Mr. Newman, acquired a very high reputation for the work turned out, having taken the Gold Medal of the State Agricultural Fair at Sacramento, and of the Mechanics' Institute Fair of this city. We are pleased to learn that these works are to be started again, and under more favorable auspices than before.

Large amounts of glass ware, such as will be made at this establishment, are now being imported into California, much of which will be saved to the State by the successful establishment of these works.

Notes on Contributions to our Cabinet.

We have received quite a number of contributions lately, but have been unable to describe them as promptly as we have desired. Some of them are very valuable and interesting, as the collection from Utah, which includes Nos. 466 to 472, and which has been very kindly sent us by the Salt Lake City Museum; except No. 467, which was given by President Young.

No. 466.—Agricultural products of Utah, received from the Museum at Salt Lake City. These are specimens of wheat, barley, beans and peas.

No. 467.—Silk cocoons, received from President Brigham Young. These were raised by the donor on his farm and silk cocoonery this year.

No. 468.—Specimens of goods manufactured at the woolen mills of Brigham Young, Jr., and at the Ogden Mills. It would surprise many of our readers to see what good qualities of goods are made in our sister territory.

No. 469.—Specimens of leather manufactured at Salt Lake City by Wm. Jennings. Leather was one of the first articles manufactured by the Mormons in Utah, and their "Valley Tan" has become noted.

No. 469.—Bisquit, or earthenware which has been once baked, but not yet glazed; from the Salt Lake City Pottery.

No. 470.—Specimens of the FIRST TYPE made by machine in Salt Lake City. These were manufactured in June, 1870, and are most interesting historical curiosities.

No. 471 embraces a number of pigments.

No. 472.—Under this number we place the collection of minerals from the territory. We have here granite, limestone (two varieties), sand-stone (very fine grained), obsidian, kaolin, gypsum, (scapolite), rock salt, moss agates and carbonate incrustations; coal, sulphur, galena, malachite, red oxide of copper, hematite, limonite and magnetite; also a small piece of lead obtained from Utah ore.

No. 473.—Very fine grained galena, from Bingham Canon; galena from the Caledonia ledge at Little Cottonwood, owned by Coverington & Co.; and a specimen from the Emma ledge, at the same locality, owned by the Walker Brothers.

No. 474.—Some small, but pretty, specimens of gold and sulphurets. Received from Mr. Thomas Ryan, of Scott Bar, Siskiyou county. The claim is located on the east side of Scott River. The ledge is in slate, runs N. E. and S. W., and is from 3 to 6 feet wide. There are other ledges in the same locality which are reported rich. The method of working at present is very rude. The ground about the quartz is sluiced off and the pay rock is pounded in a hand mortar. The principal part of the work is done in the spring when water is plenty. Mr. R. says that "this claim has, to my own knowledge, yielded, within the last seven years, forty thousand dollars."

"Under this heading we shall continue to mention and describe, according to merit, such specimens of ores, minerals, fossils, curiosities, etc., as may be sent to us by mail or express prepaid. Each article will be numbered, marked with the name of the donor and the locality, and placed in our cabinet. A full account of the place, occurrence, etc., adds much to the value of such specimens."

The North Pacific coal mines, situated between Helena and Blackfoot city, Montana, are reported as furnishing coal of an excellent quality.

The Dayton Journal says that the bones of an animal, determined by Prof. Leidy of Philadelphia to be a serpent, have been lately found on the Patterson farm near Dayton.

GEN. SHERMAN'S ARRIVAL, on Wednesday of this week, evoked a great amount of enthusiasm. The General came on to participate in the celebration, by the Pioneers, on Friday, of the twentieth anniversary of the admission of California into the Union.

The New Patent Act.

AN ACT TO REFORM, CONSOLIDATE AND AMEND THE STATUTES RELATIVE TO PATENTS AND COPYRIGHTS.

APPROVED, JULY 8, 1870.

[CONTINUED FROM PAGE 115.]

Sec. 41. And be it further enacted, That whenever on examination, any claim for a patent is rejected for any reason whatever, the Commissioner shall notify the applicant thereof, giving him briefly the reasons for such rejection, together with such information and references as may be useful in judging of the propriety of renewing his application or of altering his specification; and if, after receiving such notice, the applicant shall persist in his claim for a patent, with or without altering his specifications, the Commissioner shall order a re-examination of the case.

Sec. 42. And be it further enacted, That whenever an application is made for a patent which, in the opinion of the Commissioner would interfere with any pending application, or with any unexpired patent, he shall give notice thereof to the applicants, or applicant and patentee, as the case may be, and shall direct the primary examiner to proceed to determine the question of priority of invention. And the Commissioner may issue a patent to the party who shall be adjudged the prior inventor, unless the adverse party shall appeal from the decision of the primary examiner, or of the board of examiners-in-chief, as the case may be, within such time, not less than twenty days, as the Commissioner shall prescribe.

Sec. 43. And be it further enacted, That the Commissioner may establish rules for taking affidavits and depositions required in cases pending in the Patent Office, and such affidavits and depositions may be taken before any officer authorized by law to take depositions to be used in the courts of the United States, or of the State where the officer resides.

Sec. 44. And be it further enacted, That the clerk of any court of the United States, for any district or Territory wherein testimony is to be taken for use in any contested case pending in the Patent Office, shall, upon the application of any party thereto, or his agent or attorney, issue subpoenas for any witness residing or being within said district or Territory, commanding him to appear and testify before any officer in said district or Territory authorized to take depositions and affidavits, at any time and place in the subpoena stated; and if any witness, after being duly served with such subpoena, shall neglect or refuse to appear, or after appearing shall refuse to testify, the judge of the court whose clerk issued the subpoena may, on proof of such neglect or refusal, enforce obedience to the process, or punish the disobedience as in other like cases.

Sec. 45. And be it further enacted, That every witness duly subpoenaed and in attendance shall be allowed the same fees as are allowed to witnesses attending the courts of the United States, but no witness shall be required to attend at any place more than forty miles from the place where the subpoena is served upon him, nor be deemed guilty of contempt for disobeying such subpoena, unless his fees and traveling expenses in going to, returning from, and one day's attendance at the place of examination, are paid or tendered him at the time of the service of the subpoena, nor for refusing to disclose any secret invention or discovery made or owned by himself.

Sec. 46. And be it further enacted, That every applicant for a patent or the refuse of a patent, any of the claims of which have been twice rejected, and every party to an interference, may appeal from the decision of the primary examiner, or of the examiner in charge of interference, in such case, to the board of examiners in chief, having once paid the fee for such appeal provided by law.

Sec. 47. And be it further enacted, That if such party is dissatisfied with the decision of the examiners in chief, he may, on payment of the duty required by law, appeal to the Commissioner in person.

Sec. 48. And be it further enacted, That if such party, except a party in interference, is dissatisfied with the decision of the Commissioner, he may appeal to the Supreme Court of the District of Columbia, sitting in banc.

Sec. 49. And be it further enacted, That when an appeal is taken to the Supreme Court of the District of Columbia, the appellant shall give notice thereof to the Commissioner, and file in the Patent Office, within such time as the Commissioner shall appoint, his reasons of appeal, specifically set forth in writing.

Sec. 50. And be it further enacted, That it shall be the duty of said court, on petition, to hear and determine such appeal, and to revise the decision appealed from in a summary way, on the evidence produced before the Commissioner, at such early and convenient time as the court may appoint, notifying the Commissioner of the time and place of hearing; and the review shall be confined to the points set forth in the reasons of appeal. And after hearing the case, the court shall return to the Commissioner a certificate of its proceedings and decision, which shall be entered on record in the Patent Office, and govern the further proceedings in the case. But no opinion or decision of the court in any such case shall preclude any person interested from the right to contest the validity of such patent in any court wherein the same may be called in question.

Sec. 51. And be it further enacted, That on receiving notice of the time and place of hearing such appeal, the Commissioner shall notify all parties who appear to be interested therein, in such manner as the court may prescribe. The party appealing shall lay before the court certified copies of all the original papers and evidence in the case, and the Commissioner shall furnish it with the grounds of his decision, fully set forth in writing, touching all the points involved by the reasons of appeal. And at the request of any party interested, or of the court, the Commissioner and the examiners may be examined under oath, in explanation of the principles of the machine or other thing for which a patent is demanded.

[TO BE CONTINUED.]

FOUND.—A fine, hot, sulphur spring at the head of Panoche Valley in Fresno county. Also, another grove of big trees near this head-waters of King's river, in the same county, which grove is said to be bigger than any other now known. Also, some reasons for supposing that the Indians are contemplating evil deeds in this same district.

ONE MORE.—A tin mine, twenty-five feet in width, is reported to have been discovered in Bainbridge District, San Diego County, which is said to be the rich one of the Coast.

Our Agents.

OUR FRIENDS can do much in aid of our paper and the cause of practical knowledge and science, by assisting Agents in their labors of canvassing, by lending their influence and encouraging favors. We intend to send you but worthy men.

Traveling Agents.

WM. H. MURRAY—Montana, and Utah.
S. H. HARRING—California.
J. M. WOLF—Oregon.
L. P. McCARTY—California.
L. MISEN—Nevada, and Colorado.

Resident Agents.

CENTREVILLE, Alameda Co., Cal.—L. G. Yates, OAKLAND—W. H. Hardy.
SACRAMENTO—A. S. Hopkins, No. 70 J street. JACKSON, Adair Co., Cal.—G. S. Andrews.
TREASURER CITY, Nev.—J. L. Roberts, D. HAMILTON, Nev.—Thomas Starr.
CARBON CITY, Nev.—John G. Fox.
SHERMANTOWN, NEV.—P. C. Renfrew.
BOISE CITY, Idaho—Larkin Uros.
HELENA, Montana—E. W. Carpenter.
BLACK HAWK, C. T.—Harper M. Orchard.
CENTRAL CITY, C. T.—Richards & Crane.
GEORGETOWN, C. T.—John A. Lafferty, Postmaster.
DENVER CITY, C. T.—Woodworth & Moffat.
CHEYENNE, D. T.—Robert Beers.
OMAHA, N. T.—Burkalo & Urders.
PHILADELPHIA, Pa.—Fitter, Quigg & Co.
LONDON—George Street, 30 Cornhill, E. C.
HUDSON & MENET, 41 Park Row, New York.
NEW YORK—H. D. Dumont, 73 and 75 Fulton street.
A. C. KEO, City Soliciting and Collecting Agent.

New Incorporations.

The following have filed certificates with the County Clerk, San Francisco:

TWENTY-SIXTH STREET AND ARMY R. R.—Aug. 22. Directors: J. L. Blalock, (President), C. D. Carter, (Vice-President), J. S. Luty, (Treasurer), C. S. Cousins, (Secretary), S. L. Miller, R. B. Fordham, J. Regeburger, J. C. Collins.

SOUTHERN PACIFIC CONS. M. Co. Kern County.—Aug. 26. Capital Stock, \$800,000, in 16,000 shares. Trustees: A. DeLand, H. W. Byngdon, A. Staples, F. R. Shattuck, F. G. Smith, Wm. F. King and J. S. Buller.

The following have been recorded in the Secretary of State's office, Sacramento:

MASONIC HALL ASSOCIATION. Petaluma.—Aug. 25. Capital Stock, \$30,000 in 300 shares. Trustees: J. W. Bowles, H. F. Fairbanks, A. McGuire, A. J. Pierce, and A. J. Schroyer.

SANTA ROSA BANK.—Aug. 31. Capital Stock, \$100,000, in 1,000 shares. Trustees: David Burris, E. T. Farmer, Charles G. Amer, A. Thomas, Thomas J. White. Principal place of business, Santa Rosa, Sonoma County.
HARTFORD GRAVEL M. Co. Nevada County. Capital Stock, \$160,000 in 1,600 shares. Trustees: George Paul, Henry Paul and Chas. Trueman.

NAPA CITY WATER CO.—Sept. 2. Capital Stock, \$250,000 in 2,500 shares. Trustees: A. Chasol, H. Potter and D. Barstow.

NEW YORK G. AND S. M. Co. Ematsville.—Sept. 30. Capital Stock, \$30,000 in 300 shares. Trustees: J. B. Stone, L. Brooks and H. McCaffrey.

PETALUMA SAVING BANK.—Sept. 7th. Capital Stock, \$100,000 in 1,000 shares. Trustees: J. M. Bowles, B. F. Tuttle, F. F. Maynard, J. A. Harding, T. H. Crane, A. P. Whitney, W. Davis, H. T. Fairbanks and A. P. Overton.

Meetings, Elections, Etc.

COLUMBIA RIVER MANUFACTURING CO.—Aug. 27. Trustees: J. B. Knapp, (President and General Agent), N. W. Spaulding, (Vice-President), S. W. Backus, (Secretary and Agent in San Francisco), D. W. Grant, (Treasurer), and L. F. Baker.

Mining Shareholders' Directory—Meetings, Assessments and Dividends.

[Compiled weekly from advertisements in the SCIENTIFIC PRESS and other San Francisco journals.]

NAME, LOCATION, AMOUNT AND DATE OF ASSESSMENT.	DAY	DAY
	DELINQUENT.	OF SALE.
Alpha Cons. W. P., July 7, \$1.	Aug. 10—Sept. 1	
Alpha Cons. G. H., July 14, \$1.	Aug. 22—Sept. 20	
Belcher, G. H., Sept. 6, \$2.	Oct. 10—Oct. 20	
Bromide Tunnel, W. P., Aug. 9, 10c.	Sept. 13—Oct. 3	
Brush Creek, Sierra co., Aug. 5, \$2.50.	Sept. 9—Sept. 29	
Crown Point, G. H., \$3.	Sept. 6—Sept. 27	
Cosala, July 30, \$1.	Sept. 14—Sept. 17	
Cone, Virginia, Storey, July 6, \$1.	Aug. 10—Sept. *	
Eagle, Sta. Barbara, Co., July 27, \$20.	Sept. 19—8 pt. 26	
Empire, G. H., Aug. 4, \$6.	Sept. 8—Sept. 29	
Empress, G. H., Aug. 4, \$6.	Sept. 8—Sept. 26	
Goold & Curry, July 14, \$12.50.	Aug. 18—Sept. 12	
Julia, July 22, 75c.	Aug. 25—Sept. 12	
Kentuck, G. H., Aug. 27, \$5.	Sept. 25—Sept. 17	
Kidder Tunnel, Co., July 29, \$2.60.	Aug. 24—Sept. 14*	
Lauwana, W. P., Aug. 15, 15c.	Sept. 14—Oct. 3*	
Land Purchasers' Ass'n., Aug. 3.	Aug. 30—Sept. 24	
Mountain City, Elko co., July 14, 25c.	Aug. 29—Sept. 26*	
Noonday, W. P., July 20, 20c.	Aug. 24—Sept. 30*	
Nevada L. & M. W. P., Aug. 11, 2c.	Sept. 14—Oct. 3*	
North American Cons., July 16, 5c.	Aug. 17—Sept. 17*	
Hidden Treasure, W. P., Aug. 27, \$1.	Sept. 30—Oct. 20.	
Pinto, W. P., July 22, 10c.	Aug. 25—Sept. 15*	
Silver Spring, Inyo Co., Aug. 29, 25c.	Oct. 13—Dec. 15*	
Segregated Belcher, W. H., Aug. 25, \$1.50.	Sept. 23—Oct. 18	
Silver Vault T. & M., W. P., July 20, 5c.	Aug. 25—Sept. 16*	

MEETINGS TO BE HELD.

Chicago and Detroit Cons. Annual Meeting, Sept. 5
I. X. L. Alpine Co. Annual Meeting, Sept. 8
Manchester. Annual Meeting, Oct. 3
Oriental. Annual Meeting, Sept. 19
Pinto. Annual Meeting, Sept. 7
Jennie A. Annual Meeting, Sept. 10
Sutter. Annual Meeting, Sept. 10
LATEST DIVIDENDS—(Within Three Months).
Eureka div., \$7.50. Payable August, 1870
Hale & Norcross, div., \$5. Payable Sept. 10, 1870
San Marcial div., 50c. Payable June 10, 1870
Union, div., \$1. Payable Aug. 6, 1870
—Advertised in this Journal

PRACTICAL FAITH.—The San Joaquin Republican says that the second well at the Stockton waterworks has reached a depth of 207 feet, and at that depth a layer or stratum of gravel is struck, which much resembles the gravel of our gold-paying mountain creeks. Quartz and black sand are abundant, and a yellow, light substance, resembling gold in every thing except weight, is found quite plentiful. It is probably mica, but several old miners talk of staking off claims and sinking a shaft, preparatory to drifting.

Farming and Gardening.

COMMUNICATIONS for this department are solicited from all parts of the Pacific States and Territories.

Cranberry Culture for California.

Large quantities of cranberries are imported into California from the Eastern States and Oregon. Probably not less than six or eight hundred thousand dollars leave the State every year for this useful and healthful berry; and yet with the single exception of the little experimental patch of upland berries, noticed by us a week or two since as being cultivated by Mr. Marshall, of Grass Valley, we do not know of a single cranberry bed, large or small, in the State. Some three years since, an enterprise of this nature was talked of at San Rafael; but we have not learned whether or not it was ever carried out. Mr. Hill of Grass Valley, and, if we are not mistaken, Mr. Poiar, of the same place, each set out a cranberry patch near the bed of Wolf Creek, in that town, a few years since; but the next high water washed them all away.

Amid the multitudinous variety of fruit display, the past week at the Pavilion, in this city, we did not see a single sample of this useful berry; and yet it is very easily cultivated, one of the surest crops which can be raised, and one that pays six or eight times more profit per acre than wheat. Moreover it is not a perishable fruit, as in the case with a large majority of that which we do raise, and it always commands a ready sale at a large profit.

There is no reason, so far as our knowledge extends, why we should not only be able to supply our domestic wants, but also export largely to China and the East Indies. The soil best adapted to cranberry culture is swamp land, and surely we have enough of that in California, reckoning our tule lands as such, which, without doubt, when reclaimed, so as to be under control for flowing, would make the finest cranberry land in the world. Many fortunes have been made in the business at the East, and the more the berry is cultivated, the greater appears the demand for it.

The cranberry might and should be sold for half its present price, and still form one of the most profitable crops which can be raised. A reduction of one half in its price would more than double its sale. It is a cultivation which ought to be encouraged for sanitary reasons; as it is one of the most healthy fruits that can be eaten. In this respect it is fully equal with the tomato. In the use of its expressed juice, a decided advantage is claimed for it; for unlike the tomato, it is capable of being made to produce not only a very pleasant, but also a very healthy beverage something of the nature of wine, useful both internally and for external application—particularly for persons afflicted with scrofula. The wonderful effects of this berry in cases of erysipelas, are now pretty generally known and acknowledged.

Upland Cranberries.

We have intimated that the cranberry especially delights in a low, swampy soil. This is so; but still it takes kindly to upland, as well—at least one of the three varieties which are known to cultivators does so. Experience seems to show that there is no reason why the cranberry (the "bell" variety) may not be grown in our gardens generally, and as easily as the strawberry. For such culture a moist, but not clayey soil, is no doubt best; but almost any ordinary farming land can be made to produce them. They do not require a rich soil, although a covering of an inch or two of peat or swamp muck, and that again covered with sand—after the plants have been set, is no doubt advantageous.

Cranberries are raised in Russia on high, rocky land, too poor for ordinary farm culture. Mr. Downing recommends them for garden culture, especially for ladies, who he thinks ought to also cultivate them as ornamental plants, for the beauty of their foliage, delicate flowers and rich clusters of crimson fruit. Cole in his Fruit Book says: "Where a gravelly knoll

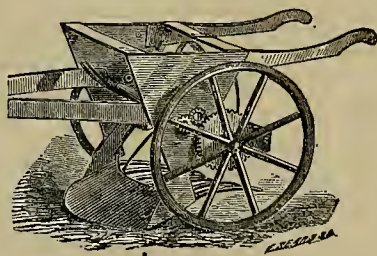
had been reduced for a road, we saw excellent cranberries, of spontaneous production, on dry, hard and poor soil. On another spot we saw fine fruit by the road side, on very poor dry hard soil."

Cranberries are successfully grown on ordinary farming lands on Long Island Plains, near New York. Mr. E. F. Richardson, among others, is thus cultivating them, near Brentwood, L. I. The experiment of Mr. Marshall, of Grass Valley, already referred to shows, that they can be cultivated in California. Still, to cultivate cranberries for profit, land should undoubtedly be selected which can be readily overflowed, more especially in order that the weeds may thereby be more easily kept down, and the crawling insects which, in older countries than California, are so sure to attack them, may be more readily exterminated.

By all means we of California should raise our own cranberries, and we shall be happy to communicate any information which may be needed in that direction, for those who may wish to try this culture. Experimental patches should first be tried, rather than extensive undertakings; for experience is needed in everything, before we undertake largely.

Westfall's Improved Potato Digger.

We give herewith an illustration of a new potato digger, for which letters patent were issued in June last to D. B. Westfall, of Lyons, N. Y. The operation of this machine is as follows: The oval mold-board, shown at the bottom and front of the engraving, is caused to enter the ground below the potatoes, which are thus lifted out, the earth being either thrown to one side or passing back and dropping between



the fingers projecting in the rear. As the machine moves forward, guided by handles similar to those of an ordinary plow, a reel, not very distinctly shown in the engraving, but attached to a shaft revolved by the gearing shown in connection with the wheels, rakes or throws the potatoes backward, in such a manner that they are deposited in a row upon the surface. The fingers are placed far enough apart to allow the dirt to pass through them but close enough to retain the potatoes, while they roll down and drop from their extremities. Potatoes may thus be readily and rapidly unearthed and left upon the surface to be picked up at leisure. We take pleasure in recommending this as another important labor-saver in harvesting one of our largest agricultural products. Messrs. Weister & Co., No. 314 Bush street, San Francisco, are agents for the sale of the machine, and will furnish the same to parties buying rights at manufacturer's prices.

FARMERS CAN MAKE THEIR OWN HARNESS.

A writer in the *Southern Farmer* says that he makes all his harness with copper belt rivets. The process is so simple, the work so secure, the time it takes to do it so trifling, and the cost so small, that every farmer ought to provide the necessary tools and quit the harness maker forever. No special training is necessary. Any body who can make a partridge trap or pare his own finger nails can make his plow-gear with rivets. He made a good farm bridle in thirty minutes at a cost of fifty cents all told. He needed a set of buggy harness; the dealer asked \$25; but, with the harness maker's aid on the saddle and traces, he made it during two rainy days at a cost of \$12.50 all told.

CANARY SEED A PROFITABLE CROP.—It is reported that Mr. Bagge, to whom we have alluded as engaged in raising canary seed, has cleared \$70 an acre, this season, from five acres sown with that seed.

The Late Exhibition.

Considering the haste in which the late exhibition was gotten up, and the fact that it was the first display of the kind undertaken here, for many years, it must be pronounced on the whole a decided success, both upon its real merits as a fruit and flower show, and in a pecuniary sense as well to the Institute, under whose auspices it was undertaken, although the latter was in no way a primary consideration. Much practical good will no doubt accrue to the exhibitors from being thus brought together for the comparison of notes and mutual encouragement, the result of which will be more fully shown next season, when the exhibition will undoubtedly be repeated, under circumstances more favorable for a fair display of the agricultural, pomological and horticultural resources of the State.

The Fruit Exhibition.

Meager as it was, for want of time to do better, was nevertheless very creditable and worthy of a more extended notice than we were able to give last week. We shall speak further of it as leisure is found to write out our notes, and space can be afforded in our already over-crowded columns. We will commence with the

Display of Fruit from Marysville.

Mr. T. H. Hutchinson, of the New England Orchard Nurseries, of Marysville, exhibited 150 varieties of grapes, for which he took the first premium. Some of his clusters were very large, in fact, the largest ever exhibited, and the entire display was very creditable as well as interesting. Mr. H. exhibited about 35 varieties of peaches, and as many of pears. Of figs he exhibited 9 varieties. It was late for peaches, but he took the first premium for that fruit, as also for figs.

The New England Orchard was started by G. H. Beach in 1852 or 53, but becoming pecuniarily involved, it passed, in 1859, into the hands of the present owner—Mr. T. H. Hutchinson. The land is a high, dry, alluvial bottom, and appears finely adapted to growing a very superior quality of fruit, in that hot climate. Grapes, especially, which are generally small in that region, grow to a great size and are remarkably fine on this soil. Mr. H. has 30 acres of grapes and about 20 of orchard. His nursery is mostly young, but is said to be very thrifty. He took the first premium on dried fruits. His entire figs—4 varieties, apples, pears, peaches, plums and apricots attracted much attention and were truly very nice indeed.

GRASS BROTHERS, also of Marysville, made a fine display of splendid looking fruit—apples, pears, plums and grapes. These gentlemen have been in business only about five years; but they give promise of much success, if their display of fine and healthful fruit is any indication. Marysville has always had the credit of producing superior peaches and early fruits, and this Exhibition has shown that it is not far behind in other choice sorts as well.

The Sacramento Exhibit.

A. P. Smith, of Sacramento, sent to the fair a large collection of very superior pears in variety—for which he took a first premium. California can beat the world for pears, and it seems that Sacramento has led the other counties for pears this time. Mr. Smith has a large nursery and fine orchards, and we only wonder that he made no other exhibit than pears.

[To be continued.]

"CAMUS" is the name of a nutritious and succulent tuber which grows wild in Montana, and which is also largely cultivated by both Indians and white men. It forms a large portion of the winter food of the Indians, and is also becoming a regular article of food among the whites, many of whom prefer it to the potato. Would it not be well to submit this esculent to careful cultivation and change of locality.

Something New in Horticulture—An Interesting Lesson.

Mr. C. C. Chamberlain, a well known horticulturist, near Brooklyn, Long Island has been experimenting for the past six or eight years in dwarfing fruit trees, and causing them to remain thrifty and bear fruit without any contact whatever with soil. The trees after being started in soil, as usual, as soon as they attain a few inches in height, are transferred to pots or baskets, six inches or a foot in diameter, in which is placed nothing but fine moss and concentrated fertilizers. No further attention is given them except to keep the moss constantly moist. This may be done by dipping the basket daily into a vessel of water, or by applying moisture in any other convenient manner. Finely divided sponges would no doubt answer quite as well if not better than moss. It could be more readily placed about the roots of the plant, while it would hold moisture better, and be more indestructible.

A tree thus cultivated is dwarfed in size, yet comes to maturity and fruits as regularly as though grown to its usual size in the garden or field. Mr. Chamberlain has in his conservatory peaches, figs, nectarines, etc. thus grown, and only from 2½ to 5 ft. high, yet loaded with fruit. The fruit so produced, in fact, seems to ripen more rapidly than when grown in the usual manner. He has peach trees thus cultivated, which have produced fruit for four consecutive years. The fruit is finely flavored, of good size and well colored. Of course concentrated fertilizers are added in solution with the water employed.

Of course there is no practical utility in this mode of cultivating fruit. The only interest which attaches to it is novelty, and its introduction as a new feature in fancy and window gardening. A peach, nectarine or plum tree, three feet high or less, loaded down with luscious fruit, would form a very pretty ornament for a dinner table, and the pleasure of plucking the same fresh from the limb, as one sits at the table, would add vastly to its relish.

There is nothing particularly strange or new in thus growing a plant, without the intervention of soil, provided some other medium is employed for conveying the plant food to the roots, and the proper food is furnished. Plants have been grown in pure sand, and even in pulverized glass—the mineral food being furnished in solution, in the water supplied. Very little of the substance of a plant, as ordinarily cultivated, is derived from the soil—nothing in fact but its ash, and but a portion even of that. The whole of its sustenance, (as when given as above alluded to in pulverized glass,) may be furnished by the water introduced to its roots, and the atmosphere in which its roots as well as its limbs are constantly bathed. The atmospheric or organic, as well as the mineral food of plants is no doubt largely received through their roots as well as through their foliage. Envelope the roots of a land plant in a soil filled with water, so that no air can reach them, and the plant will soon die.

If the fires could be kept away from our tule lands, the solid matter which their annual growth would derive from the atmosphere and water would in a very few years reclaim such land, without the aid of human labor. It is thus, in fact, that our tule lands, as they now stand, have been chiefly formed. If we dry and thoroughly burn the peat or turf of which they are mainly composed, we diminish its bulk by fully 80 per cent. or more. The diminution so effected is the measure of the solid substance derived from the air, while the ash represents the detritus which has been brought down from the mountains.

ANOTHER SILK FACTORY IN CONTEMPLATION.—Negotiations are now pending for the sale of the Vacaville College building to a company who propose converting it from its former use to a place to teach the young idea how to spin—they propose to employ it for a silk factory. The Collegiate Institution is to be removed to Santa Rosa.

A New System of Rose Culture.

Some French and English horticulturists have been experimenting for three or four years on a new system of rose culture, which may be stated briefly, thus: "First, prune out all the old wood; second, shorten the new wood a very little; third, peg the new wood down flat to the earth." The rose is thus allowed to bloom as the raspberry bears—only on the new wood, and that slightly pruned.

As unlike the common way of training the rose as this is, the effect is said to be very fine. The young shoots pegged to the ground produce a greater abundance of bloom, although, perhaps, slightly diminished in size. When a rose stalk stands upright, the stronger upward tendency of the sap has the effect to multiply the roses near the top; while, when trained upon the earth, the sap works more evenly throughout the entire length of the stalk. This is shown both in the bloom and in the multitudinous upward shooting of stems from the main stalk. The effect of this new mode of training would no doubt be very fine in covering sloping banks and mounds, and also in the more rapid production of small roses for bouquets, etc. Its novelty will no doubt commend it to all amateurs who have time and inclination to experiment.

No plant requires closer pruning than the rose, and the finest blooms are always found upon the stalks which shoot forth from the root, showing the importance of a severe cutting away of the old wood. The bush should also be trimmed so as to open its branches as much as possible, for it likes the sun. The more sunlight the rose receives, the more rapid its growth and the more numerous and beautiful its flowers. For this reason, we may reasonably presume, that low or ground pruning might be very advantageous to it in the vicinity of San Francisco, and wherever else on this Coast the cold westerly sea winds reach.

The Ailanthus Silk Worm.

Much is being said and written at the present time, both in California and in the Atlantic States, with regard to a species of the silk worm, known as the "Ailanthus Silk Worm," by some represented to be the *Attacus Cynthia*, by others the *Bombyx Cynthia* of the hotanists. A late writer in the *Bulletin*, urging the introduction of this insect into California, says:—

Many experiments have been made with this species during the past season in various parts of America with perfect success; particularly in New York and Staten Island, at which latter place, the worms were placed on a tree, in a private garden, passing all through the rain storms and heat, etc., growing to an immense size and spinning their cocoons on the tree, being an object of great curiosity and attraction. They require no care or attention but a simple covering of muslin over the tree to keep off the birds, and few minutes of time each day, to cleanse the covering from the refuse matter. Their easy culture has thus been fully demonstrated.

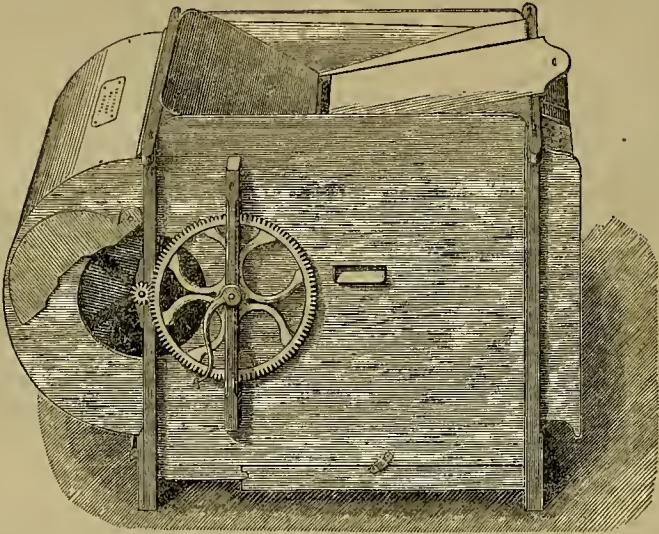
In connection with the above it may be well to peruse the following from the June number of the American *Entomologist* and *Botanist*, which is copied and specially endorsed by the *Journal of the Farm*, published in Philadelphia, near where the experiments alluded to by the *Bulletin* correspondent were made. We copy as follows:—

"The cocoons found on Ailanthus in Brooklyn, the worms of which were very numerous last season, so that the "Tree of Heaven," though long exempt, has at last become the food of worms, are actually those of the Ailanthus Silk-worm (*Attacus Cynthia*, Hubn.) It was introduced into this country in 1861, and has been fully experimented with since then. Dr. Morris, of Baltimore, published elaborate papers on the culture of this worm in the Patent Office Reports for 1861-2, and five years ago we made extensive experiments with it,

and then there stated our belief that its cocoon was of no more value than that of some of our native silk-worms. The Ailanthus worm has since become wild, and is rapidly increasing around the cities of Baltimore, Philadelphia, Chicago, and, as it now appears, around Brooklyn. And yet a certain Prof. J. Q. A. Warren, who seems to have a sort of sermomania, is now traveling over the country, and delivering, with an appearance of originality, to the scientific academies of our principal cities, the same lecture which he delivered some time since, before your Farmers' Institute Club—totally ignorant what has been done in past years, and soliciting government aid in the introduction of this worm. If this should meet the Professor's eye, he will know that the Ailanthus worm takes kindly to our climate without legislative aid. We would also suggest to him that he had better first post himself as to what has been done abroad by such men as Guerin Meneville, and would ask him whether he thinks it worth while to preach so loudly, after the French have tested the insect so thoroughly without any good result?"

The *Journal of the Farm*, which publishes the above extract in its issue of the 1st of August, adds the following:—

We may further state that the firm of Vilhormin & Co. of Paris, in 1862 sent an order to this city (Philadelphia) for a large quantity of seeds of the Ailanthus tree, in order to raise food for the Silk-worm, so that we had ample evidence that a fair trial had been made of its value in an economical point of view.



THE NOVELTY FANNING MILL AND GRAIN SEPARATOR.
The Novelty Mill.

The number of grain separators which has been patented is legion. The importance of having a really good machine, which will effectually separate the different kinds of seed, is so great, and the prospective reward of the man who can get up such a device is so promising, that the candidates for the patronage of the farmer are many in number.

The machine, a cut of which we present to our agricultural readers to-day, is not only a grain separator, but it also has the essential qualities of a good fanning mill. It can be used, therefore, for chaffing the grain, and then as a separator. It is highly recommended for both purposes by parties who have used it. In separating, the grain is fed into the hopper, shown at the top of the machine, and thence falls into a feed-wheel, which distributes it equally over the whole width of the sieve. The motion of the mill regulates the amount of feed, so that this shall always correspond with the rapidity of its action. The sieves have a longitudinal motion, not one from side to side.

The mill gives two distinct qualities of wheat, if desired. It separates out the large, plump and perfect kernels for seed wheat, while it deposits the cut or shrunk ones, which will not germinate, in another compartment. It puts, in the proper and distinct receptacles, the barley and oats, the cheat, and the mustard and other fine seed. There are wind-boards in the mill so arranged as to direct the wind to any de-

sired point, giving a good clean product. One man can easily do all the work required with this apparatus.

It is believed that this mill is peculiarly adapted to the special conditions of this Coast, and as such it is offered to our farmers. We are informed that it has been tried here with the greatest success. Mr. R. Stone, 422 Battery street, S. F., is the person to apply to for further desired information.

What I Know of Farming—No. 34.

Sheep and Wool-Growing.

Ours is eminently an agricultural country. We produce most of our food and export much more than we import of both Grain and Meat. Of Cotton, we grow some Three Millions of bales annually, whereof we export fully two-thirds. But of this we re-import a portion in the shape of Fabrics and of thread, and yet, while we are largely clothed in Woolens, and extensive sections of our country are admirably adapted to the rearing of Sheep and the production of Wool, we not only import a considerable share of the Woolens in which we are clad, but we also import a considerable proportion of the Wool wherefrom we manufacture the Woolens fabricated on our own soil. In other words: while we are a nation of farmers and herdsmen, we fail to grow so much wool as is needed to shield us against the caprices and inclemencies of our diverse but generally fitful climates.

sted with bushes and briars, which seems to flourish by cutting, if he finds time to cut them, and which the ruggedness of his soil precludes his exterminating by the plow. In every such case, Sheep are his natural allies—his unpaid police—his vigilant and thorough going assistants. Give them an even start in Spring with the bushes and briars; let their number be sufficient; and they are very sure to come out ahead in the Fall.

IV. The fourth reason refers to the advantage of sheep growing in furnishing farmers in the country with fresh meat.—[Eos. Press]

V. Now, I do not insist that every farmer should grow Sheep; for I know that many are so situated that they cannot. In stony regions, where walls are very generally relied on for fences, I am aware that Sheep are with difficulty kept within bounds; and this is a serious objection. In the neighborhood of cities and large villages, where Fresh Meat may be bought from day to day, one valid reason for keeping them has no application; yet I hold that twice as many of our farmers as now have flocks ought to have them, and would thereby increase their profits as well as the comfort of their families. * * *

As yet, our farmers have not generally realized that enhancement of the value of Mutton, whereby their British rivals have profited so largely. Their fathers began to breed Sheep when a fleece sold for much more than a carcass, and when fineness and abundance of Wool were the main consideration. But such is no longer the fact, at least in the Eastern and Middle States. To-day, large and long-wooled Sheep of the Cotswold and similar breeds are grown with far greater profit in this section than the fine-wooled Merino and Saxony, except where choice specimens of the latter can be sold at high prices for removal to Texas and the Far West. The growing of these high priced animals must necessarily be confined to few hands. The average farmer cannot expect to sell bucks at \$1,000, or even at \$5,000, as some have been sold, or at least reported. He must calculate that his Sheep are to be sold, when sold at all, at prices ranging from \$10 down to \$5, if not lower, so that mechanics and merchants may buy and eat them without absolute ruin; and he must realize that 100 pounds of Mutton at 10 cents, with 6 pounds of Wool at 30 cents, amount to more than 60 pounds of Mutton at 8 cents, and 10 pounds of Wool at 60 cents. Farmers who grow Sheep for Mutton in this vicinity, and manage to have lambs of good size for sale in June or July, assure me that their profit on these is greater than on almost anything else their farms will produce; and they say what they know.

The satisfactory experience of this class may be repeated to-day in the neighborhood of any considerable city in the Union. Sheep-growing is no experiment, it is an assured and gratifying success with all who understand and are fitly placed for its prosecution. I would gladly incite the farmers of our country to comprehend this fact, and act so as to profit by it.—Horace Greeley.

San Francisco Market Rates.

Wholesale Prices.		
THURSDAY EVENING Sept. 8th, 1870.		
Flour, Extra, per bbl.	35 00	45 00
do. Superfine, per bbl.	4 50	4 75
Corn Meal, per 100 lbs.	2 25	2 50
Wheat, per 100 lbs.	1 10	1 07 1/2
Oats, per 100 lbs.	1 05	1 35
Barley, per 100 lbs.	1 05	1 15
Beans, per 100 lbs.	2 00	2 50
Potatoes, per 100 lbs.	1 00	1 25
Hay, per ton.	9 00	24 00
Live Oak Wood, per cord.	9 00	6 00
Seal, extra, dressed, per lb.	7 00	10 00
Sheep, on foot, per lb.	2 00	2 60 1/2
Hogs, on foot, per lb.	6 00	6 00
Hogs, dressed, per lb.	7 1/2	8 00
GROCERIES, ETC.		
Sugar, crushed, per lb.	14 1/2	14 1/2
do. Hawaiian, per lb.	12 1/2	11 1/2
Coffee, Costa Rica, per lb.	20 00	20 00
do. Rio, per lb.	20 00	20 00
Tea, Japan, per lb.	75 00	1 00
do. Green, per lb.	60 00	1 25
Hawaiian Rice, per lb.	7 1/2	8 00
China Rice, per lb.	4 1/2	4 00
Coal Oil, per gallon.	14 00	14 00
Overland Butter, per lb.	20 00	37 1/2
Ranch Butter, per lb.	35 00	47 1/2
Island Butter, per lb.	20 00	25 00
Cheese, California, per lb.	16 00	16 00
Eggs, per dozen.	40 00	50 00
Lard, per lb.	16 00	17 00
Ham and Bacon, per lb.	16 00	17 00
Shoulders, per lb.	9 00	10 00
Retail Prices.		
Butter, California, fresh, per lb.	50 00	60 00
do. Pickled, per lb.	30 00	40 00
do. Oregon, per lb.	20 00	25 00
Cheese, per lb.	20 00	25 00
Honey, per lb.	25 00	30 00
Eggs, per dozen.	15 00	20 00
Ham and Bacon, per lb.	22 00	25 00
Cranberries, per gallon.	10 00	1 25
Potatoes, per lb.	16 00	16 00
Pointons, Sweet, per lb.	2 00	2 00
Tomatoes, per lb.	2 00	2 00
Onions, per lb.	4 00	5 00
Apples, No. 1, per lb.	10 00	12 00
Pears, Table, per lb.	10 00	12 00
Plums, dried, per lb.	10 00	15 00
Peaches, dried, per lb.	10 00	15 00
Oranges, per dozen.	1 00	1 00
Lemons, per dozen.	1 00	1 00
Chickens, per piece.	75 00	1 00
Curries, per lb.	10 00	12 00
Soap, Pale and G. O.	10 00	12 00
Soap, Castile, per lb.	15 00	18 00

Scientific Press.

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San Francisco:

Saturday Morning, Sept. 10, 1870.

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Notices to Correspondents.

RECEIVED.—We have received, and shall notice at the earliest opportunity, communications from L. P. Mc., on Plumas Co.; MINER, on Wyoming Territory Coal Mines; Almarin B. Paul, on the White Mountain mines; CARSON, on the Leviathan mine; and TIMOTHY, on the Burro mines.

A BOOK LONG NEEDED.—We have before us the "Engineers' Index to the London Journal of Gas Lighting," compiled by Mr. James R. Smedberg, Consulting Engineer, San Francisco Gas Co. Full sets of this Journal are very rare and expensive, there being, we believe, but three in the whole country. Hence, the value of the Index, as such, is limited. But it serves the useful purpose of showing the scope of "The Synopsis of British Gas Lighting," projected by Mr. Smedberg, about years ago, at the instance of the great gas companies, and now ready for the printer. This work will be a complete and compendious record of Gas-making during 20 years, embracing 900 monographs on the various processes, and 1200 patents. It will be sold only by subscription, at \$15 per copy. As a valuable contribution to our technical literature, and an additional evidence of the varied industry of the Pacific Coast, we wish it every success.

LEAD POISONING THROUGH GALVANIC ACTION.—Mr. P. Casamajor, of New York, finds that lead is often present in tin-lined copper boilers, and accounts for its presence by the voltaic action resulting from the contact of the lead in the lining, or in the connecting pipes, with the copper of the boiler. To prove this he took pieces of lead and copper and put them in contact in two flasks which he left in the dark at the temperatures of 75° Fah. and 150° Fah., for forty hours. In both instances the surface of the lead was corroded, and that metal was found to be in solution in the water. Similar experiments with lead and tin were followed by no such result. The lead was at first slightly affected by the weak current produced, but soon became coated with oxide, and the combination was then inactive. The experiments are detailed in the *American Chemist*.

Railroads.

There is no subject of greater importance to the whole of our western territory, at present, than that of railroads. We must have these running throughout the length and breadth of our country, or we cannot hope to progress with any satisfactory degree of rapidity. So important has the subject been deemed, that, of late years, railroad companies have obtained enormous grants, and the country has obtained a number of railroads. But a reaction is now setting in and protests against such grants are being raised in many quarters.

Still we must have more roads and we must make it a good thing for somebody to build the roads. But it is not necessary to have those roads so tremendously expensive. Through the little Festiniog Railroad in Wales, public attention has of late been attracted to the subject of narrow-gauge roads. In the Press of April 4th, 1868, a description of this road was given, and we have since spoken of it from time to time. The late examination of the railway by Commissioners of the Russian and (English) Indian governments has caused quite an excitement on the subject.

There are propositions for building quite a number of railroads through the different sections of the West. The most important are the Northern and Southern Pacific roads. Then smaller ones are projected in the several States and Territories:—San Bernardino people talk of a road to Wilmington, Austin has long desired one from the C. P. R. R., White Pine seems to be bound for a line, which may be extended so as to benefit the southwestern part of Utah, and, in Colorado, Boulder, Central City and Georgetown are having railway surveys undertaken.

Now, on the shorter routes, the matter of the narrow-gauge has readily suggested itself. But from the results shown to be possible by the Festiniog road, it might be thought that the system could be extended also to longer lines. As to the capability of the road for traffic, Norway, and especially Sweden, have extended narrow-gauge systems; and eminent English engineers have declared that "on a 2 ft. 6 in. gauge and with the Fairlie engine (the double-bogie used on the Festiniog road) they would undertake to work the heaviest traffic in the world!" Add to this assertion, made after deliberate examination by men with a reputation to lose, the fact that the cost of such a road is less than one-half that of our common roads, and that the relative expense decreases with the increase of natural obstacles, and we have said sufficient to warrant a thorough examination of the system for our coast.

We may be permitted to glance briefly at the present railroad status. The different surveying parties of the Northern Pacific seem to be briskly pushing work. The engineers are, we believe, Maj. Flint, Chief, Gen. Tilton, next in rank, and De Lacey, Fife, Smith, Maxwell and Kidder, Division Engineers. Maxwell is reported as surveying from Seattle east through Snowquallmie Pass to Priest's Rapids, on the Columbia river; Kidder, from Seattle to Olympia; Fife, from Olympia to Vancouver. De Lacey has surveyed the Snake and Salmon rivers to their junction with the Columbia at Lewiston, and now has a different route hack. Smith is surveying the Columbia river.

The Portland and Astoria road is being surveyed.

The Oregon and California road is being pushed on. Track-laying was commenced on the 29th ult., and it was expected that cars would be running to Salem by the 12th inst. The citizens of Albany, Linn county, are taking measures to raise a subsidy, as, according to the report, the surveyed line runs some distance east of their town, and they must pay to have the road pass through the place. The southern counties of Oregon are still excited as to whether they will have the road. We see that the Humboldt and Oregon Branch R. R. Co. was incorporated at Jacksonville on Aug. 29th. Object, "to build a railroad from the North Bend of the Humboldt River, in Nevada, to connect with the Oregon and California R. R., at some point in Jackson county, Oregon."

The connecting road, the California and Oregon, has been working hard until this week, when a large force was transferred to the San Joaquin Valley road. On the 2d, trains were running seven miles above Chico, and on the 3d, the grading was finished sixteen miles above Chico. According to Yreka papers, the Pitt River route has been abandoned. The McCloud

River route is being surveyed now. This runs along the McCloud river to Squaw Valley, through the Elk Flat, along the eastern side of Shasta, to Butte Creek valley, and thence to the State line, near Little Klamath lake. There is considerable doubt expressed as to the feasibility of this line. The Sacramento Valley route is also being surveyed.

The California Pacific has built its depot at Marysville in connection with that of the Oroville road, and the first freight was discharged at this depot on the 29th ult. It is proposed to change the gauge of the Oroville line to conform to the California Pacific, so that through trains may be run. Surveyors are reported running lines to Red Bluff and the Shasta Courier thinks the extension of the Vallejo route to Red Bluff is now a certainty, and that to Shasta a strong possibility.

The Sonoma Railroad, after its long rest, has been roused to activity by San Francisco parties, among whom the name of Peter Donahue is most prominent. McCauley transferred the road on Aug. 5th. On the 16th, Robert L. Harris, Chief Engineer, arrived at Petaluma, and everything has since been brisk. The road has been graded from Petaluma to Santa Rosa, and it is hoped that this part will be finished by the middle of October. On Aug. 30th, the "first spike" was driven. The steamers *Sacramento* and *Wilson G. Hunt* are to be used to connect the road with this city.

Work has been commenced in earnest on the San Joaquin Valley R. R. Fifty men are at work on the bridge across the Stanislaus, and on Monday a strong force was transferred from the California and Oregon road to grade between the Stanislaus and Tuolumne rivers. The road, says the *Tuolumne City News*, will cross the Tuolumne at the mouth of Dry Creek, and the Merced come four and a half miles below McSwain's Ferry. We hear that cars will be running to Tuolumne City within two months.

The proposed road from Santa Clara to deep water beyond Alviso, with, perhaps, a future extension to Saratoga, or the foot of the Coast Range beyond, has met with a dampener. The proposed subsidy of \$150,000, to be given by the county, was submitted to popular vote and defeated, but by a very small majority.—The Stockton and Copperopolis road is entirely quiescent.

The assessment of the Los Angeles and San Pedro road (which was assessed in the sum of \$122,640), has again brought the affairs of this company prominently before the public, the Board of Supervisors declaring the assessment "improper." There is some talk of extending the road to San Bernardino, and the directors are reported as willing to build this extension, if the people will yield all claims to the \$225,000 in city and county bonds now in litigation. San Bernardino proposes also a road to Wilmington via Anaheim.

The Southern Pacific is announced as about to begin work at the western end within two months, but what foundation of truth there is for the announcement, we know not. The road still holds its lands although it failed of its subsidy at the last session of Congress. We hope the report is true. The interests of the Coast will be materially advanced by its speedy completion.

The completion of the Kansas Pacific, on Aug. 15th, deserves a long notice, which we would gladly give had we the space. But we have already noticed the event, and the manner in which the last 10½ miles was laid, in 10 hours! This, the greatest enterprise since the Pacific roads were built, will prove a most important one. Probably an extension southwards will be made at no distant day. The Chief Engineer of the road is Col. W. H. Greenwood, and the Construction Engineer, Gen. W. J. Palmer. The excursion party from St. Louis arrived at Denver on the 3d inst.

When we commenced, we intended speaking more fully of the talked-of branch line to Austin and that to White Pine (which, we are inclined to think, ought to start from Palisade station and run so as to tap Mineral Hill and Eureka Districts). We wished to notice the roads in Colorado from Denver to Central City and Georgetown, and to Boulder, a company for which last, with Gov. Evans as President, has been organized. But space fails us this time.

Our present number is full of illustrations, and we are obliged to put one, and an important one, of Lynde's Safety Appliances for Steam Boilers, on the tenth page, in order not to trespass on our readers' matter.

The Exhibition Awards.

In the awards for fruit which were given in our last issue, that to H. T. Hutchinson, should have read, "awarded \$40 for the best exhibit of Peaches," instead of \$10, as given.

In addition to the list as already given, West Bros. of Stockton, were awarded \$30, as special premium for exhibit of foreign grapes.

CLASS THREE—VEGETABLES.

D. L. Perkins, Sherman Island, best single variety of early potatoes (Early Rose) \$3 00.
 D. L. Perkins, best exhibit sweet-corn, \$3 00.
 D. L. Perkins, best exhibit watermelons, \$3 00.
 D. L. Perkins, best exhibit beets, \$3 00.
 W. H. Marsh, Napa, best exhibit of squash (two varieties) \$3 00.
 W. H. Marsh, for fine specimens of growing corn, \$3 00.

CLASS FOUR—FLOWERS.

E. L. Reimer, San Francisco, best and largest collection of plants for lawns, gardens and conservatories, \$100.
 T. Appleby, San Francisco best collection of evergreen trees and shrubs, \$50.
 Edward D. Moor, San Francisco, best collection of decorative plants of newest varieties, \$50.
 J. Hutchinson, Oakland, best collection of climbing plants, \$25.
 T. Appleby, San Francisco, best collection and variety of bedding plants of verbenas, dranthies, petunias, and pansies, (twelve of each) \$25.
 Charles Schuman, gardener of R. B. Woodward, best collection of twelve colored leaf plants, \$25.
 J. Hutchinson, Oakland, best exhibit of cut flowers, \$25.

W. Meyer & Co. San Francisco, best exhibit of round or flat bouquets, \$25.
 Mr. Miller, San Francisco, best design illustrating principles of landscape gardening, \$30.
 Awards to non-professional growers.
 E. A. Upton, best display of dahlias, fuschias, Petunias and dranthies, elegant flower stand.
 E. E. Moore, San Francisco, best collection of gladioli, a diploma.

General Kirkham, donation of century plant, award, book—"Wonders of the Sea."
 E. L. Reimer, San Francisco, beautiful arrangement and display of plants, a diploma.
 T. Appleby, San Francisco, collection of holly-hocks, roses, and dried and ornamental grasses tastefully displayed, a diploma.

W. Meyer & Co., baskets of flowers, a diploma.
 Kelsey's Nursery, cultivated by G. Gustavson, Oakland, collection of deciduous forest trees and miscellaneous plants, a diploma.
 J. O'Hara, San Francisco, general collection of ornamental trees and shrubs, a diploma.
 Charles Schuman, gardener to R. B. Woodward, grandest display of tropical plants, trees, etc., a diploma.

Mr. Allen, San Francisco, meritorious display of flowering plants, a diploma.
 J. Hutchinson, Oakland, splendid collection of greenhouse plants, a diploma.
 Mrs. Tyler Curtis, rare Japanese and hothouse plants—award, Robinson's Alpine Flowers.

CLASS FIVE—CEREALS.

W. Hunt, Oakland, best collection of oats, \$5.
 W. L. Perkins, best specimen of corn in the ear, \$5.
 D. L. Perkins, honorable mention for very superior wheat.

CLASS SIX—MISCELLANEOUS.

California Silk Culture Company, best specimen of silk, (raw) a diploma.
 W. H. Baxter, best specimen of unperforated cocoons, \$20.
 D. L. Perkins, Sherman Island, best specimen of flax, \$10.
 J. S. Finch, best specimen of ramie plant and fibre, \$15.
 J. H. Schnell, El Dorado, best specimen of tea plants, \$20.
 J. H. Purdy, best specimen of sorghum sugar, \$5.
 Isaac Bird, San Jose, best specimen of hops, \$5.
 J. H. Schnell, mountain rice, goma plant and paper plant, a diploma.
 D. L. Perkins, 138 varieties of seeds, silver medal.

W. F. Swazy, San Francisco, California bonzet, a diploma.
 W. J. Laveny & Co., very fine sample of starch, a diploma.

Bowen Bros., San Francisco, mountain honey and pop corn, a diploma.

REFINING WINES.—We are told that experiments for refining and giving age to brandies, wines and spirits, by Mr. John L. Constable's process, have been very successful. Brandies and muddy and acid wines have been operated on and have become clear and ripe, and have, moreover, remained in the best condition thereafter, although subjected to severe tests of heat and cold. In 10 to 24 hours, the wine treated ripens as much as it does otherwise in years. A patent for the process is now pending.

The mining town of Portwiae, Sierra County, was almost entirely destroyed by fire on the 1st inst. Twenty-two buildings were burnt down.

Utah.

The people of Utah commenced, so to speak, at the opposite end of the string to that at which the inhabitants of any other place on our coast began. Their first step was to develop the agricultural capacities of their section, their last to investigate their mineral resources; our first, on the contrary, was to open the mines, and then attention was afterwards paid to farming. Which method is the better, is, perhaps, open to discussion, but there are many reasons which point to theirs as the safer and more sure, although, possibly, the slower.

When we look at what the Mormons have accomplished, we are obliged to admire and wonder. Twenty-three years ago a band of about even-score entered the territory. Others came later, but brought nothing save a little food, a small amount of clothing and some agricultural implements. Now there are about 150,000 people there, who are almost entirely independent of the outside world, notwithstanding the many natural difficulties they have had to contend with. The property value, according to the Territorial Auditor's Report for 1868, was \$10,533,873 and the tax assessed for that year amounted to \$52,669.

When the pioneers arrived at Salt Lake, the sandy soil, producing nothing but the sage brush, must have been the picture of desolation. But they gave themselves no time for murmuring, and the very day of their arrival, we are told, they commenced plowing and planting! In 1867, according to reports sent us, this people had some 130,000 acres under cultivation. Of these, there were planted about

80,000	acres in	cereals,
2,400	"	sorghum,
6,800	"	root crops,
300	"	cotton,
500	"	apple orchards,
1,000	"	peach trees,
75	"	grapes,
1.5	"	currants and
30,000	"	were meadow land.

About 94,000 acres had to be irrigated, and the cost, during the year, for canals, dams, cleaning ditches, etc., amounted to \$274,000. The accounts for 1866 show 124,798 acres irrigated, at a total expense of \$303,863. But the great curse of the farmer has been the grasshopper. Coming in resistless numbers, these animals devour everything before them, and strip the country most thoroughly. Luckily, it is often possible to replant and harvest after they have passed over the land. The farmers have had a very hard time this year from this cause.

In home manufactures the Mormons have made wonderful progress. They have manufactured leather and farming tools from the beginning. They built grist and saw-mills at a very early period. In order to keep up the necessary supply of clothes, they used at first the old-time spinning wheel, hand card and loom. In 1849, they imported a carding machine and put it in operation. Then other machines were purchased, and before long they could make a good quality of cloth. The first woolen mill (the "Deseret") was built in 1864, and at least four others are now running, while we hear of the construction of mills at Big Spring (Tooele county), Provo (Utah county), Brigham City (Box Elder county) and Beaver City (Beaver county), while others are said to be in the course of erection. We have received samples of goods from two of the mills, which are of very creditable finish. It is estimated that the mills now running and being built will be capable of turning out cloth of the value of \$700,000 annually.

The people are continually adding to the number of their home industries. One of the most important is the silk business. It would appear that the mulberry can be grown and the silk-worm reared with success in the territory. We have received cocoons from President Young's establishment and understand that there will be,

this year, about two millions of cocoons in Utah. The production of cotton, also, is exciting considerable interest, and there are numerous other productions which may in time grow to powerful interests.

The Mormons have evidently a large number of skilful mechanics. Their factories and mills attest to this. Their Tabernacle at Salt Lake City is a wonderful piece of architecture. They are now building a large organ, the third largest in the United States and the largest ever built in our country, every part of which, except the pipes, is being constructed of Utah material by Utah mechanics.

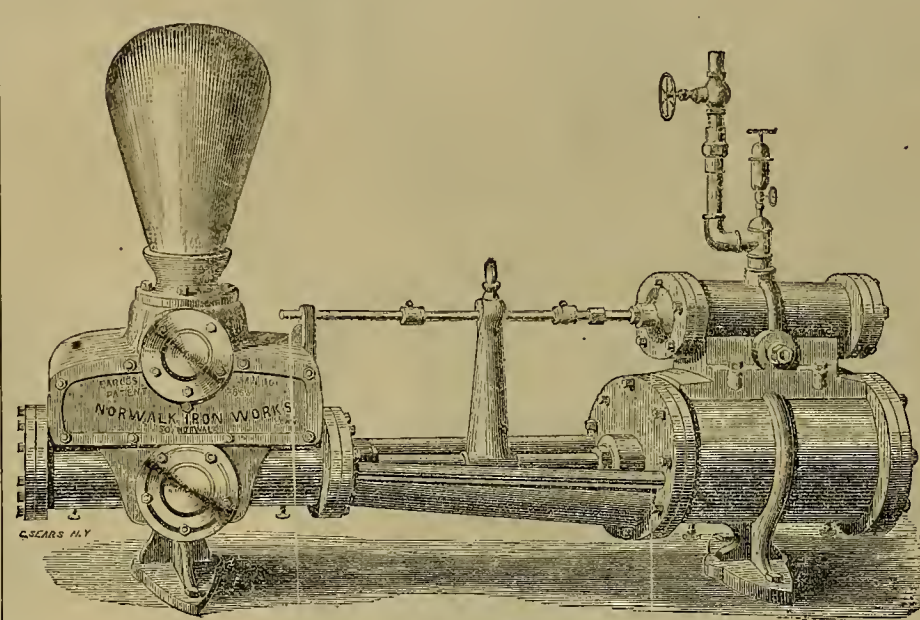
The matter of education has not been neglected. We find, by the Annual Report for 1869, that there are, in the Territory, 243 common schools, with 342 teachers and an average daily attendance of 10,618 scholars. This does not include the schools in Pinte and Sevier counties which were "abandoned in consequence of Indian hostilities." We find in the catalogue of

present almost entirely undeveloped, although we believe she will, at no distant day be one of our largest producers.

The Earle Steam Pump.

There is a steam pump which has taken the highest premiums at the Maryland Institute in Baltimore, the American Institute in New York the Mass. Mechanics' Institute in Boston, and a Certificate of Superiority at the Paris Exposition, to a great extent on the ground of its being the simplest pump made.

This, called the Earle pump, has one single piston steam valve, working in a horizontal direction and having the valve-cylinder jacketed, thus preventing the sticking of the valve which is often a great trouble. It is operated by steam taken from the main cylinder, after it has completed its work and is ready to be exhausted, thus economizing steam to a great extent. The pump is made of the smallest possible number of parts, the main object



EARLE PATENT STEAM PUMP.

the University of Deseret for the academic year, 1869-70, the names of 14 officers of the Faculty, and a total number of 546 scholars,—307 males and 239 females.

As to the character of the people, all accounts from persons who have visited the Territory agree in representing the Mormons as most industrious, earnest, orderly and frugal. They are kindly disposed one towards another and ever willing to help their neighbors. They are imbued with the co-operative spirit and are determined to foster and promote home industries to the highest degree. They are among the best of citizens and are, without question, devotedly loyal to what they consider the right.

In leaving the mineral resources to be apokee of last to these few brief remarks on the Territory, we have but followed the order of events. There is apparently no reason to doubt, however, but that Utah is rich in this respect. Coal is found in various localities, as in Summit and Saupete counties, of a good quality. Iron also is known to exist in large amounts. As early as 1832 smelting works were built in Iron county, although subsequently abandoned on account of want of proper fuel. In Summit county there is also considerable ore. The Union Iron Co. was in successful operation with two furnaces in January of last year, and it may be remarked, the "last spike" of the Utah Central R. R. was of Utah iron. Silver, lead and copper are found in various localities. Last week, we heard of a new and rich discovery in Rush Valley, some forty or forty-five miles west of Salt Lake City. But with regard to metals, Utah is

being the greatest simplicity consistent with great efficiency. Every part is easy of access, the joints are all ground, and both pistons have spring rings. There are different kinds made for various purposes, the construction of the water cylinder rendering it easy to change the valves, thereby fitting them for either hot or cold, thick or thin liquids, oils or acids. The manufacturers recommend it highly for mining as well as for other purposes. To show its power they give examples, among others, of a No. 7 pump drawing 16,000 gallons of water hourly one thousand feet, with an elevation of twenty-five feet, and forcing it up the hill to the top of the buildings, and doing this with steam brought from boilers situated 575 feet from the pump; also of a No. 6 pump forcing 4,000 gallons of oil per hour through two miles of tubing and over two summits, each 300 feet high, and doing this with a small 8 horse portable boiler.

The pump is claimed to move without noise or jar and as smoothly at a high as at a low speed. Furthermore it is sold at a low price. There are other points claimed which we have hardly the space to speak of here, but which may be learned fully by applying to Baker & Hamilton, No. 13 Front Street, S. F.

STATE GEOLOGICAL SURVEY.—Prof. Whitney leaves for the east, this week or next, in order to superintend the publication of the books of the survey, the printing of which was stopped by the failure of the Legislature before the last to donate funds for the continuance of the work. Meanwhile work will be continued by parties in Lake county and along the courses of the ancient river beds.

A Full List of Patents Issued to Pacific Coast Inventors.

[FROM OFFICIAL REPORTS TO DEWEY & CO., U. S. AND FOREIGN PATENT AGENTS, AND PUBLISHERS OF THE SCIENTIFIC PRESS.]

FOR THE WEEK ENDING AUGUST 30TH.

GANO-PLOW.—Abram Ellison, Marysville, Cal.

MACHINE FOR FORMING SHEET-METAL MOLDINGS.—Henry G. Fisko, San Francisco, Cal.

CARRIAGE.—John R. Hiller, Woodland, Cal., assignor to himself and Clark Elliott, same place.

CATTLE-STANCHION.—John D. Scott, Alviso, Cal.

PUMP.—Martin Wilcox, Sacramento, Cal.

WASHING MACHINE.—Lowell L. Peck, Portland, Oregon.

NOTE.—Copies of U. S. and Foreign Patents furnished by DEWEY & CO., in the shortest time possible (by telegraph or otherwise), at the lowest rates. All patent business for Pacific coast inventors transacted with greater security and in much less time than by any other agency.

EXCEEDINGLY INGENIOUS.

—We were shown, a day or two ago, a most ingenious device. It is a carpet stretcher but has, in addition, a hammer, operated by a spring, by which the carpet while held by the stretcher, is tacked in place. It is exceedingly simple and enables one person to lay, stretch and tack a carpet while standing upright without other assistance. The merits of this device are palpable at first sight. Another most simple and effective contrivance—for hitching horses—has likewise been shown us by the same parties. This consists merely of a hopple for the fore-legs of the animal, which is connected by a strap with the strap of the bridle under the jaw. This does away with hitching posts and weights and renders a runaway impossible. It is bound to come into favor. E. A. Friend & Co., 601 California street, have both the these devices, which are well worth trouble of going to see.

The Agricultural Fairs.

The Agricultural Fairs in various parts of the State have now fairly commenced, having been opened by the Pomological and Horticultural Fair in this city, which closed on Saturday last.

The Northern District Fair, at Marysville, closed its session yesterday, as also did the Contra Costa County Fair at Pacheco. All of these Fairs have been well attended, and have made a highly creditable exhibit.

The State Agricultural Society opens its annual exhibition in the Pavilion at Sacramento, on Monday next, and will continue through the entire week. Great exertions have been made to make the exhibition one which shall be creditable to the State, and it is hoped the attendance will be large. The various railroads and steamer lines, have extended their usual liberality in passenger reductions free freight.

The San Joaquin District Agricultural Fair commences at Stockton Sept. 20th, and will continue five days.

The Sonoma County Fair will commence on the 3d of October, and continue six days.

The Santa Clara County Fair commences October 4th, and continues five days.

The Oregon State Agricultural Fair, will be held at Salem, commencing Oct. 10th and continuing six days.

It is to be hoped our agricultural producers will take a proper interest in the several places and do all they can to make them, one and all, a complete success.

Lynde's Safety Appliances for Boilers.

In this Age of Steam, anything which has gained the reputation of making the use of the steam engine safer or more

steam above a certain pressure, and it is so arranged as to be at all times under the control of the master mechanic, while it cannot be tampered with by others, for it can be locked up or sealed after being set in a different case, as generally used on stationary and marine boilers; and Fig. 3, the locomotive valve without the case. The following is the explanation given us: The valve is held down by the spiral

fall until the spring can overcome the disc, C, when it will suddenly cease blowing. The margin between commencing, and blowing hard enough to actually prevent any more pressure, is, at the will of the person who sets it, from 1 to 5 pounds (or

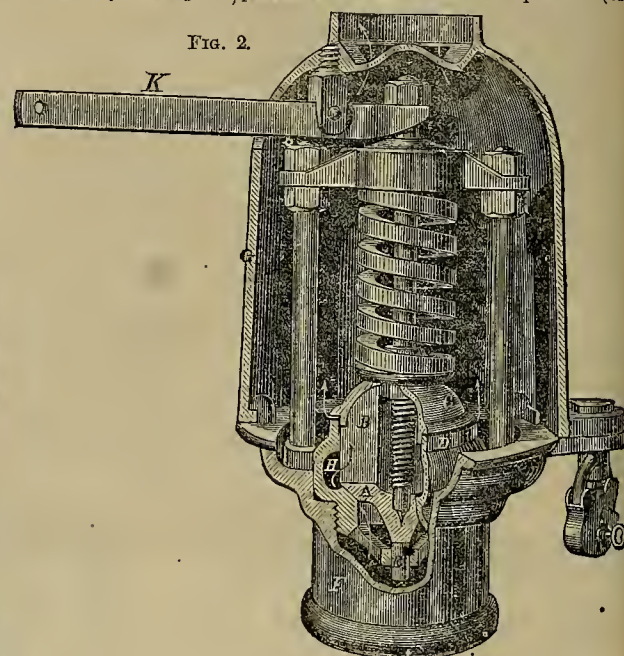
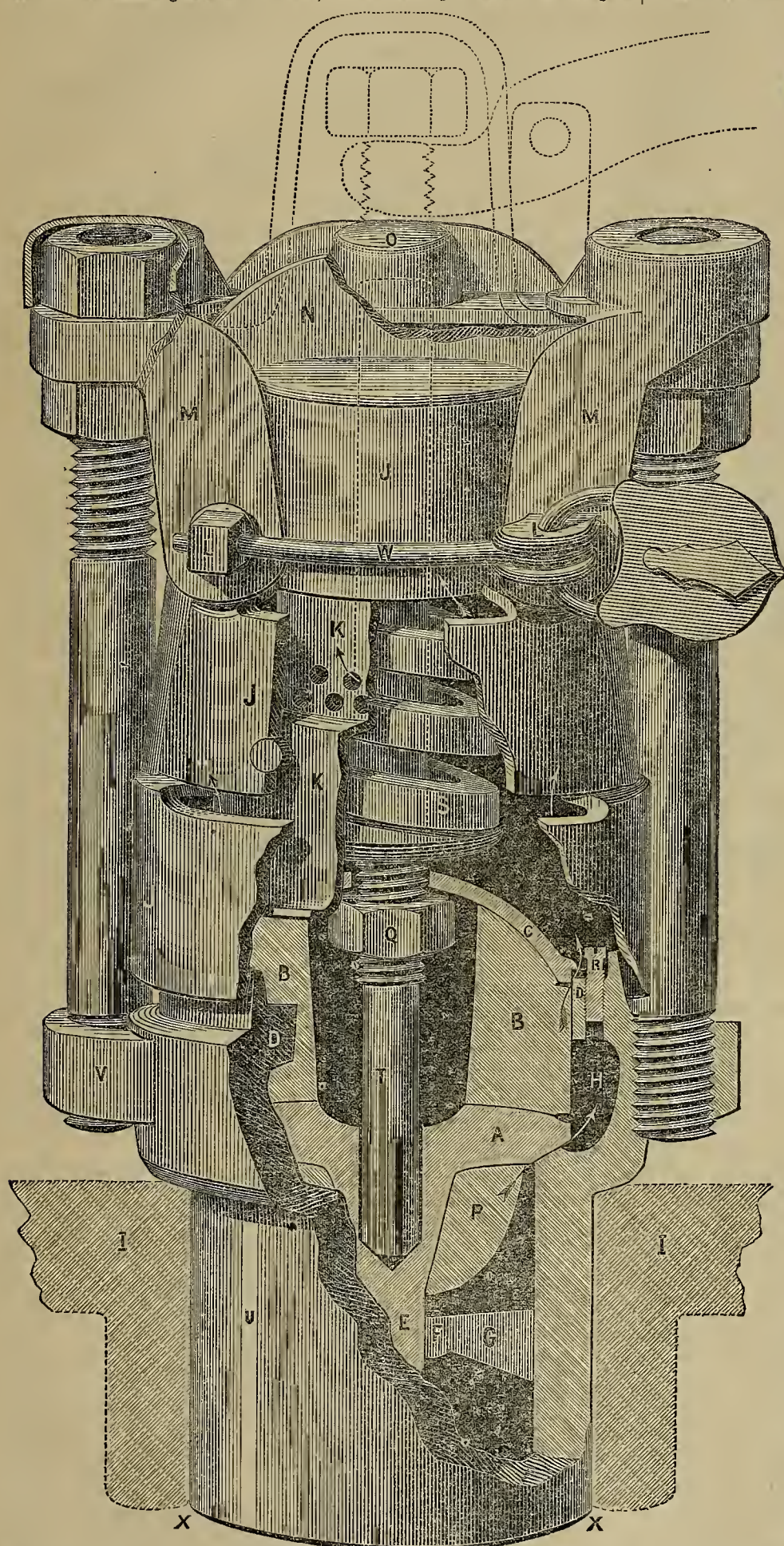
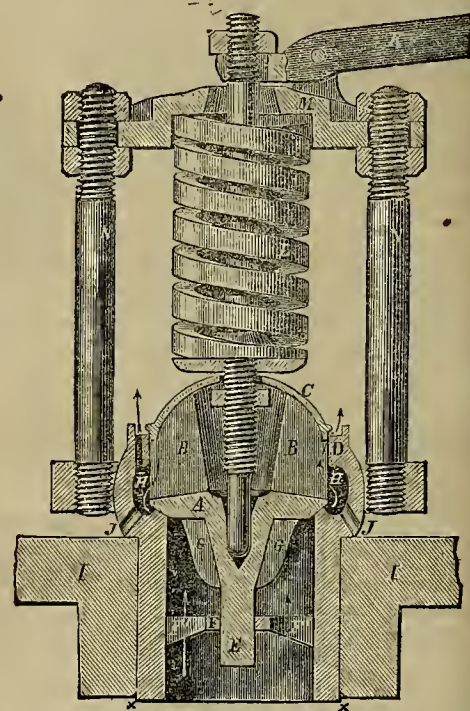


FIG. 3.



economical has become a matter of importance and interest. Such a device is the safety valve which we illustrate to day, by the use of which, it is said, the two causes—low water and over pressure—assigned for the great majority of boiler explosions, may be avoided. It certainly would appear to approach very near to the ideal of a safety valve, which should discharge all the

and cannot be altered afterwards without detection. Again, it is so constructed that it may be set to open suddenly, blow down rapidly and stop, as some engineers think best, or to open gradually, as most prefer. So much we give as introductory to the description.

The large cut represents a full size locomotive valve; Fig. 2, the same valve

which, the valve A being lifted directly off its seat, more steam will enter the chamber than can pass out between C and D. Of course then the full pressure will be exerted against C, which from its concavity will cause an increased pressure against the spring, overcoming the extra power caused by compression, when the valve will rise and steam is blown off rapidly, causing the pressure to

spring, L, Fig. 3, and guided by the stem, E, below, and guide wings B B, above. A, B and C are a single casting; C being a disc or cover, connected to A by wings, B B. As the steam commences to force the valve open, it first enters the chamber, the roof of which is the disc C, and must pass out between C and D—of course C rises with A—but the space between C and D will not be increased until the lower edge of C reaches the top of D; before

more if desired).

The large cut has portions "broken out" to show the working part. The case, J, is in two pieces or halves, which are held together by the screw-bolts, L L, which also confine the caps, M M; the hole of the back ear of the cap being tapped, into which L screws, so that to remove the case the bolt must be unscrewed; this is prevented by the bar, W, which is fastened, being eyed at one end, by a lock or pin and seal, in the bolt head as shown. W is of hardened steel so it cannot be removed by bending. J is cast iron, while the other parts of the case are of best composition, thus having strength and lightness. The shield, K, prevents wedging the spring or barring the valve through the posts in J. The cut shows the arrangement without the try lever, (as K, in small cuts,) but it is easily applied if wanted, as shown by the dotted lines at the top.

The stationary and marine valves are screwed or flanged as desired to connect them, but the locomotive valve is fitted into the dome-cap (a portion of which, I I, is shown in the cut) and riveted at X X, to hold it in place.

These appliances are working into public favor as they have opportunity to be tested in practice. Unsolicited testimonials have been sent to their proprietor, who is ready to show them or give any desired information. For such or for circulars and agencies apply to J. D. Lynde, 405, N. 8th street, Philadelphia.

Professional Cards.

JOHN GORMAN,
NOTARY PUBLIC.
COMMISSIONER FOR
Nevada, New York, Etc.
No. 612 MERCHANT STREET. 5v20-3m

JOHN ROACH, Optician,
Has removed from 222 Montgomery street to
540 Washington street.
East of Montgomery.
Surveying Instruments, repaired and adjusted
2v47-1m

GRAY & HAVEN,
TORREYS AND COUNSELLORS AT LAW,
Building of Pacific Insurance Co., N. E. corner Cal-
ifornia and Leidesdorf streets.
7v16
SAN FRANCISCO

REMOVAL.
DR. BEERS, Dentist.
Has removed from Tucker's Building to
102 Montgomery street, three doors
north, opposite the Occidental. 2v20-3m
Dr. J. H. PAINE, Dentist,
Adams House, No. 225 Bush street,
between Comstock and Occidental
streets, San Francisco.

Business Cards.

A. H. JORDAN,
Architect, Designer and Draughtsman,
No. 440 Montgomery Street,
SAN FRANCISCO. 1v19-qy

Farmers and Mechanics
BANK OF SAVINGS,
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Interest paid on Deposits. Money Loaned on Real Estate.
H. DUTTON, President.
FRANK CONOEE Cashier 1v15-3m

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For sale—Mahogany, Spanish Cedar, and other Woods.

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E. Corner of Mission and Fremont sts.,
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of every description, manufactured 2v16qr

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Between Bush and Pine streets, San Francisco.

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SUSCRIBERS MOUNTAIN SILVER. Meerscham
pipes Boiled and Repaired. Amber Mouth-pieces Fitted.

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SECOND DEPARTMENT.—Feed Ground, Corn Meal, Oat
Meal, Graham Flour, etc., constantly on hand. 7v20qm

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CORDAGE COMPANY.

Manilla Rope of all sizes. Also, Bale Rope and Whale
Line constantly on hand. Mining Ropes of any size
and length manufactured to order.
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611 and 613 Front street.

THE GIANT
POWDER COMPANY.
BANDMANN, NIELSEN & CO.,
General Agents,
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Machinist, and Maker of Models
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All kinds of Dies, Stamps and Punches made. Also,
all kinds of Small Gear-cut. Repairing done on very
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MILLS. It being constantly received and transported
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few days of the time of its manufacture, and is in every
way superior to any other Powder in Market.
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Three Gold Medals
By the MECHANICS' INSTITUTE and the STATE AGRICULTURAL SOCIETY for the superiority of our
products over all others.
We also call attention to our

HERCULES POWDER,
Which combines all the force of other strong explosives
now in use, and the lifting force of the BEST BLASTING
powder, thus making it vastly superior to any other
compound now in use.
A circular containing a full description of this Pow-
der can be obtained on application to our Office.
1v20-3m
JOHN F. LOHSE, Secretary.

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IMPORTERS AND REFINERS
OF
Illuminating, Lubricating,

PAINT OILS,
CONSISTING OF
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PATENT CANS.
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Rare, Rich and Spicy.

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chines—by
WHOLE WORLD
being Judges—as they
are the LAST, and are
are BEST! Why?
Because the WEED
Machines—TO
work with
ease, and with more
VARIETY. Buy the
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and see S. E. Horn, 223
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THE SCIENTIFIC PRESS is a valuable journal for all
persons engaged in matters connected with practical in-
dustry where science or machinery are needed.—*Colo-
rado Herald.*

Railroads and Steamers.

Central Pacific Railroad.

Time Schedule, September 2, 1870.

EASTWARD.			
San Francisco	Leave	Express	Mixed
Oakland	8:00 A. M.	8:10 P. M.	7:00 P. M.
Stockton	8:30 A. M.	8:40 P. M.	7:30 P. M.
Sacramento	9:00 A. M.	9:10 P. M.	8:00 P. M.
Marquette	9:30 A. M.	9:40 P. M.	8:30 P. M.
Chico	10:00 A. M.	10:10 P. M.	9:00 P. M.
Colfax	10:30 A. M.	10:40 P. M.	9:30 P. M.
Wendover	11:00 A. M.	11:10 P. M.	10:00 P. M.
Battle Mountain	11:30 A. M.	11:40 P. M.	10:30 P. M.
Parlin	12:00 P. M.	12:10 P. M.	11:00 P. M.
Eiko	12:30 P. M.	12:40 P. M.	11:30 P. M.
Kellon	1:00 P. M.	1:10 P. M.	12:00 P. M.
Golden	1:30 P. M.	1:40 P. M.	12:30 P. M.

WESTWARD.		Express Train Daily.	Passenger Sundays excepted	Mixed
Ogden	Leave	6 00 a m		5 00
Kellon	"	6 42 p m		1 30
Parlin	"	8 45 a m		7 15
Golden	"	10 15 a m		9 45
Battle Mountain	"	1 35 p m		3 15
Wendover	"	4 05 p m		3 40
Colfax	"	1 10 a m		1 30
Chico	"	8 45 a m		12 50
Marquette	"	6 30 a m		2 30
Sacramento	"	9 10 a m		6 30
Stockton	Arrive	11 25 a m		6 30
Oakland	Leave	11 45 a m	7 00 a m	7 30
San Jose	"	1 40 p m	8 38 a m	
San Francisco	Arrive	5 55 p m	12 01 p m	
Oakland	"	5 30 p m	2 10 p m	
San Francisco	"	6 00 p m	12 40 p m	9 30

P. M.	A. M.	Local Times.	A. M.	P. M.
3:00	9:00	Leave, San Francisco	10:40	7:30
3:20	9:20	Leave, Oakland	10:12	7:05
4:40	11:00	Leave, Niles	8:40	5:35
5:35	12:00	Arrive, San Jose	7:45	4:35

From	From	From
SAN FRANCISCO.	OAKLAND.	SAN JOSE.
B 6:40 A. M.	B 6:40 A. M.	B 5:30 A. M.
D 8:00 " "	B 6:35 " "	B 5:45 " "
9:00 " "	8:00 " "	7:50 " "
O 10:00 " "	9:00 " "	9:50 " "
11:00 " "	10:00 " "	" "
O 12:00 P. M.	11:00 " "	11:50 " "
2:00 P. M.	12:00 " "	" "
O 3:00 " "	2:00 P. M.	2:50 P. M.
4:00 " "	3:00 " "	" "
5:15 " "	4:00 " "	" "
6:45 " "	5:20 " "	6:45 " "
B 11:30 " "	6:55 " "	" "
From	From	From
SAN FRANCISCO.	ALAMOGA.	HAYWARDS.
B 7:20 A. M.	B 6:55 A. M.	B 4:50 A. M.
E 9:00 " "	R 7:30 " "	B 7:00 " "
B 9:30 " "	E 9:00 " "	E 8:30 " "
EC 11:30 " "	R 9:00 " "	B 9:10 " "
1:30 P. M.	E 11:25 " "	E 11:00 " "
3:30 " "	B 11:35 P. M.	" "
6:00 " "	4:35 " "	3:55 P. M.
" "	E 6:05 " "	" "
B Sundays excepted.	R Sundays only.	" "
D To Oakland only.	G To Fruit Vale only.	" "
A. N. TOWNSE, Gen'l Sup't	C. P. R. R.,	" "
T. H. GOODMAN, Gen'l Pass'g Agent,	Sacramento.	" "

SHORT ROUTE.



The following time will take effect

Sunday.....April 24, 1870.

GOING NORTH—DAILY (SUNDAYS EXCEPTED).

New World	Trains	Trains	Trains
Leaves	Arrive at	Arrive at	Arrive at
S. Francisco.	Callista.	Sacramento.	Marquette.
7:00 A. M.	11:15 A. M.	11:30 A. M.	1:00 P. M.
4:00 P. M.	7:15 P. M.	8:30 P. M.	9:30 P. M.

ON SUNDAYS.

Train leaves S. Francisco	Trains leave Callista	Trains Leave Sacramento.	New World Arrives S. Francisco
5:00 A. M.	6:45 A. M.	6:15 A. M.	10:30 A. M.
1:15 P. M.	2:45 P. M.	3:15 P. M.	7:30 P. M.

ON SUNDAYS.

10:15 A. M.	3:40 P. M.	12:30 P. M.	6:45 P. M.
TICKETS for sale at 415 Montgomery street or on board steamer New World. E. S. WATKINS, Superintendent. L. C. FOWLER, General Freight and Passenger Agent. N. B.—Branch Office of Western Union Telegraph Com- pany, Front and Vallejo street wharf. 13v20-1y Vallejo, April 24, 1870			

REDUCTION IN FARE

FROM

San Francisco to New York

—AND—

BOSTON.

—VIA—

**THE OHIO, BURLINGTON AND MIS-
SOURI RIVER RAILROAD.**

NEW YORK.....\$135 00
BOSTON.....139 25

Ticket Office, No. 208 Montgomery Street.
24v20
SAM. A. LEWIS, Agent.

Pacific Mail Steamship Company.—For
New York, via PANAMA. PRICES GREATLY REDUCED.

Leave wharf corner of First and Brann streets punctu-
ally at 11 o'clock A. M. on the 3d and 15th of each
month (except when either date falls on Sunday, then
on Saturday preceding), for PANAMA, connecting, via
Panama Railroad, with one of the Company's splendid
steamers from ASPENWALL for NEW YORK.
September 17.....MONTANA
Connecting with the Alaska.
All steamers touch at Acapulco; the steamer of the 24

is expected to touch at San Jose de Guatemala; steamer
of the 18th touches at Manzanilla.

For Japan and China.—Steamers leave on the
1st of every month, punctually at noon, for YOKO-
HAMA and HONGKONG, connecting at Yokohama with
the Company's Branch Line for SHANGHAI, via Higo
and Nagasaki.

October 1.—JAPAN, Captain Warsaw.
Apply at the Pacific Mail Steamship Company's office
corner Sacramento and Leidesdorf streets.
13v20
ELDRIDGE & IRWIN, Agents.

Metallurgy and Ores.

A. T. GREEN,
COMMISSION MERCHANT,
No. 3 Front Street San Francisco
Agent for SAMPLING, CRUSHING, ASSAYING and
SELLING OF ORES. Shipments received from miners,
and the entire business transacted with promptness and
accuracy. MERCHANDISE of all descriptions pur-
chased and shipped on Commission for Country Mer-
chants. Consignments of PROVISIONS received and
sold at the highest market prices.
Refers, by permission, to Jas. Linforth, of Linforth,
Kellogg & Co.; Jona. Hunt, Pres't. Pacific Insurance
Co.; A. J. Ralston, Sec. Pacific Insurance Co.; J. A.
Donohoe, of Donohoe, Kelly & Co.; Falkner, Bell & Co.;
Badger & Lindenberg; Taft & Co., and J. B. Roberts,
Esq. 23v20-3m

MORRIS & WHITE,
Practical Assayers and Metallurgists,
No. 30 and 36 Fremont Street,
SAN FRANCISCO.

Ore of all kinds worked by Pan Amalgamation, Chlo-
rination, or Smelting—guaranteeing to work as close to
the Fire-assay as any persons on the Pacific Coast.
Gold and Silver Ores and Sulphurets bought.
12v20-qr

CALIFORNIA ASSAY OFFICE,
(Successors to Geo. E. Rogers)
No. 512 CALIFORNIA STREET,
One door west of Montgomery.
H. H. LAWRENCE.....Manager.
J. A. MARS.....Assayer.
Analysis of Ores, Minerals, Waters, etc. 10v20

G. W. STRONG & CO.,
Metallurgical Works,
No. 10 Stevenson Street, near First.
Ores worked and Tests made with care. Also, Assays
of Gold, Silver, Copper, Lead, Tin, and other Metals.

LEOPOLD KUH,
(Formerly of the U. S. Branch Mint, S. F.)
Assayer and Metallurgical
CHEMIST.
No. 611 Commercial Street,
(Opposite the U. S. Branch Mint.)
SAN FRANCISCO, CAL. 7v21-3m

RODGERS, MEYER & CO.,
COMMISSION MERCHANTS,
ADVANCES MADE
On all kinds of Ores, and particular attention
PAID TO
CONSIGNMENTS OF GOODS.
4v16-3m

LESSONS IN ASSAYING.
Determination of Minerals and the use of the Blow-
Pipe, to those wishing to gain a knowledge of these
branches. Any person may learn to make the ordinary
assays in a few lessons. Address me at the Pacific
Chemical Works, 215 First street, or Box 1180, Pes
Office. (25-126) HENRY G. HANKS.

MONEY
EASILY
MADE
With our Stencil and
Key-Check Outfit.
Circulars FREE.
7v21-3m



I. O. O. F.
THE NEW AGE,
A WEEKLY JOURNAL OF SIXTEEN PAGES.

The "Official Organ" of the I. O. O. F. on
the Pacific Coast.

Is devoted to Odd Fellowship, the ARTS and SCIENCES
and GENERAL LITERATURE; and as a family paper is not
surpassed by any journal in the United States. Subscrip-
tion price per year by mail, \$5. Delivered in the city,
per month, 50 cents. Office, Odd Fellows' Hall, 327
Montgomery street, San Francisco. 19v19

Notice to Miners and Others.

Letters Patent No. 63,194, granted March 13th, 1866,
secured to me the amalgamation of Metallic Ores in a
closed vessel by the action of Mercury, Mercurial fumes,
steam and agitation, the heat being applied externally.
All persons using, making or selling any Amalgamator in
violation of my rights, are hereby requested to settle for
the past and arrange for the future, as legal proceedings
will be instituted to enforce my rights in the premises.
JOHN T. STAATS, PATENTEE,
5v21-10t No. 323 West 30th Street, New York.

One Per Cent. per Month
Allowed on Six Months' Deposits by the CALIFORNIA
BUILDING, LOAN AND SAVINGS BANK, California
street, one door from Sansome.
THOMAS MOONEY, President 6v19-1m

Reading for the Hour.

A Chemical Dance.

Under this heading, the *Moniteur Scientifique* describes the novel manner in which Dr. Hoffman, of Berlin, showed his pupils an experiment with aniline colors. His wife gave a grand ball. In one of the dances a large number of bouquets of artificial flowers, all snow-white, were given to the ladies, and strips of white silk ribbon to the gentlemen. Waltzing down to one end of the room, the couples held the bouquets and ribbons under a fountain of *eau de cologne*. The white flowers suddenly became beautifully red, violet, blue, yellow and green, while the ribbons carried by the gentlemen assumed similar colors. The secret of the change was that the objects had been previously dusted over with the dry powders of variously-prepared aniline colors, and, on becoming moistened by the *eau de cologne* (alcohol), these powders became dissolved and imparted colors to the objects.

The Rival Breech-Loaders.

The Needle Gun.

The Prussian Needle gun is the invention of Mr. Dreyse, who spent over thirty years in trying to construct a perfect breech-loading rifle. The cartridge is inserted at the rear, and the ignition is produced by the intrusion of a needle into the fulminate attached to the cartridge. The barrel, 36 inches long, is rifled with four grooves down to the breech, where is the smooth chamber, a little larger than the bore, for the cartridge. The rear of barrel is conical and is called the mouth-piece. Over this part there is a six-sided cylinder, which holds all the mechanism of the piece. The air-chamber, next to the cylinder, has the needle pipe screwed into its breech. The ball is spherico-conical. The charge of powder is 56 grains; weight of gun, 10. 27 to 11. 3 lbs. The mechanism can be taken apart without screw-driver, etc., and can be easily and safely cleaned. The objections are that there is danger of a weakening of the spiral spring and a possibility that the needle may not be propelled with force enough to pierce the cartridge.

The Chassepot.

This rifle is the invention of M. Chassepot, after studying the Prussian gun. It resembles the needle-gun, but has several improvements. Its movement is simpler, and instead of being tightly enclosed in the breech by a cylinder, it is almost fully exposed, and employs India rubber as an obturator. It is claimed that this gun is not so easily clogged as the Prussian rifle, is more substantially built and is easier to clean; besides the soldier can more quickly discover any accident to his piece. The projectile is a rather long slug with the end rounded and pointed like our rifle ball. The charge, which is attached to it in a paper covering, is composed of a peculiar powder, specially manufactured for the purpose. The gun carries with certainty over 1000 metres. In loading, the lever is turned, with one motion, from right to left and, with another, pulled back; the cartridge is inserted and the lever pushed back. The gun is now ready to be fired. The above facts are condensed from the *Iron Age*.

VINEGAR IN PASTE.—Paper sometimes will not stick to an old wall. Where there is danger of this, some paper hangers use vinegar in the paste instead of water.

TOMATO VINEGAR.—Take one bushel of ripe tomatoes, mash them in an open tub, add one quart of molasses, and thoroughly mix the whole together. Let the tub stand several days, frequently stirring the mixture. When a decided vinegar odor is given off, the juice should be strained from the pomace and put into casks. Vinegar thus made is equal to the best.

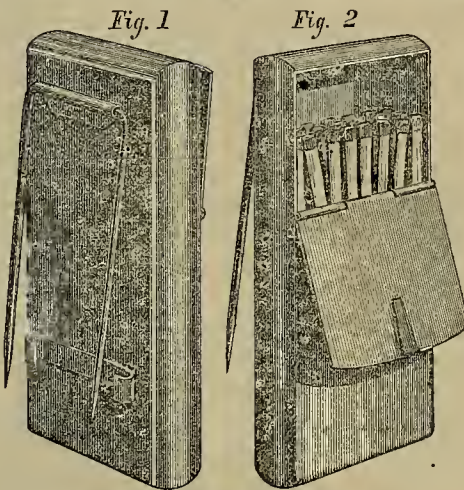
Improved Match Safe.

When so many carry matches, a device for easily and safely holding these combustible articles is a desideratum. One of the latest improvements made in this respect is the one here illustrated, for which a patent was granted last year. It consists in a box with hinged pins and catches on the side of the safe to which the pins are attached. By these the box can be easily attached to the garments of the carrier, making it entirely safe to carry matches on the person, and securing them from moisture. It is believed that there are hundreds who will find the device a great convenience, and this especially when hunting, driving or fishing, at the same time that it will also prove valuable for use in houses. The patentee is Mr. J. W. Durham, who may be addressed at Ripley, Tenn.

Merchants in the U. S. and in Europe.

The merchant of America occupies a very different position, socially and politically, from him who pursues the same calling in England or France.

A friend of mine, who had the good fortune to be the bearer of letters to some of the aristocratic circles of London, told me how quick the warmth of his reception



DURHAM'S IMPROVED MATCH SAFE.

was changed to an icy reserve when he incautiously announced his intention to devote himself to trade. And even the polite Lord Morpeth, at a dinner given him in Boston, forgot himself so far as to speak of certain Englishmen who, he said, were nothing but merchants.

In fact, in Europe, the man of aristocratic claims, though he may sometimes condescend to eat the excellent dinner and borrow the money of his wealthy host, still, in his heart, revolts at any attempt on the part of the man who has made his own fortune to indulge in any familiarity or to presume on any intimacy.

"My dear Paul," said the Baron Rothschild, to a little Prince who had done him the honor of dining with him, "I recommend you to try that wine." "I would call you by your Christian name," said the irate little potentate, "if you had any!"—a witticism which cost the Prince his dominions, if the man of money chooses to foreclose his mortgage upon him.

As for the position of the merchant in France, let one of the raciest of French writers describe it. Edmond About says: "When, unfortunately, a young lady is reduced to marry a splendid looking fellow, rich, educated, honest, well reared, and who gains thirty thousand francs a year by commerce, she takes a roundabout way of writing to her fellow-schoolgirl her downfall: 'My husband,' she says, 'is in commerce, it is true; but then it is wholesale commerce. He does his business on a great scale, and besides, he does not attend to it. He is hardly an hour a day at his counter, and besides, he has promised me to withdraw from business altogether in a short time.'"

And her lady friend, who is about to marry an Under-Prefect, with a salary of nine hundred dollars a year, embraces her warmly and says: "My poor girl! yet I shall ever be the same for thee. My husband is above prejudices. I want you to call upon us with your husband as soon as he has kept his promise and got out of commerce."

Thank God, it is otherwise here. We would not boast, even if we could with

truth, that our ancestors for many generations have done nothing with their hands, and if they have undugged anything it has been their servants and not their brains—that our mothers have in their lives handled nothing more heavy than the visiting card, the fan, and the characters of their neighbors. That we came of a family which has always disdained to make itself useful; every member of which has had nothing to do but to be born in luxury and buried in pomp.—*J. B. Felton.*

A GOOD EDITORIAL IDEA.—Dr. Nichols, editor of the *Boston Journal of Chemistry*, has invited the editors of Massachusetts to spend the 20th of September at his "Lake Side Farm," in Haverhill. It is thought that he will have at least two hundred guests that day.

THE SHIP OF THE DESERT.—On the Yuma Desert, some thirty miles west of Los Palmas, a party has discovered, they say, the remains of a ship. The timbers of the bows and some parts of the vessel are in a well preserved condition. The wreck was found at a spot, the account goes on to state, where there was supposed to have been a saline lake.

TWIN CHICKENS.—It is said in the papers and hence it must be true, that a Santa Barbara hen has succeeded, after several

NEW STEAM SAW-MILL.—A mill recently put up at Worcester Mass., is thus described by a correspondent of the *Railway Times*:—"The saw, five feet diameter, is placed directly upon the crank-shaft of the engine. The cylinder is placed vertically above the crank, at the top of a comely pedestal-like frame. It is lively work for the engine (some 450 revolutions per minute); but the machine works quite steady. A 600-pound fly wheel, upon the same shaft with the saw, is a plate wheel, and is turned all over to insure perfect balance.

GRAIN RECEIPTS.—There is still quite a disposition among farmers to hold back their wheat in the hope of better prices. For the above, as much as for any other reason, the wheat receipts are reported at this port, up to the present time, as something like 450,000 centals less than they were at the same period last year. Barley receipts have also fallen off to a small amount, about 20,000 centals; but the receipt of oats has increased 33 per cent.

THE WESTERN UNION TELEGRAPH COMPANY. owns 104,689 miles of wire. The cost of the lines of the Company has been \$12,000,000; of connecting lines in the United States, \$820,000; of rival lines \$1,030,000; of constructing 5,000 miles single wire lines, made necessary by increase of business, \$750,000; 60,000 miles strung on existing poles at 35c., \$2,100,000; making the total telegraphic outlay of the company, \$16,700,000.—*Ez.*

GOVERNORS IN CONVENTION.—One day this week there were assembled in the dining room of one of the hotels in this city, at the various tables, five Governors and ex-Governors of States and Territories of the Pacific Slope, viz:—R. C. McCormick of Arizona, Leland W. Stanford of California, George W. Blasdell of Nevada, George L. Woods of Oregon, and J. Wilson Shaffer of Utah.

SURVEYORS can have their instruments repaired at C. Muller's, 205 Montgomery street. *

CONTINENTAL Life Insurance Co., 302 Montgomery street, cor ner of Pine.

PHOTOGRAPHY.—For Cabinet Photographs, or Enamelled Cards, of the very best quality, you must go to the NEW YORK GALLERY, Nos. 25 and 27 Third street, San Francisco. Every picture warranted to give satisfaction. 10/13 6m B. F. HOWLAND.

BOILER FELTING saves twenty-five per cent of fuel. BERRY & PLACE'S MACHINERY DEPOT, No. 114 California street. 1v21-3m

BLOCK TIN AND SOLDER WIRE, broom wire, piano covering wire, etc., manufactured by Joshua Gray, 437 Brannan street. 2v19-3m

HAVING had numerous applications to purchase the right to manufacture CHAMPAGNE MEAD (the great temperance drink), we will state that we are now prepared to sell State and County Rights on reasonable terms. KENTON, GASS & CO. San Francisco, July 10, 1870. 2v21-3m

DR. HARTMANN, Physician, Oculist and Medical Electrician, cures all diseases of the eye, such as Granulated Eye Lids, Inflammation of the Eye. Opacities of the cornea cured permanently. Also, Paralysis, Rheumatism and all Nervous and Chronic Diseases, and all Female Complaints. 123 Kearny street. 25-52p

TO PACIFIC COAST INVENTORS.

Dangers of Delay.

Situated so remote from the seat of Government, delays are even more dangerous to the inventors of the Pacific coast than to applicants in the Eastern States. Valuable patents may be lost by the extra time consumed in transmitting specifications from Eastern agencies back to this coast for the signature of the inventor, or by reason of return for amendment when addressed directly by the inventor to the Government.

Saving of Time.

In urgent cases for an immediate patent, persons can deposit the amount of the last fees with us, in San Francisco, and have our Washington agent procure the issue of the papers as soon as granted, saving at least several weeks time which would otherwise be required for the inventor to receive notice and then forward the money. Money advanced for this purpose will be returned, should the application be rejected. By adopting this course, we are enabled, with our other advantages, to secure the receipt of patent papers to inventors on this Coast several months sooner than can generally be done, through agents in the East,—without the applicant going to the risk and expense of sending on the last fee before it is known whether the patent will be granted.

DEWEY & CO., Publishers and Patent Agents, Scientific Press Office, San Francisco.

A NEW BOOK FOR MINERS.—We have received, from the publishers, in San Francisco, a new book entitled, "Roasting of gold and silver ores, and the extraction of these respective metals without the use of quicksilver." This is a handsome little volume of 140 pages, treating on the subject quoted, and is a book that should be in the hands of every intelligent quartz miner, mill owner, and owner of quartz in this Territory. It contains an immense amount of useful information, is well gotten up, and is deserving of public patronage in all mining countries. Its author is G. Rustel, mining engineer and metallurgist, author of "Nevada and San Francisco Processes of Silver and Gold Extraction," and "Concentration of all kinds of Ores." Published and sold by Dewey & Co., proprietors SCIENTIFIC PRESS, San Francisco, California. The Press, by the way, is one of the best and most ably edited papers we receive, and we recommend it to intelligent readers as a journal well worthy of their patronage.—*Helena Gazette.*

ining and Company Advt's.

Monday Silver Mining Company.—Location of Works: White Pine Mining District, White Pine County, Nevada.

Notice.—There is delinquent upon the following described stock, on account of assessment levied on the 14th day of July, 1870, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificates.	No. Shares.	Amount.
Allen, Alex. T.	492	5	\$1 00
Amey, A.	577	30	10 00
Amey, R. M. Trustee.	553	10	2 00
Amey, R. M. Trustee.	579	100	20 00
Amey, R. M. Trustee.	580	50	10 00
Amey, R. M. Trustee.	582	50	10 00
Amey, R. M. Trustee.	631	50	10 00
Amey, R. M. Trustee.	675	50	10 00
Amey, A. F. Trustee.	795	500	100 00
Amey & Jones, Trustee.	577	6	1 20
Amey & Jones, Trustee.	684	100	20 00
Amey & Jones, Trustee.	691	100	20 00
Amey & Jones, Trustee.	713	14	2 80
Amey, E. & Co. Trustee.	731	18	3 60
Amey, Patrick.	739	10	2 00
Amey, Patrick.	775	25	5 00
Amey, W. L. Trustee.	774	hal 33	6 60
Amey, A. E. Trustee.	750	7	1 40
Amey, A. E. Trustee.	776	50	10 00
Amey, A. E. Trustee.	783	50	10 00
Amey, A. E. Trustee.	787	20	4 00
Amey, A. E. Trustee.	788	100	20 00
Amey, A. E. Trustee.	789	5	1 00
Amey, A. E. Trustee.	790	hal 9	1 80
Amey, A. E. Trustee.	793	6	1 20
Amey, A. E. Trustee.	794	20	4 00
Amey, N. H. Trustee.	795	100	20 00
Amey, N. H. Trustee.	796	100	20 00
Amey, N. H. Trustee.	797	100	20 00
Amey, R. O. Trustee.	797	20	4 00
Amey, R. O. Trustee.	798	20	4 00
Amey, R. O. Trustee.	799	10	2 00
Amey, R. O. Trustee.	800	10	2 00
Amey, R. O. Trustee.	801	10	2 00
Amey, R. O. Trustee.	802	10	2 00
Amey, R. O. Trustee.	803	10	2 00
Amey, R. O. Trustee.	804	10	2 00
Amey, R. O. Trustee.	805	10	2 00
Amey, R. O. Trustee.	806	10	2 00
Amey, R. O. Trustee.	807	10	2 00
Amey, R. O. Trustee.	808	10	2 00
Amey, R. O. Trustee.	809	10	2 00
Amey, R. O. Trustee.	810	10	2 00
Amey, R. O. Trustee.	811	10	2 00
Amey, R. O. Trustee.	812	10	2 00
Amey, R. O. Trustee.	813	10	2 00
Amey, R. O. Trustee.	814	10	2 00
Amey, R. O. Trustee.	815	10	2 00
Amey, R. O. Trustee.	816	10	2 00
Amey, R. O. Trustee.	817	10	2 00
Amey, R. O. Trustee.	818	10	2 00
Amey, R. O. Trustee.	819	10	2 00
Amey, R. O. Trustee.	820	10	2 00
Amey, R. O. Trustee.	821	10	2 00
Amey, R. O. Trustee.	822	10	2 00
Amey, R. O. Trustee.	823	10	2 00
Amey, R. O. Trustee.	824	10	2 00
Amey, R. O. Trustee.	825	10	2 00
Amey, R. O. Trustee.	826	10	2 00
Amey, R. O. Trustee.	827	10	2 00
Amey, R. O. Trustee.	828	10	2 00
Amey, R. O. Trustee.	829	10	2 00
Amey, R. O. Trustee.	830	10	2 00
Amey, R. O. Trustee.	831	10	2 00
Amey, R. O. Trustee.	832	10	2 00
Amey, R. O. Trustee.	833	10	2 00
Amey, R. O. Trustee.	834	10	2 00
Amey, R. O. Trustee.	835	10	2 00
Amey, R. O. Trustee.	836	10	2 00
Amey, R. O. Trustee.	837	10	2 00
Amey, R. O. Trustee.	838	10	2 00
Amey, R. O. Trustee.	839	10	2 00
Amey, R. O. Trustee.	840	10	2 00
Amey, R. O. Trustee.	841	10	2 00
Amey, R. O. Trustee.	842	10	2 00
Amey, R. O. Trustee.	843	10	2 00
Amey, R. O. Trustee.	844	10	2 00
Amey, R. O. Trustee.	845	10	2 00
Amey, R. O. Trustee.	846	10	2 00
Amey, R. O. Trustee.	847	10	2 00
Amey, R. O. Trustee.	848	10	2 00
Amey, R. O. Trustee.	849	10	2 00
Amey, R. O. Trustee.	850	10	2 00
Amey, R. O. Trustee.	851	10	2 00
Amey, R. O. Trustee.	852	10	2 00
Amey, R. O. Trustee.	853	10	2 00
Amey, R. O. Trustee.	854	10	2 00
Amey, R. O. Trustee.	855	10	2 00
Amey, R. O. Trustee.	856	10	2 00
Amey, R. O. Trustee.	857	10	2 00
Amey, R. O. Trustee.	858	10	2 00
Amey, R. O. Trustee.	859	10	2 00
Amey, R. O. Trustee.	860	10	2 00
Amey, R. O. Trustee.	861	10	2 00
Amey, R. O. Trustee.	862	10	2 00
Amey, R. O. Trustee.	863	10	2 00
Amey, R. O. Trustee.	864	10	2 00
Amey, R. O. Trustee.	865	10	2 00
Amey, R. O. Trustee.	866	10	2 00
Amey, R. O. Trustee.	867	10	2 00
Amey, R. O. Trustee.	868	10	2 00
Amey, R. O. Trustee.	869	10	2 00
Amey, R. O. Trustee.	870	10	2 00
Amey, R. O. Trustee.	871	10	2 00
Amey, R. O. Trustee.	872	10	2 00
Amey, R. O. Trustee.	873	10	2 00
Amey, R. O. Trustee.	874	10	2 00
Amey, R. O. Trustee.	875	10	2 00
Amey, R. O. Trustee.	876	10	2 00
Amey, R. O. Trustee.	877	10	2 00
Amey, R. O. Trustee.	878	10	2 00
Amey, R. O. Trustee.	879	10	2 00
Amey, R. O. Trustee.	880	10	2 00
Amey, R. O. Trustee.	881	10	2 00
Amey, R. O. Trustee.	882	10	2 00
Amey, R. O. Trustee.	883	10	2 00
Amey, R. O. Trustee.	884	10	2 00
Amey, R. O. Trustee.	885	10	2 00
Amey, R. O. Trustee.	886	10	2 00
Amey, R. O. Trustee.	887	10	2 00
Amey, R. O. Trustee.	888	10	2 00
Amey, R. O. Trustee.	889	10	2 00
Amey, R. O. Trustee.	890	10	2 00
Amey, R. O. Trustee.	891	10	2 00
Amey, R. O. Trustee.	892	10	2 00
Amey, R. O. Trustee.	893	10	2 00
Amey, R. O. Trustee.	894	10	2 00
Amey, R. O. Trustee.	895	10	2 00
Amey, R. O. Trustee.	896	10	2 00
Amey, R. O. Trustee.	897	10	2 00
Amey, R. O. Trustee.	898	10	2 00
Amey, R. O. Trustee.	899	10	2 00
Amey, R. O. Trustee.	900	10	2 00

Mountain City Mining Company.—Location of Mine: Cope District, Elko County, State of Nevada.

Notice.—There are delinquent upon the following described stock, on account of assessment levied on the fourteenth day of July, 1870, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. of Certif.	No. Shares.	Amount.
Best, John T.	34	400	\$100 00
Erhardt, John T.	bal 48	250	62 50
Greek, H. P.	bal 42	100	25 00
Mader, Moses A.	bal 16	2610	652 50
Olis, Stephen.	bal 32	50	12 50
Rogers, F. A.	bal 11	500	125 00
Rogers, F. A.	bal 12	200	50 00
Rogers, F. A.	bal 13	100	25 00
Rogers, F. A.	bal 14	100	25 00
Rogers, F. A.	bal 15	50	12 50
Rogers, F. A.	bal 16	50	12 50
Rogers, F. A.	bal 17	50	12 50
Rogers, F. A.	bal 18	10	2 50
Rogers, F. A.	bal 19	10	2 50
Rogers, F. A.	bal 20	10	2 50
Read, Francis.	33	400	100 00
Sweeney, A. P.	45	250	62 50
Sharp, Wm H.	31	900	225 00

And in accordance with law and an order of the Board of Trustees, made on the fourteenth day of July, 1870, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the residence of Maurice Dore & Co., No. 327 Montgomery St., San Francisco, on the twenty-sixth day of Sept. 1870, at the hour of 11 o'clock A. M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

T. B. WINGARD, Secretary.
Office, 408 California street, San Francisco.
Advertising charges \$2.00 per certificate.

NOVELTY MILL AND GRAIN SEPEARATOR.

THE undersigned having purchased of the Patentees, WILKS & SWIFT, of Hudson, Michigan, their right to this mill, patented June 23d, 1869, for California, Oregon, Washington Territory, Montana, Utah, New Mexico and Arizona, wish to call the attention of FARMERS, MILLERS AND GRAIN DEALERS to one of THE GREATEST IMPROVEMENTS OF THE AGE for cleaning and separating grain. While it combines all the essential qualities of a first-class FARMING MILL, it also far exceeds anything that has ever been invented for the separation of grain. It has been thoroughly tested on all the different kinds of mixed grain, separating all the different seeds in almost a magical manner, placed then in their different compartments for their reception, at the same time taking out all the Mustard, Grass Seed, Barley and Oats, and making two distinct qualities of wheat if desired, thereby selecting superior, large plump and perfect berries for seed, and all the small and cut kernels, such as unthreshable wheat, is deposited in another compartment. By the use of this mill a great quantity of wheat usually sown that has been cleaned in the common mills will be saved to the farmer, as the cut or shrunken kernels will never germinate.

The above mentioned Novelty Mill is the only mill known to possess all these superior qualifications, and was exhibited and tested at the last Michigan State Fair held at Jackson, Michigan, September 21, 22, and 23, 1869, and here away the palm over some thirty other different mills from all parts of the United States, including the famous Dickey Mill of Racine, Wisconsin. All who have witnessed here the operations of the NOVELTY MILL, declare it perfection, and the most beneficial invention to the Farmers, Millers, and Grain Dealers ever introduced on the Pacific Coast. The farmers in Santa Clara County, are loud in its praise, and also in other parts of the State where it is being introduced. No. 1 Mill, complete, is capable of cleaning 25 tons of grain per day; No. 2 Mill, 15 tons; No. 3, 10 tons. A large number of recommendations and certificates of the practical working of the mill will be furnished. Circulars containing references sent free by mail. N. B. Town, County, or State rights for sale on favorable terms. For further particulars apply to

R. B. STONE, 422 Battery Street, San Francisco.

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E. A. FRIEND & CO. 601 California street.

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GLOBE
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NOZZLE
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GEO. W. FOGG, Superintendent.
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MARINE AND STATIONARY,
IRON AND BRASS CASTINGS,
Mining Machinery of Every Description,
And all other classes of work generally done at first-class establishments, manufactured by us at the lowest prices, and of the best quality.
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18v20-3m. GODDARD & CO.

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R. R. & J. CRAIG, PROPRIETORS,
Nevada City, California.
11v21-3m

THE SCIENTIFIC PRESS.—To the miner and farmer we consider the Press the most valuable publication on the Pacific Coast. Every number contains matter of interest to the farmer and general reader; and to the miner the Press is a sine qua non.—Inigo Independent

San Francisco Metal Market.

PRICES FOR INVOICES

Jobbing prices rule from ten to fifteen per cent. higher than the following quotations.

THURSDAY, Sept. 8, 1870.

IRON.—Duty: Pig, \$9 per ton; Railroad, 60¢ per 100 lbs.	
Bar, 1½¢ per lb; Sheet, polished, 3¢ per lb; common, 1½¢ per lb; Plate, 1½¢ per lb; Pipe, 1½¢ per lb; Galvanized, 2½¢ per lb.	
Scotch and Eng. Pig Iron, per ton.....	@ \$30 00
White Pig, per ton.....	28 00 @ 30 00
Refined Bar, bad assortment, per lb.....	03 @ —
Refined Bar, good assortment, per lb.....	04 @ —
Boiler, No. 1 to 4.....	04½ @ —
Plate, No. 5 to 9.....	04½ @ —
Sheet, No. 10 to 13.....	04½ @ —
Sheet, No. 14 to 20.....	05 @ —
Sheet, No. 24 to 27.....	05 @ —
COPPER.—Duty: Sheathing, 3½¢ per lb; Pig and Bar, 2½¢ per lb.	
Sheathing, per lb.....	@ — 26
Sheathing, Yellow.....	20 @ — 21
Sheathing, Old Yellow.....	10 @ — 11
Composition Nails.....	21 @ — 22
Composition Bolts.....	21 @ — 22
TR. PLATES.—Duty: 25¢ cent. ad valorem.	
Plates, Charcoal, 1X, per box.....	12 00 @ —
Plates, 1 C Charcoal.....	10 00 @ 10 40
Roofing Plates.....	10 00 @ 10 50
Banca Tin, Slabs, per lb.....	— @ — 42
STEEL.—English Cast Steel, per lb.....	— @ — 15
QUICKSILVER—per lb.....	@ — 70
LEAD.—Pig, per lb.....	7½ @ — 8
Sheet.....	10 @ —
Pipe.....	11 @ —
Bar.....	9 @ — 9
ZINC.—Sheets, per lb.....	10½ @ — 11
BOLAX.....	35 @ — 38

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FULTON

Foundry and Iron Works.

HINCKLEY & CO.,

MANUFACTURERS OF

STEAM ENGINES,

Quartz, Flour and Saw Mills,

Hayes' Improved Steam Pump, Brodie's Improved Crusher, Mining Pumps, Amalgamators, and all kinds of Machinery.

N. E. corner of Tehama and Fremont streets, above Howard street, San Francisco. S-47

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Iron and Locomotive Works.

INCORPORATED.....APRIL 30, 1868.
CAPITAL.....\$1,000,000.

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Steam Engine Builders, Boiler Makers, Machinists, Foundrymen, and Manufacturers of Car Wheels equal to the best imported, and guaranteed equal to Eastern Wheels.

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John N. Risdon.

JOHN N. RISDON.....President.
JOSEPH MOORE.....Vice President and Superintendent.
LEWIS R. MEAD.....Secretary.

UNION IRON WORKS,
Sacramento.

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MANUFACTURERS OF

STEAM ENGINES, BOILERS,

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COLLECTOR.

WILCOX'S PATENT WATER LIFTERS,

Doobar's Patent Self-Adjusting Steam Piston
PACKING, for new and old cylinders.

And all kinds of Mining Machinery.

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ALL KINDS OF Brass, Composition, Zinc, and Babbitt Metal Castings, Brass Ship Work of all kinds, Spikes, Sheathing Nails, Rubber Braces, Hinges, Ship and Steamboat Belts and Gears of superior tone. All kinds of Cocks and Valves, Hydraulic Pipes and Nozzles, and Hose Couplings and Connections of all sizes and patterns furnished with dispatch.

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SHEET IRON WORK, ETC., ETC.

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W. WUSTHOFF, L. KRAMER, M. HARRIS, J. BURKE.

REAPER AND MOWER SECTIONS, BARS
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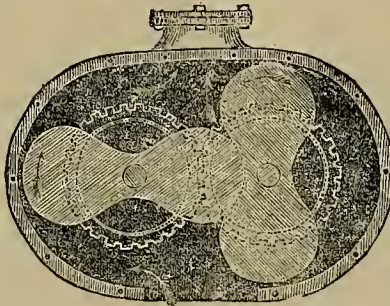
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MANUFACTURED BY KEEP & BARGION,

At the Globe Iron Works, Stockton, California.

Patented Nov. 1st, 1864; July
24, 1866; and Oct. 9, 1866.



Recorded the First Premium at
the Paris Exposition.

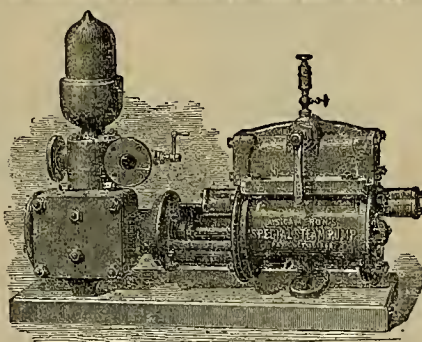
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CAMERON'S
STEAM PUMPS.

PICKERING'S
Engine Regulators.

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INJECTORS.

BARTOL'S
STEAM TRAP.

SURFACE
CONDENSERS.

DAVID STODDART,
114 BEALE STREET.

GEO. T. PRACY'S
MACHINE WORKS,

109 and 111 MISSION STREET,
SAN FRANCISCO.

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PRACY'S IMPROVED
PATENT STEAM ENGINE

GOVERNOR.



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built, running at a high velocity and
maintaining a uniform speed.

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L. W. POND'S CELEBRATED TOOLS,

—SUCH AS—

Lathes, Planers, Drills, Boring Mills, Mill-
ing Machines, Etc.,

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AND CHUCKS OF ALL KINDS.

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PUNCHES. 3v21

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BOILER MAKERS

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Flue or Tubular Boilers, with plain circular or spiral
courses. Upright Flue or Tubular Boilers, Locomotive and
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Hydraulic Pipe supplied at reasonable rates. In order-
ing, give the quantity of water to be supplied, height of
the fall, and total length of pipe, so as to enable the firm to
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terior.—The firm is prepared to furnish estimates of
Boilers, and put new Boilers, drilled and punched, and attend
to the selection and forwarding of iron for Boilers, Pipes
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Plans, Drawings and Specifications.—The firm
is prepared to make out Plans and Specifications, receive
estimates, and superintend the Erection of any Machinery
that may be entrusted to their care.

To Inventors.—The firm is prepared to assist in de-
veloping the plans of those who have the ideas but not the
practical experience necessary to put the same in form, by
making Drawings of their Inventions, giving them the bene-
fit of their practical knowledge in the construction of Ma-
chinery, and attending to the manufacture and introduc-
tion of their Inventions. 1v16t

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Will save 80 per cent. of Tallow, is automatic in its
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AT EASTERN PRICES.

And better adapted to the wants of the Pacific States.
Ascertain our prices before purchasing. 8v20q

New York Metal Market.		
[CORRECTED WEEKLY FROM THE AMERICAN ARTISAN.]		
New York City, Saturday, Aug. 27, 1870.		
IRON.		
Pig, Scotch, No. 1 (cash), per ton.....	\$31 50	@ \$36 50
Pig, American, No. 1 (cash).....	32 00	@ 33 00
Pig, American, No. 2.....	30 00	@ 31 00
Swedish, ordinary sizes.....	115 00	@ 125 00
Common.....	72 00	@ 80 00
Refined.....	71 50	@ 85 00
Home-made.....	85 00	@ 120 00
Hoop.....	105 00	@ 115 00
Scroll.....	87 50	@ 115 00
Nail-rod, per lb.....	6 1/2	@ 7 1/2
Spring.....	7 1/2	@ 8 1/2
Tire.....	7 1/2	@ 8 1/2
STEEL.		
Bars, best cast, warranted, per lb.....	10 1/2	@ 17 1/2
Sheet, second quality.....	16 00	@ 17 00
Sheet, third quality.....	14 00	@ 15 00
Saw-plates, circular.....	27 00	@ 28 00
Double-shear, warranted.....	23 00	@ 24 00
Single-shear.....	19 00	@ 20 00
Montague & Co. (cast bars).....	18 00	@ 19 00
Machinery, round.....	11 00	@ 12 00
German, best.....	11 00	@ 12 00
German, good.....	12 00	@ 13 00
German, cast.....	10 00	@ 11 00
Blister, warranted.....	16 00	@ 17 00
Blister, common.....	15 00	@ 16 00
Jessop & Sons, common.....	17 00	@ 18 00
Double-shear.....	26 1/2	@ 27 1/2
Stone-ax shape.....	26 1/2	@ 27 1/2

Notice.

To the Readers of the
SCIENTIFIC PRESS

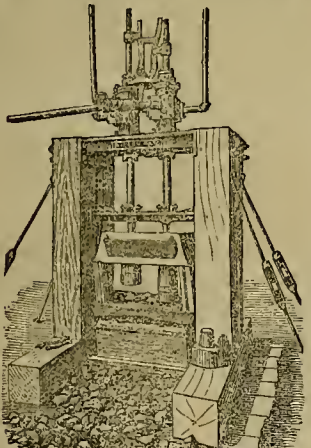
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Nos. 31, 317, 319 and 321
PINE STREET, SAN FRANCISCO.

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Coast. At Wholesale and Retail. 8v213m

Machinery.

**THE WILSON
Patent Steam Stamp Mill.**



This extraordinary Mill, now so justly popular in the East, is now offered to the miners of the Pacific Coast. Having been in operation now for about two and a half years, the Company feel confident that the

WILSON STEAM STAMP MILL,
For Durability, Efficiency,
AND ECONOMY OF WORKING,
HAS NO EQUAL.

The Wilson Steam Stamp Mill is the only Steam Mill that has had the severe ordeal of practical working, and proved itself eminently successful. It is now in operation in several of the Eastern States and Territories, and is gaining an enviable popularity. The whole machine is so simple as to be readily understood by the most ordinary minds. In fact, its simplicity is its durability. The expense of crushing rock or cement with this Mill is less than one-half the expense of any other Stamp Mill, and less than one-half the cost. For further particulars inquire of

FURMAN R. WILSON,
San Francisco.
Or of THE WILSON STEAM STAMP MILL CO., 326
Walnut Street, Philadelphia, Pa.

NOTICE.—All persons are hereby warned not to manufacture or use any Steam Stamp Mills that are an infringement on the Wilson Patents, as they will be prosecuted to the utmost rigor of the law.

F. R. WILSON,
Supt. W. P. S. S. M. Co., Philadelphia.

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Infallible
Government Counterfeit Detector,
at Sight.

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Genuine designs from the original Government plates, by authority from the U. S. Treasury Department, and the American National, and Continental Bank Note Cos., New York, and Boston.

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Combination Micro-Telescopic Glass,
Capable of three Changes.

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1840 1870

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Price 25 cts., 50 cts., and \$1 per bottle.

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SELTZER
APERIENT.**

MENTAL MADNESS.—Let us hope that the insane practice of administering poisonous evacuates in cases of indigestion, hitherto, constipation, and female debility, is almost of date. When the Tonic-Cathartic produced by Nature herself in the most valuable Sanitary Spring in the world is re-produced by science, in the form of TARRANT'S SELTZER APERIENT, it is indeed midsummer madness to rack, relax and irritate the diseased or enfeebled system with drastic purgatives. This refreshing and delicious counterpart of a remedy, prepared by the creative hand of the Omnipotent Physician Himself, is everywhere superseding the nauseous and sickening compounds heretofore used as laxatives.

SOLD BY ALL DRUGGISTS.

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The SCIENTIFIC PRESS is one of the most interesting of our Exchanges, and is specially devoted to giving full accounts of mines and all new inventions and improvements in mining machinery, and machinery of all kinds. It also contains a general review of mining operations in all parts of the United States, with an epitome of the latest mining news, selected from the local papers of each district. All very interesting to miners and machinists.—Helena Gazette.

Paul's Electric Dry Amalgamating PROCESS.

HAVING FULLY PROVEN UP THE VALUE OF THIS SYSTEM, I would call attention to the mining community to its efficiency, practicability, and cheapness. I am now prepared to furnish all the machinery requisite for thorough working by this process, viz.—one Crusher, one Pulverizing Barrel, one Amalgamating Barrel, two Settlers and one Concentrator, at the following rates, approximate weights.

A 10 ton Mill for \$1750	8 1/2 tons.
A 5 " " " \$2500	6 " "
A 2 " " " \$1000	3 " "

which includes patent rights.

I would call special attention to the 2 ton mill, which is cheap in construction, a mill much needed, as it can be worked by one man easily. The process is superior for flour gold, and highly efficient on silver ores.

Apply to
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408, California Street, San Francisco.

Pamphlets, explaining process, forwarded on receipt of address.

Testimonials as to Process.

DEEP SPRING VALLEY, California, August 13, 1870.—
Mr. Almarin B. Paul—Dear Sir,—Your request that I should give you a statement of comparative results as obtained by our former working by pan process on ores containing gold and silver associated with lead as a sulphuret, carbonate and oxide, as also antimony and iron, with your process as now erected and worked at this mill, I cheerfully comply with. The product from working 2 tons of San Juan ore by our former pan system, showed bullion only 148-1000 fine, value of 19 cts. per ounce, while the product of the first practical test of 11,800 pounds of ore very imperfectly pulverized, and working 500 pounds at a charge of same ore from the same mine and carrying all the above named base metals, was 925 & 935 1/2-1000 fine, and the product per ton over FOUR TIMES THAT OBTAINED BY PAN WORKING without what will be extracted by your mode of working the concentrations. I would state further that I fully realize the fact of your ability to handle what may be termed base metal ores by amalgamation, and extract the precious metals to a higher percentage than pan amalgamation, and that your bullion will range from 925-1000 to 980-1000 fine. Your process is thoroughly practical for working on a large scale, and a valuable acquisition to metallurgical science, and worthy the consideration of the mining community, especially where Lead, Copper, Antimony, Arsenic or Iron interferes with amalgamating the precious metals.

GEO. LANGRIDGE, Supt.
Deep Spring Valley Mining Co.

(Letter from Professor Thomas.)

As one of the stockholders in the Deep Spring Valley Mining Co., I happened to visit the mill at the time the above process was tried on the complicated ores then on hand, and I hereby certify that with very defective mechanical arrangements which were extemporized for the trial, and which did not reduce the ore to anything like a respectable fineness, Mr. Paul obtained bullion worth 127 cts. per ounce. The great problem of obtaining fine bullion from ores that are highly loaded and vitiated by antimony, copper and arsenic, without first of their costly process of oxidation, has been solved for the first time by Mr. Paul's new process. I will further state that the quicksilver appeared to my eye to be as vital and active at the end of the process as when it commenced. On the whole, I am convinced that Mr. Paul's process with his perfect machinery, will achieve all that he claims for it.

R. THOMAS.
Deep Spring Valley, August 13, 1870.

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\$50.....	35 " "	\$60.....	40 " "
\$55.....	40 " "	\$65.....	45 " "
\$60.....	45 " "	\$70.....	50 " "
\$65.....	50 " "	\$75.....	55 " "
\$70.....	55 " "	\$80.....	60 " "
\$75.....	60 " "	\$85.....	65 " "
\$80.....	65 " "	\$90.....	70 " "
\$85.....	70 " "	\$95.....	75 " "
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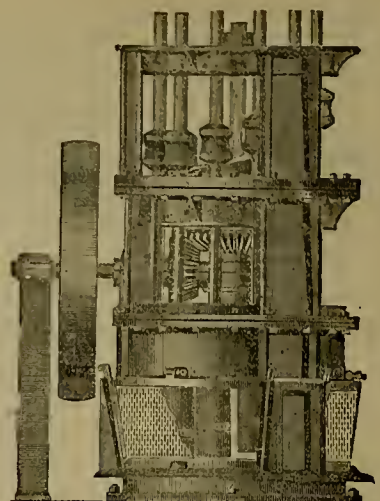
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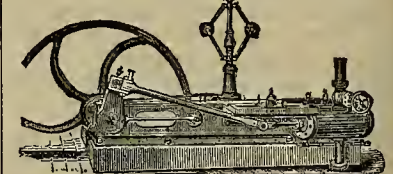
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San Francisco, Saturday, September 17, 1870.

VOLUME XXI.
Number 12.

Asphaltum Pipes.

We have large deposits of asphaltum in our State. The principal ones are found in Santa Barbara county, where it is found from the Santa Maria river, which forms the division line between this and San Luis Obispo counties, to the boundary line of Los Angeles. But it is found also in many other places. It occurs in varied forms, as a hard rock-like substance, or soft, like putty, or even liquid. Many springs on our coast deposit it, while in some places there are springs which do not yield asphaltum, although in the midst of those which do. These deposits are efficient to supply a very large demand. Previous to 1867, most of this material used in San Francisco was brought from Santa Barbara county, some from Los Angeles; but since that time other localities also have furnished us with greater or less amounts.

The use of asphaltum for pavements was introduced into this city in 1855. After many years of trial, we find it still used with increasing satisfaction, so much so, indeed, that, in the late report of the special Committee on Pavements of the Board of Supervisors, it is recommended that "the present popular plan of making sidewalks of this material be continued and encouraged."

For roofing purposes large amounts are also used. The Spring Valley Water Company have employed it for coating their pipes, lining their reservoirs, etc., etc. And there are several other ways in which considerable amounts are consumed.

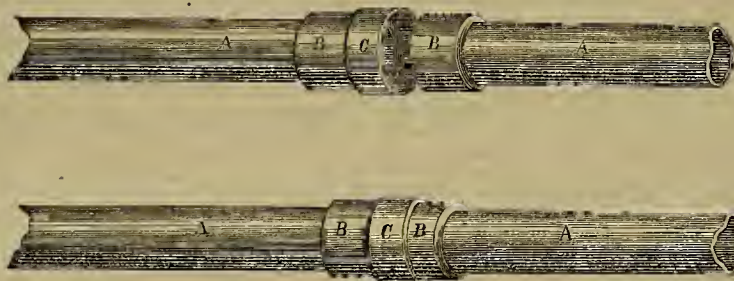
It is of comparative recent date that we have pipes made of this material in this city. Many experiments have hitherto been made here and elsewhere, but until recently without the desired amount of success.

The subject of drainage, sewer and water pipes is now most important, and continually increases in importance as our cities increase in size. We see it stated that, in San Francisco alone, there has been expended over \$300,000 annually for the last dozen years, in laying down brick and wooden drains, etc. Most of these will have to be taken up soon and replaced, for the wooden ones are rapidly destroyed, and the brick ones permit their liquid contents to penetrate their pores and saturate the surrounding earth. The trouble is increased, moreover, by the miserable material which has been used by contractors in some instances, it is asserted, for building the drains. To put down pipes, which, although cheap in the beginning, must be renewed every few years, is folly, when we can get others which will last an indefinite length of time, and arrant stupidity, when we can get durable ones which cost as little or less.

The use of asphaltum in the manufacture of pipes has been tried sufficiently long to demonstrate the superiority of the article for many purposes. In France and other parts of Europe, asphaltum pipes have been in use for many years, and that

It may be more difficult to see how asphaltum pipes can have the required strength to resist pressure from within and from they give satisfaction, is shown by the increasing number laid.

As asphaltum does not oxidize, is not dissolved by the solutions which come in contact with it when laid in the ground, it has in these respects a decided superiority over iron or other metals, which are much less durable. Moreover, for the same reason it gives a cleaner water, which is a most important item for manufactures. Pipes of asphaltum, laid in Paris in 1851, have been taken up more than fifteen years after having been laid, and were found to be in the same condition as when laid down, which is a remarkable evidence of their great durability. It is well known that iron pipes are coated over with asphaltum, before being laid, in order to protect them from the various destructive agencies to which they are exposed.



PIPE JOINT FOR ASPHALTUM PIPES.

without. Of course their strength depends greatly on the manner in which they are made. Our readers will find an account of how asphaltum pipes were made in a factory in this city, in the SCIENTIFIC PRESS of April 16th of this year. There it was shown how a fibrous material was saturated with melted asphaltum and wound into cylinders of the desired size. The thickness of the pipe can be increased at will, and thereby also the capacity of resistance. In Paris, were we told, where the manufacture of this kind of pipe originated, experiments made to test their strength against inside pressure were carried so far as to show that they can easily be made to resist a pressure of 500 pounds to the inch. These experiments were repeated at Hanover with like results. Indeed the company here will undertake to manufacture asphaltum pipes capable of resisting a pressure of 600 pounds to the inch. In the experiments alluded to, not only single but also connected pipes were tested. In London, according to experiments made by Mr. Samuel Hughes, C. E., the power of resistance of these pipes against outer pressure is so great, that they are capable of lying under the highest dam in complete security, supporting with all facility the unequal pressure thereby exercised.

The elasticity of these pipes protects

them from being fractured by sudden shock or concussion, as often happens to other kinds of pipes; and as their expansive power is greater than the expansion of frozen water, they have the peculiar property not possessed by any other pipe,—that of not being burst by the freezing of the water.

Another advantage, of great importance where much freighting is necessary, is the great lightness of the pipe. Its mean weight is given as about one-fifth of that of the same sized iron pipe. This not only diminishes the cost of transportation, but also decreases the expense of laying it down.

About two years ago, a gentleman of this city, after years of experiment, succeeded in making pipe of this description, and applied for a patent, which was, as he thought a California invention. A patent was refused, as a precisely similar invention, which originated in France, had previously been patented in the United States. The gentleman, who is spoken of in our pre-

lower figure. As the joints are ground they fit securely and tightly, and nothing further is necessary. Hence any man can lay the pipe, and it is not necessary to send a special mechanic for the purpose, and thus one important item of expense is saved the purchaser. This is certainly a noticeable feature in this joint. When the joint is thus made, moreover, a straight pull will not separate the pipe, unless a great force is exerted, as it is necessary, (since the joint is ground) to give the end a twist in order to remove it with any moderate effort.

The company are now making six sizes of pipe, which vary from two to six inches in diameter, but they are prepared to make them of diameters of eight, ten and twelve inches. The pipe is made in lengths of twelve feet and is manufactured for water, telegraph, blast and ventilator, and drain conduits. The factory now employs eight men and can turn out about one thousand feet of pipe daily, but the company intend doubling its capacity. Thus their enterprise is growing into an important business and bids fair to become one of the largest of our home industries, employing as it will quite a large number of persons in the manufacture of the pipe and, in addition, giving work to others in extracting the asphaltum and preparing it for use, and making of more general utility one of the natural products of our State.

The efforts of the company have thus far have been very successful. Already they have had orders for the pipe for use in San Francisco, Santa Clara, Petaluma and Colusa. They have, indeed, already laid some ten miles of pipe in this State, and as so far it has given the greatest satisfaction, they are continually receiving further orders. The strength of the material, its durability, its exemption from oxidation, from being acting upon by acid or alkaline solutions, its freedom from affecting the water, its density and impermeability, its elasticity, lightness and consequent ease of handling and laying it, and finally its cheapness recommend it to the careful consideration of all. The cost of the pipe when laid, including connection, is about one quarter of that of lead and one half that of iron.

DESTRUCTION OF FORESTS.—The report of the U. S. Department of Agriculture comes to the startling conclusion that, such is the wholesale destruction of the American forests, there will be an actual famine for wood in the country within thirty years, unless immediate measures are taken to supply their places by new plantations. It is estimated that, from 1850 to 1860, twenty million acres of timber land were brought under cultivation, and that in the present decade no less than a hundred millions will be so reclaimed.

It is stated that there are forty-eight manufacturing factories of railway cars in the United States and that Pennsylvania has seventeen of these.

Communications.

In this Department we invite the FREE DISCUSSION of all proper subjects—correspondents alone being responsible for the ideas they advance.

Notes of Travel in Placer County.

[Written for the Scientific Press.]

Last Chance—Star Town—Damascus—Iowa Hill.

Last Chance is the name of a beautiful little village situated on the highest elevation of the northeastern portion of this county. The distance by trail from Michigan Bluff is 15 miles, but by no good wagon road is it less than 90 miles. The place is very improperly named, for instead of its being the last chance to make a raise, it is among the first—every man at work upon this hill at either mining or gardening is doing well.

The principal mines are situated at Star Town, two miles farther east. This latter place is suspended (fast) to a side hill at an angle of 45 degrees. Here the ladies in winter season go visiting on snow shoes, the snow some winters falling to a depth of 20 feet on a level. Contrary to other parts of the county, they have plenty of water in summer, but cannot work successfully in the winter on account of the water freezing. The Viola Mining Co. have a tunnel in about 1,000 feet, working 10 men, with an average of \$8 per day to the man. The proprietors are Yule, Leet & Gould. Hon. John Yule is Supt. The Morning Star claim, Smith & Co. proprietors, are in about 1,500 feet with their tunnel, working 15 men, and are getting out from \$7 to \$10 per day to the man. These claims are deep channels, blue gravel, and slightly cemented.

On the adjoining divide are situated Damascus and Iowa Hill. At the latter place there is little or nothing doing; at the former, the Lewis claim and the Mountain Gate are making things lively. The latter company are working 25 men, and have their bed-rock tunnel in 4,000 feet. The yield of this mine is a good average (satisfies its proprietors.) These diggings are deep channel; some pay from the top down. Some spots in the main lead, near bed-rock have to be crushed, so hard is the cemented gravel.

Colfax—Gold Run—Dutch Flat.

Colfax is looking up; its quartz mining and prospecting show about as much activity as any other part of the county. The Montana Quartz Mining Co. have a shaft down 81 feet on a ledge 8 feet thick that prospects well. P. McMahon is President of the Company and Acting Manager. This Company has purchased a 10-stamp mill, at Forest Hill, and in a few days will have it in active operation on the claim. The Rising Sun has a 5-stamp mill on their ledge. They own 3,000 feet of a vein that has paid from \$300 to \$400 per ton, and has at all times averaged well. They have been running night and day, and do no custom work. The Montana Mill will be the opening up of this district, for they will be able to do custom work.

The Live Oak, situated 6 miles from here on the American River, has paid regularly \$37 to the ton.

Gold Run is a point (together with Dutch Flat,) which, if more was known of it by tourists, would be visited more than any other mining section in this State, for in less than one hour's time (foot travel,) more can be seen of what has been done than in any other portion of the mines. The diggings are deep channel, with three strata, averaging from 100 to 300 feet deep to bed-rock, all of which have more or less pay in them. The top stratum is a red gravel, the middle stratum a blue gravel and the bottom (extending down to bed-rock) a blue cement, which requires either to be blasted or crushed by mill process, to obtain the precious metal from it.

The principal Hydraulic Claims at work here (Gold Run) are at Iodiana Hill, and are owned by Messrs. Brogan, Hoskin & Judd. They use both the Monitor and the Dictator nozzles. The former (Craig's Patent) seems to have the preference. With 200 feet fall they put 450 inches of water through a 4 inch nozzle, and claim to do more execution with such a stream than with eight 100 inch streams. At the request of many (whom I find using the Monitor) I will give your readers an explanation of its merits.

L. P. Me.

[To be continued.]

In the White Mountains.—No. 1.

BY ALMARIN B. PAUL.

[Written for the Scientific Press.]

I will anticipate my readers who may ask, as many have done, "Where are the White Mountains?" by stating that they are located east of the Sierras, and lie between the this range and the westerly line of the State of Nevada, stretching from a point where they touch the Nevada line, southerly to where the same range takes the name of the Inyo Mts., being some 80 miles in length. They were formerly in Mono Co., Cal., but lately, by act of legislature, transferred to Inyo Co. Here is a belt of mining country little known by the mass, but which has been much explored by the few. Up to within the past few years, it has been quite unsafe to venture in this region, on account of the Indians, who were unfriendly to the whites; but this trouble is all done away with, and I must say, I found them the most friendly and happy tribe that I have met anywhere. The western line of the belt drops off into plains and valleys—Owens' Valley bordering on it for 50 miles. To the eastward, the mountains rise to great heights, say from 8,000 to 12,000 feet above the sea, then fall, range after range, as far as the eye can reach.

Although these ranges, as a whole, may be comparatively perfect, yet the disturbance has been such that, viewing them in a smaller circle, they are irregular and disconnected. Everything denotes great disturbances of nature. In some parts it is evident that mountains have been lifted bodily and turned upon their sides, bringing what otherwise would be perpendicular strata to horizontal positions. The higher peaks carry timber of the pine species, but of larger growth than is usual for the Piñon, while a little lower down the regular Piñon is abundant; lower still sage brush and barrenness generally fill the eye. It is a rough, rugged, hold country. The higher ranges are slate, the lower granite, and all are ribboned with quartz strata. The slate carries deposits of base metals, mainly galena, and all carry more or less of the precious metals.

The leads in the slate are large, and from surface indications, show evidences of being permanent. But little work by way of development has been done from the want of capital and difficulties of isolation; more the former, however, than the latter. The climate is splendid in summer and not cold in winter. All it wants is capital and population to make an advancement.

As is usual where there are high ranges, there are fine mountain streams which afford power for machinery, and a whole some beverage for miners. The two most prominent of these are Wyman and Cottonwood creeks, either one of which would afford power for hundreds of mills. In the granite formation, the lodes are smaller as a whole, though there are ledges 6, 8, 10 and 14 feet wide, all carrying gold and silver in greater or less quantities. Lead as a sulphuret, carbonate and oxide, with some antimony and a little copper, prevades about all the ore. The quantity of galena is not sufficient for smelting, consequently the only method for getting the precious metal is by amalgamation.

There are several individuals operating in one way and another, and the country, we may say, has the nucleus of what is to be a prosperous community. There is one mill in the range, that of the Deep Spring Valley M. Co., hut of this and of Deep Spring Valley District, I will speak in my next. San Francisco, Sept., 1870.

From Utah Territory.

[Continued from page 186.]

Salt Lake City.

Salt Lake City is situated about 20 miles westerly from the lake at the foot of a spur of the Wahsatch mountains. It was formerly reached, from the East, through Emigrant Cañon, this and Parley's Cañon forming the approaches on that side. The scenery here is fine, the mountains forming an imposing feature, their tops being covered with Pine, Maple, Oak and other timber and their sides having in places a reddish tinge, and here and there snow being visible. The city itself is pleasant to the view. Here are broad streets, 132 feet across, running, at right angles, to the four points of the compass, with rivulets of water pouring down their gutters. Rapidly growing fruit and shade trees adorn the gardens and

afford an enticing shelter from the heat of the sun. Hidden among the foliage, the adobe buildings seen pleasant and inviting to the eye. To the west we can see, from an elevated point, the lake spreading out before us, with several islands jutting out from its bed, which islands are utilized for herd grounds, sheep ranges and salt works. The population, estimated at 20,000, is quiet and orderly. There are but few saloons, for a license costs \$600 to commence with and \$300 monthly thereafter, and this alone is sufficient to keep the number small. There is but one billiard saloon in the place, I am told.

The public buildings are principally of stone and well constructed. The Tabernacle, I refer especially to the new one, is a famous piece of architecture and is noted throughout the world. The square opposite, where Brigham Young's residence is, is equally grand. There are good hotels and large stores. My first impressions are certainly most favorable, and the apparent cleanliness and taste make me think this a most beautiful place.

A Bit of History.

The following historical items have been given me and will undoubtedly interest many.

On July 24th, 1847, the pioneers of the Church, about 143 in number, entered Salt Lake Valley, having left the Missonri river on the 14th of April of the same year. On the day of their arrival they commenced plowing and planting, and on the 26th of August had laid out a fort, built 27 log houses, plowed and planted 84 acres with corn, potatoes, beans, buckwheat, turnips, etc., and had manufactured 125 bushels of salt. One year from this date, in August, 1848, the city fort contained 450 buildings, with 3 saw-mills and a flour mill in the city.

On March 9th, 1849, President Brigham Young was elected Governor. On the 27th of that month parties from the East bound for the California gold mines first arrived. On June 15th, 1850, the first newspaper was published, the *Deseret News*, and this, edited by Geo. Q. Cannon, is now the leading paper of the city. January 7th, 1854, John C. Fremont with 9 whites and 12 Delaware Indians, arrived at Parowan in a state of starvation. One man had fallen dead from his pony and others were nearly at deaths door. They rested a few days, were supplied with animals and provisions and then started off again on their prospecting tour.

About Jan. 26th, 1856, an express company was organized to carry express matter from the Missouri River to California, and shares were taken at a mass-meeting held in this city to stock a thousand miles of the road. On October 18th, 1861, the first telegram crossed the Overland wire from Utah, being a message sent to Abraham Lincoln by Brigham Young, and on October 24th, Brigham Young sent the first telegram to San Francisco.

In June, 1868 the Union Iron company commenced operations at Pinto Co.

The Lions of Salt Lake City.

Of course the first place one visits is Temple Block, which is in the centre of the city. In this magnificent square, gilt with trees, are the Temple (in course of construction), the Old Tabernacle and the New Tabernacle. The foundations of the Temple are laid 16 feet below the surface, and on them rest walls, 8 feet thick, of light colored granite from Cottonwood Cañon in the Wahsatch mountains. The corner-stone was laid April 6th, 1853. The walls will be built of a fine quality of granite and there will be six large towers. The length of the building will be 186½ feet and the width 99 feet. The cost will amount, it is estimated, to upwards of three million dollars. The Old Tabernacle, built of adobe, was erected in 1851. It is used for public worship when the larger building is not required, although it is itself of no mean size, being capable of seating 2,500 persons.

The New Tabernacle is in many respects a wonderful building. It is of oblong shape, 250 feet from East to West and 150 feet from North to South. The roof is a single oval span, 80 feet high, and rests on 46 pillars of red sandstone, 9 feet by 3. The ceiling is 62 feet above the flooring. There is, at one end, a large gallery or raised platform for the organ and choir. This hall, perhaps the largest in the world, will seat between eleven and twelve thousand persons, and here are assembled on a Sunday afternoon such a congregation as is to be found hardly anywhere else.

The great organ, now being built, must not be passed by without mention. This is the third in size in the United States, being 48 feet high, 27 feet wide and 30 feet deep, and having some 3,000 pipes. But to my mind the most remarkable fact about it is, that, with the exception of the pipes, which are imported, all the material was obtained from this territory and all the work is being done by Mormons, who show themselves in many ways to be skilled artificers. The builder is Mr. Jos. Ridges, and the estimated cost is 150,000.

The Court House, the City Hall with the prison behind it, and the Theatre all deserve mention. The latter is finely furnished and well appointed, and is capable of seating 1,700 persons. Nor should the Museum be allowed to pass without mention. Mr. John W. Young commenced collecting specimens of the various products and curiosities of the territory in 1869, and ample addition have since been made, until it is grown to be a most interesting affair. The building is one

of the first erected and President Young himself assisted in building it. From this Museum you will have received a number of specimens to be placed in your cabinet.

There are other points of interest here:—the Hot Springs, with waters of a highly medicinal character, Camp Douglass, 2½ miles to the east, on high grounds, with quarters for 3,000 troops; etc., etc. Nor must I forget the Salt Lake House and the Townsend House, two hotels of the very first class.

There are three papers published here:—the *Deseret News*, edited by Geo. Q. Cannon, one of the Twelve Apostles, issued daily and semi-weekly; the *Salt Lake Tribune*, issued weekly by Godbe and Harrison, and the *Salt Lake Herald*, a weekly sheet.

W. H. M.

[TO BE CONTINUED.]

The Leviathan Mine.

[Written for the Scientific Press.]

Observing in your valuable paper, from time to time, paragraphs containing details of the operations going on at the Leviathan mine, it may perhaps be interesting to some of your numerous readers to know something of the character of the property, which belongs to a gentleman of high commercial standing in the city of London, and is now being developed by his own unaided efforts.

The mine is situated in Alpine County, about five miles from the town of Monitor, having a good natural outlet from the hilly country into Carson Valley, which, with a small outlay, might be converted into a road practicable at all seasons of the year. Its geographical formation consists of metamorphic sandstone overlying a blue boulder clay cement deposit, dipping to the east. Four or five years ago some enthusiastic prospectors, attracted doubtless by the magnitude of the ferruginous croppings, opened a tunnel into the sandstone with a view of searching for gold and silver, and after proceeding some three hundred feet in a northerly direction without meeting with the object of their search, struck a large body of copper ore of a high percentage, but which did not rise more than a few feet from the floor, although showing itself in spots on the surface over an area of more than one hundred feet; in fact, from all explorations made up to the present time, it is quite evident this valuable body of ore would not have been discovered at all had the tunnel been started twenty feet higher than its present level.

Nothing further appears to have been done from that time, until the mine was taken in hand by its present owner, about twelve months ago, since when its development has been vigorously proceeded with, about 200 tons of high grade ore, from 30 to 50 per cent. copper, having been removed in the course of the exploring operations, during the month of May, June and July, which, after being crushed and roasted, is particularly adapted as a raw material for the manufacture of sulphate of copper, owing to its unusual freedom from lime and iron. It consists chiefly of black and red oxides, green silicate and carbonate, with gray sulphide, and occasionally streaks of metallic copper.

A lower tunnel has been run, at a depth of 176 feet below the upper, through the cement formation, with a view of cutting the sandstone and thereby draining the water now coming up in the floor of the upper works, which limits the production at present to the over-head, dry portion of the deposit of ore—the points or irregularities of its upper surface. This object will probably be attained in the course of a week or two; when an incline will be commenced which will enable the ore to be taken out at a very low rate.

Two excellent blast furnaces, with a 15-horse engine and No. 3 Root blower, have been erected for smelting the ore, and, from its very favorable character for making sulphate of copper, it is probable the operations may soon be extended to the more profitable manufacture in question. In fact, I am given to understand that the spirited proprietor of this interesting property has it in contemplation to erect extensive works for the manufacture of sulphuric acid, with a view of converting a large portion of his ore into bluestone, which operation will probably, ere long, constitute him the most extensive manufacturer of this article on the Pacific Coast.

It is gratifying to find English capital being invested in bona fide undertakings of this nature, which will go far to wipe out the stigma which was cast upon us in the English mining community some few years ago, by the cruel swindles which had been perpetrated by a set of unprincipled adventurers, who had misrepresented California and the Pacific States in that and other markets. Since, however, capitalists have wisely adopted the system of inspecting and testing mining properties before parting with their money, mining swindlers have been compelled to abandon their glaring outrages on common sense, which they found so effective and successful some few years ago.

CARSON.

Mechanical Progress.

A SIXTY-TON LOCOMOTIVE.—The "Tarapaca" is the engine just finished at the Hatcham Works, Eng., for the Iquique Railway in Peru. We quote from *Engineering*:—"This is the largest engine yet constructed on the Fairlie system, and is, indeed, one of the most powerful locomotives yet constructed on any plan whatever. It is carried on twelve 3 ft. 6 in. wheels, arranged in two groups of three pairs each, the wheels of each group being coupled. Each of the bogies has a pair of 15 in. cylinders, with 20 in. stroke, and as the boiler pressure is sufficiently high to maintain an average effective pressure of about 100 lb. per square inch on the pistons, the tractive force which the engine is capable of exerting is 21,430 lb., or about 9½ tons. It would therefore easily haul, on a level and at moderate speed a 2000 ton train. The weight, in working order, is about 60 tons."

FRENCH BRONZE VS. GERMAN STEEL.—The London "Times" has an article upon the inferiority of the French bronze field pieces to the Whitworth steel guns, as evidenced by some of last year's experiments at Chalons. The inference from these experiments is, that these same field pieces have in the present war been at a great disadvantage against the steel guns of the Prussians. Opportunities have repeatedly offered to open a deadly fire at long distances, but the French guns are too weak to bear so large a charge as would be necessary with a sufficiently low elevation to admit of accurate aim. *Engineering* remarks upon this point:—"The bronze gun is of less than half the strength of the steel gun, and the consequence is that a light shell, which flies high and not very accurately, and is spent before it reaches far, is the only projectile that you dare to fire from it. For example, suppose you wish to obtain a range of about two miles. With the French bronze gun you have to give an elevation of about 20 deg., and consequently fire your shell 420 metres high into the air in order to make it reach the distance, and when it does reach its velocity has dropped from 343 metres per second to 160 metres. The Whitworth 10-pounder steel gun, on the contrary, in order to obtain the same range, has only to be fired with an elevation about 10 deg., and consequently never rises higher than about 180 metres, and when it reaches the two mile distance retains a velocity of 257 metres per second."

MINIATURE LOCOMOTIVES.—The *Iron Age* has the following:—"Baird & Co., of Philadelphia, have built, during the year, a number of small locomotives for use in mines, adapted to narrow gauges of 2½, 3 or 3½ feet. The Thomas, the Lehigh, and the Glendon Iron Works, are each working two of these for hauling away cinder from their furnaces. At the former the two engines do the work which formerly required thirty mules. For out-of-door work the little engines are built with outside cylinders 9 inches in diameter and 12 inches stroke; the driving wheels are 30 inches in diameter. For mining purposes the cylinders are placed inside, the extreme width is reduced to 5 feet, and the extreme height to 5 feet 4 inches. These engines, in complete working order, with tank of water on boiler, and a man on the foot-board, will weigh only from six to eight tons."

ELECTRIC MOTOR.—The N. Y. *Engineering and Mining Journal* describes a machine consisting of a series of electro-magnets arranged around a fixed center, with a series of armatures revolving around them. This machine is six inches long and six to eight in diameter, and with a battery of four cups will drive an ordinary sewing machine. The "next size larger" will pump water, and "will probably produce the same amount of work as a man." Is this another of those like announcements so many of which have in turn gone the newspaper rounds once and been forgotten?

RANSOME STONE.—This is in favor in India. The preserving solution used by Mr. Ransome has been used at Bombay with such good effect upon the very perishable natural building stone of the country, that the Government intends to go into the manufacture of the artificial material.

MILITARY USES OF PHOTOGRAPHY.—Among these are now the illustrating of ordnance drill, by a series of about a hundred different views, showing the various positions in their order, and in fact every thing connected with the practical working of the various kinds of guns, mortars &c. By study of these pictures, raw recruits can soon familiarize themselves with their duty. Each man bears his number upon his cap in the picture, so that his position can be followed throughout the series. Another use of the art is in recording, by a series of views, the experimental results of gunnery trials. The targets are photographed on all sides after each shot, and the effect thus accurately preserved for reference. Another is in the sending to the different military stations, with newly adopted equipments, carriages, ambulances, tents, cooking apparatus, &c. &c., photographs illustrative of all the details of their setting-up and management; no slight aid to those called upon to use a new thing for the first time. Thousands of these pictures are printed and sent to the English stations by the Government. These are now done by the carbon process; ordinary silver prints being liable to fade, and to become stained, after a time, by the presence of sulphur either in the paper itself, or in the atmosphere.

PLATE MOULDING.—We take the following description from a notice of the brass foundry at the Stamp End Works, in London *Engineering*:—"A number of half-patterns of articles to be moulded are fixed to a metal plate slightly larger than the flask in which the mould is to be made, connected by necks which will produce in the moulds the necessary runners for the metal. The plate is made so that the flask fits on to it in one position, and when placed it is filled in with sand and rammed in the ordinary way. On the filling being completed it is lifted off the plate, which is then ready to receive another flask, and so on. Of course the moulds thus made will be all "tops" or all "bottoms," as the case may be, and another plate carrying another set of half patterns is used to form the companion moulds; or as is generally done, the two sets of half patterns may be fixed to opposite sides of the same plate. The advantages of this method are that a number of articles can be moulded simultaneously with great rapidity, and that the half patterns being firmly attached to the plates are lifted steadily from the moulds, and the latter are thus far more accurate than when each pattern has to be loosened and lifted out by hand in the ordinary way."

BESSEMER IN AMERICA.—"In addition to fifty millions of dollars invested in the old methods of producing malleable iron, five millions would scarcely cover the expenditure of the last five years in establishing the Bessemer manufacture, now conducted under thirteen different patents, of four different inventors, of whom two are Americans. These patents are used in four different States, with a present annual product of thirty to forty thousand tons. Other works are now building in the West, and within three years not less than ten millions of dollars will be invested and one hundred thousand tons of steel rails annually made."

—*Iron Age* Sept. 1.

LAMP LIGHTING BY ELECTRICITY.—The *Tribune* says a company is forming in New York to introduce Gardiner's apparatus for lighting the gas lights of the city simultaneously. The plan has proved a success at the Capitol in Washington. Small spirals of platinum, placed immediately over the jets, are heated to redness by a galvanic current, and the gas thereby ignited. The company proposes to turn the gas off and on by the same means, and to lay underground wires which will also serve for fire alarm purposes.

STEAM GUNS.—The London *Times* prints a communication from a firm which during the Crimean war offered to supply the Government with steam guns capable of throwing shot of one ton weight a distance of five miles.

AERONAUTIC.—The Aeronautical Society of Great Britain proposes to raise by subscription an experimental fund, for the erection of a blower and suitable apparatus to investigate the relation between the velocity of air in motion and the pressure it produces on plane surfaces inclined at different angles to its direction of motion.

Scientific Progress.

HEAT DEVELOPED BY SOUND.—Dr. Warburg gives some notes upon this subject in the *Philosophical Magazine*.—Wm. Weber had pointed out that the resistance of the air would not account for the loss of motion in vibrating bodies, and that some specific difference in their structure independent of their density must be the cause of the great diversity in this respect exhibited by various substances. The author then proceeds to remark that some of the vis-viva being therefore consumed in interior work it is natural to suppose that it is there converted into heat. The amount of motion so converted into heat will be greatest in those bodies which like lead soonest cause the sound to fade away. The phenomenon of deadening produced when certain bodies are attached to sonorous ones, leads to a like conclusion. Thus a tube of lead attached to one of glass soon destroys the sound of the former, while a tube of steel or brass has very little effect. Hence it might be expected that more heat was produced in the lead than in the other material. Repeated experiments proved the truth of this conclusion with a variety of substances. * * The amount of heat in different bodies seemed to be in an inverse proportion to their rates of transmitting sonorous vibrations.

AMORPHOUS SILICA AS A PIGMENT.—The following is from the *Chemical News*:—"Dr. Reimann describes a series of experiments made with the view to apply amorphous silica (as obtained by precipitating a solution of so-called water-glass, silicate of soda or potassa, with an acid and collecting, washing and drying the precipitate in the ordinary way) for absorbing the solutions of fuchsine, aniline blue, &c., and to apply the colored powder so prepared as a pigment for various materials. The author states that glass, first superficially acted upon by hydrofluoric acid, and next mordanted, as is usual for cotton, assumes, when submitted to the processes in use for dyeing fibre, precisely similar colors as that fibre, and that this effect is caused by the amorphous silica contained in the glass and made active by the hydrofluoric acid."

NEW SALT FOR BATTERY USE.—The following is from *Nature*:

"M. Etévé, of Paris, has taken a patent for the composition of a salt for the production of very intense currents of electricity which he calls double acetate of iron and potash. The nitric acid is replaced by a salt composed of one part of sulphate of iron and one part of nitrate of potash dissolved in a sufficient quantity of the acetic acid of commerce, the solution being aided by a slight heat, the whole is then left to cool and crystallise, and the crystals, after being drained, are stone dried. When the salt is thus prepared the pile is mounted in the following manner:—In the non-porous vessel is placed a saturated solution of common salt, and a zinc cylinder is introduced, within which is placed the porous vessel containing the charcoal, upon which is poured water containing 30 per cent of sulphuric acid. In this state the pile will not act, or in an almost insensible manner; but in order to develop the current it is only necessary to introduce a few crystals of the above-named double salt when the current becomes remarkably intense, if not superior to that of the common pile; the current may be maintained constantly and regularly without by merely adding a few crystals from time to time and without any nitrous vapours being disengaged."

THE NEW TELESCOPE.—The telescope for the Naval Observatory at Washington, for which \$50,000 was appropriated at the last session of Congress, is contracted for with an eastern firm. Four years will be required to complete it. It is to have an object-glass of 26 inch aperture.

LATEST FROM THE YALE SCIENTIFIC EXPEDITION.—The *Courant* gives dates to Aug. 25th, and says:—"In Northern Colorado an extensive tertiary deposit was discovered, abounding in remains of letanotherium, rhinoceros and other extinct animals. This formation is identical with the *mauvaises terres* deposit of Dakota, and evidently forms the south-western border of some ancient fresh-water lake. These beds were then traced northward through Nebraska and along the North Platte River, where they form the range from Chimney Rock to Scott's Bluffs. Several thousand specimens of fossil remains were collected, and among them a number of new species of mammals."

AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE.—The nineteenth annual meeting was held at Troy, N. Y., from Aug. 17th to 25th. We make the following notes from a report in the *Journal of Applied Chemistry*:

Prof. T. Sterry Hunt read a paper on Granitic Rock. He said that Rocks commonly called granite were mostly gneisses and stratified rock, while true granite was not stratified, but intrusive or irruptive, like traps and lavas. He divides granite, so called, into three kinds: 1. The indigenous, granitoid, gneisses; 2. Erosive, intrusive granites; 3. Endogenous, veined granite; all produced under different conditions. In veined granite are frequently found some of the rarer minerals, as lepidolite, tourmaline, &c., which are not found in granitoid gneisses.

Prof. Hunt read another paper "on the Oil-bearing Limestone of Chicago." His opinion was that petroleum is indigenous to certain limestone, not entering into them by slow distillation from neighboring schists. Those schists have not been subjected to great heat, and the petroleum limestones lie often below schists. The oil is usually found in patches and bands, there being strata both above and below containing no oil. The oil is hermetically sealed in the pores of the limestone. It escapes only on lines of disturbance, and then accumulates in fissures or between over-lying strata. Mr. Newberry, of Ohio, in reply, said that the stratified bituminous shales that so abounded with the paleozoic rock, in the West, also hold oil and yield it in many places. While Prof. Hunt considered heat a necessary condition of the separation of oil from the bituminous rocks, Mr. Newberry held that this was not essential.

Prof. C. H. Hitchcock presented an argument to prove that a large portion of the North American Continent had been submerged beneath the ocean since the Drift Period; based upon the existence of twenty-seven species of maritime plants in the interior along the great lakes. These were specified by name and locality, extending up the Hudson River and Champlain Valley and the lakes of Ontario and Erie to Minnesota. He argued that these plants were originally introduced by natural emigration along an ancient estuary. He supposed that the plants about the salt springs in Northern New York were introduced in the same way. The pre-glacial flora has been completely destroyed by the intense cold, and while a new creation might explain the existence of salt water plants about the springs, it would not show why they should exist in the far interior. There should be a special fitness of species to conditions, in case the creation theory is invoked. He concluded that the continent must have been submerged two or three hundred feet lower than geologists had supposed, and that the clays about Superior and Erie must have been of marine or estuary origin. It was quite unexpected that the present distribution of plants should throw so much light upon geological questions, and therefore it was urged that botanists shall faithfully preserve the localities of all their specimens.

CRETACEOUS EPOCH CONTINUOUS.—Prof. W. B. Carpenter, in a communication to *Nature*, gives to Prof. Wyville Thomson the credit of the doctrine that the formation of chalk has been going on continuously over some part of the North Atlantic seabed from the cretaceous epoch to the present time; and that we may therefore be said to be "still living in that epoch." We quote:—"The similarity of the globigerina mud, at present in process of formation, to the mesozoic chalk, had been recognized by various microscopists who had studied both—ss Ehrenberg, Bailey, Williamson, Huxley, Wallich and Sorby. But no one, so far as I am aware, had ventured to advocate the *unbroken continuity* of the chalk formation throughout the Tertiary and Quaternary periods, until it was pointed out by Prof. Wyville Thomson that there is no adequate evidence of its ever having ceased, though its locality has changed. This doctrine has received most striking confirmation from the discovery of the persistence of numerous cretaceous types, more or less modified, not merely in our own explorations, but in those carried on by the United States Coast Survey in the Gulf of Mexico."

FLIGHT OF BIRDS AND INSECTS.—*Cosmos* says that M. Marey has determined, by ingenious mechanical appliances, the fact that in birds, when flying, the extremity of the wing describes a simple helix, but in insects, a lemniscate, or figure eight.

Mining Summary.

The following information is gleaned mostly from journals published in the interior, in close proximity to the mines mentioned.

California.

ALPINE COUNTY.

TARSHISH.—*Miner*, Sept. 3d: Developments in the tunnel of the Schenectady Co. seem to be satisfactory. The fact is known that the lode as struck below is rich.

MONITOR No. 3.—In the east drift developments made this morning are considered of much importance and very encouraging.

EXCEQUER.—*Chronicle*, 3d: The Chalmer Bro. have removed from Bulliona, and will at once put the quartz mill in order for work next Spring; in the meantime some ore will be crushed.

BUTTE COUNTY.

SPRING VALLEY Co.—*Oroville Record*, Sept. 10th: Work on the ditch progresses. The iron pipe has been received here, and all but 60 or 70 pieces transported to the line of the canal. The work of laying it has commenced. It will all be on the ground within four or five weeks.

CALAVERAS COUNTY.

WEST POINT.—*Chronicle*, 10th: Reed's river claim, North Fork of the Mokelumne, use, giant powder in blasting large boulders. One charge often does as much as two of black powder.

INDEPENDENCE.—*Cor.* of the same: At Lewis Bro. mine everything is progressing favorably. At Lefoy mine, they are still sinking. The ledge continues fair. In the Piute a track has been laid the entire length of the tunnel. They have a ledge thirty inches wide, which will pay \$30 to \$40 per ton. At Big Flat, hydraulic mining is still carried on. Water generally continues abundant only until the first of August. Skull Flat, north of West Point two miles, is the quartz section. In and around the Flat there are a number of veins paying from five to fifteen dollars per cargo of 300 pounds. The Zactara has been idle for some time. Morse & Doyle are crushing rock at Thoss' mill which is expected to show the best clean up of any. The Lone Star is not being worked. The Bright & Appel, near the Star, is Thoss' mill, on the South Fork, is furnished with a 24-foot water wheel. It has two arastras, ten feet in diameter, and a rock crusher of Stanton & Hodge's patent, capable of pulverizing the hardest rock at the rate of ten tons per day.

INYO COUNTY.

CERRO GORDO.—*Independent*, Sept. 5th: The smelting works of M. W. Belshaw on the 1st of August resumed operations and will be kept in blast a long time. From the 1st to the 31st there were run out 2,744 bars of bullion of the average weight of 87 pounds, aggregating 238,728 lbs. The furnace is now pouring out silver lead bars at the rate of 4½ tons per day.

BULLION.—*Kearsarge*.—The shipment of fine bullion last week was 8,760 ounces.

KERN COUNTY.

A Los Angeles telegram of Sept. 12th says:—Three quartz mills are now running at Havilah. The "Joe Walker" is again being worked.

LASSEN COUNTY.

The *Sage Brush* of Aug. 27th has the following in regard to the new mine near Big Valley:—"Mr. Harrie reports that the pay is as good as at first. Four or five men with rockers had taken out in one day \$999." The *Yreka Journal* of 7th says:—"H. J. Ehlers, just from the new diggings, near Big Valley, says he washed out \$600 with a rocker, cleaned and weighed it, inside of three hours. The tailings from the claim, consisting of small pieces of quartz rock, were pounded out by prospectors who realized 33 per cent. Ehlers & Co. now save all their tailings to work over again."

MARIPOSA COUNTY.

MARIPOSA MINE.—*Gazette*, 9th:—The rock now being crushed is better than ever. **BENTON MILLS.**—The Co. have carpenters employed preparing timbers for a 30-stamp mill. They have contracted for 100,000 feet of lumber. At present there are 500 tons of quartz at the river, and the Josephine and Pine Tree mines never looked better.

COPPERVILLE.—*Inte* the Melvina G. Douglass has a vein eight to twelve feet in thickness, the rock averaging \$25 per ton.

NEVADA COUNTY.

LITTLE YORK WATER Co.—*Gazette*, 10th: The Co. are negotiating the sale of their property to a San Francisco company for \$125,000. We learn that they made a heavy clean-up a few days ago.

STARTUP UP.—The new 10-stamp mill at the Fidelity mine, above Washington on the Yuba, commenced crushing yesterday.

GOOD PAY.—A pan of dirt, in the claims of Kress & Co., at Orleans Flat, yielded fifty dollars' worth of dust. The claims have been considered nearly exhausted.

NORTH BLOOMFIELD.—*Transcript*, 8th: The ditch of the Gravel Co. was completed so that the water was turned in at Bowman's on Saturday. The ditch has a capacity of 3,000 inches from Bowman's to North Bloomfield, and 1,000 thence to Columbia Hill.

ORLEANS LEDGE.—Same of 9th: The Consolidated Co. have determined to erect hoisting and pumping works on their ledge, Gold Flat.

ORLEANS FLAT.—Same of 11th: The old claims are being reopened with excellent prospects. Kleese & Wells commenced last spring on a set of claims that have been idle for twelve years, and recently in cleaning up the bed rock have taken out fifty dollars to the pan. Johnson & Olsen have opened claims near by, and have made one good run. There has been no work done at Orleans Flat for eight years, every one supposing the ground was worked out. They are now working deeper in the hill. Brody & Rutherford, who have been putting up a mill to work the Metropolitan ledge, will have it in operation in two weeks.

POCKETS.—Hensley & Atwood struck a pocket in a small quartz vein on Red Hill, one day last week, from which they took \$140. On Thursday, Mr. Campbell found a pocket on Rush Creek, from which he took \$40.

RANDOLPH RIDGE.—*Grass Valley Union*, 7th: Webster & Co. are running over what seems to be a regular channel, and will sink down in a few days to the bottom to test the deposit. In the Picayune's ground the gravel prospects as high as 50 cents to the pan.

COSTLY.—Same, of 9th: The North Bloomfield Co. have spent \$850,000 in developing their mines and in constructing ditches.

PLUMAS COUNTY.

EAST BRANCH.—*Cor.* of Quincy National, Sept. 10th: Riddle & Co., on Soda Bar, are after the hack channel. They are running an incline, with an overshot wheel to hoist the cars, and another to run the pump, and all works like a charm. The Chinamen near Kingsbury's have completed their ditch, at a cost of \$5,000. This opens up a large scope of ground which, heretofore, has been worked with rockers, and paid well. Another ditch is on the tapis, that promises to be "the thing." It is to take the water of Spanish Creek, at the falls, and convey it to the big bars near the mouth of Black Hawk, and in time to Hardsack Joint, which will pay an ounce per day to the man.

EUREKA.—We are informed that the Eureka mine at Jamison is paying more largely this summer than ever before.

PLACER COUNTY.

GOON.—*Herald*, 10th: Miller, Nichols and Manuel have been prospecting a quartz lead between town and Baltimore ravine, and a few days ago had twenty tons milled which yielded twenty-nine ounces gold, or \$20 to the ton. This contained none of the specimens from the shaft. They have now gone to work systematically on the ledge.

COLFAX.—*Cor.* of same: The Rising Sun mill crushed two and a half tons of rock from Emigrant Gap, which yielded \$14 per ton in free gold. The sulphurets are rich but have not yet been worked. The first load of the Montana machinery will arrive to-day.

SAN BERNARDINO COUNTY.

CLARK DISTRICT.—Los Angeles telegram, 13th: The Piute Mining Co., of San Francisco, is opening a number of new ledges in Clark District. Machinery for mills will be shipped via Anaheim. Miners from White Pine are flocking in. The Indians are friendly.

SAN DIEGO COUNTY.

JULIAN DISTRICT.—*Cor.* of *Bulletin*: The Stonewall Jackson mine, ten miles from Julian City, has a new stamp mill, and the owners expect big things. They have purchased 1,000 acres from the Cuyamaca Co. and think they are secure.

Telegram, 9th: Reports from Julian say new and very rich discoveries have been made four miles east. Several very rich ledges have been discovered two miles west; one ledge, 1½ feet in width, with the surface showing gold to the naked eye. A stampede has ensued from Julian.

JULIAN, 13th: Last evening the citizens of Julian and Branson Cities celebrated the recent discoveries. There is more news of leads having been struck in San Felipe cañon, three and a half miles from Julian. The ledges are two to ten feet wide at the surface. Specimens show

free gold on every side. Another ledge has been discovered near the Helvetia. No estimate can be made of the riches of these discoveries. Last week the Owen's mine cleared up one hundred tons which paid \$24.47 per ton. The Van Worth cleared up twenty-four tons which paid \$20 per ton. The Cotton Mill is running on 200 tons from the California. Two men at work on the California mine, take out three tons of ore per day, which pays \$30 per ton.

SIERRA COUNTY.

GIBSONVILLE.—*Cor.* of *Butte Record*, 10th: After two years spent in opening, Tabor has found pay gravel in his claim, and is raising an air shaft. The Union claim, at Mount Pleasant, has found a good prospect, four thousand feet back in the red mountain-gravel, and a good prospect also in the front ground.

ITEMS.—*Messenger*, 10th. Wm. Manson and Harry Rosewarren have over three fourths of the Independence mine.... North America Claims at Hepsidam are now in a flourishing condition.... Jas. Olin is putting up hoisting works at Wolf creek mine.... George Hardy while mining near his ranch on the South Fork on Friday, struck a nugget of gold weighing \$52.... At Howland Flat, the Union Co. employ seventy men; the Monumental, forty; the Pittsburgh, eighteen. The Hawkeye is not working as many men as usual on account of a cave.

SISKIYOU COUNTY.

SCOTT VALLEY.—*Yreka Journal*, 7th: J. O. Welch has purchased the French Creek Ditch, and a large interest in quartz, and will place a mill on the ledge. The miners on East Fork and about Evansville, are making preparations in anticipation of a good supply of water this coming winter.... The Chinese cleaned up some flumes on South Fork on Friday, and were next day all driven from the neighborhood by the white miners in a body.... Trimble & Co., of Oro Fino, are to commence work on their ledge in a few days, and will start the mill again. Their ledge averages from the top down, \$11 per ton.

The quartz now being crushed at the Norfolk and Lodi mill, at Cottonwood, is yielding \$50 to the ton.

TRINITY COUNTY.

ITEMS.—*Journal*, 10th: Wm. McCullum is digging a ditch from Currie's creek to his claim on Cox's Bar, four feet wide and capable of carrying two thousand inches.... H. C. Wilt proposes digging a ditch to take water from Canyon creek to his claim on Pack's Bar.... H. E. Willey and another are to prospect the Ludwig quartz ledge on the East Fork.... The undivided one-half of the Osgood & Carson claims, sold at auction Saturday, was purchased by Peter Hansen for \$700.

TUOLUMNE COUNTY.

GOLD LEFT YET.—*Sonora Democrat*, 10th: Last week, John Anderson took out of his claim on Curtis' Creek, alone, in a day and a half, nearly three thousand dollars. M. Brown took from his claim on Wood's Creek, nine hundred dollars.

Nevada.

COPE DISTRICT.

TREASURE.—*Elko Chronicle*, 8th: Last semi-weekly shipment per W. F. & Co., from Cope, was \$2,500.

ESMERALDA.

DUNDERBERG.—*Carson Appeal*, 7th: There are some 30 men now employed in mine and mill. Same of 9th gives some assays of the ore. The average is \$225 per ton.

HUMBOLDT.

OREANA.—*Cor.* of *Register*, 10th: Strout stopped his furnace for want of coal. He shipped 30 tons of metal, and has 8 tons on hand. Drake, of the Montezuma, stopped work from same cause. He recently shipped 20 tons of metal, the result of eight days run, and has gone below to dispose of it. The Batavia Co., on the Rochester ledge, shipped three tons ore last week for a test. Thos. Harris is getting out good ore from his ledge near the Batavia.

RAILROAD.—*Elko Chronicle*, 11th: The Ballion mine has 125 tons ore out. The Webfoot resumed work on Monday. The main shaft is in a body of rich ore. Tripoli has 70 tons on dump. Last Chance No. 2 has out fifty tons. The shaft is twenty-five feet deep. An offer of \$4,000 for the mine has been refused. Dalles is a well-defined ledge which assays high in silver. They are sacking ore for shipment. Red Jacket has twenty tons ore on dump.

The *Independent* says the Elko furnace will soon fire up on ore from the Dalles mine. At a depth of thirty feet the mine shows nineteen per cent. of lead and \$83 in silver. The vein is seven feet in width.

REESE RIVER.

BULLION.—*Revielle*, 8th: For the three days ending yesterday the Manhattan Co.

shipped to New York, 24 bars of bullion, weighing 2,198 pounds, and valued at \$35,888.

ELDORADO MINE.—Same of 8th says the machinery for this mine went forward yesterday to Silver Bend. This claim has produced several hundred thousand dollars in silver. There are now at the Manhattan mill seventy-five tons of Eldorado ore which will yield an average of \$200 per ton, besides two tons of selected ore which will yield \$1,000 per ton. This ore comes from a vein eight or nine feet wide. One of the Transylvanias is next in importance by reason of its development, as well as by the fact that it is to be aided by a mill furnished with the Stetefeldt furnaces. This mill is to be of the capacity of fifteen tons daily, and will be completed within sixty days. The Arizona is also producing ore; and several other mines in the neighborhood are yielding rich chloride ore.

MINERAL HILL.—*Elko Independent*, 7th: The late discoveries on the west slope bid fair to prove of great importance. The deposits struck into, contain the very purest chloride ore, of considerable bulk. The rush has made business lively. The new mill will be running in a few days.

WASHOE.

GOULD & CURRY.—*Gold Hill News*, 10th: Daily yield 100 to 110 tons, principally from the body recently developed at the D street level. From this two to ten tons of sack ore, yielding \$500 to \$2,000 per ton, are daily taken out.

YELLOW JACKET.—The section at the 800 and 900-foot levels continue to yield 200 tons of good ore.

IMPERIAL-EMPIRE.—The new shaft is down 1,290 feet, the deepest perpendicular shaft in the State. The sinking progresses favorably. The old upper Imperial still yields 40 tons of low-grade ore daily, averaging \$12 or \$15 per ton.

SAVAGE.—Yielding 40 tons per day of fair ore, all from the lowest level. The drift north to strike the body recently developed by the Gould & Curry reached it last night.

OPHIR.—Considerable good ore from the new streak in the north ground.

HALE & NOBACROSS.—The north winze below the seventh level, is down 25 feet in first-rate ore.

CROWN POINT.—Daily yield 40 tons of fair ore from the upper levels. The drift south at the \$1,100 foot level is in 25 feet, the face showing barren as yet.

BELCHER.—The work of opening the 420-foot level progresses well.

CHOLLAR-POROSS.—The Belvidere and other sections are looking fully as well as at last report.

OVERMAN.—Some very rich ore from the new development in the south portion of the 400-foot level, but it seems to lie in detached bunches.

SACRAMENTO AND MEREDITH.—The upper workings continue yielding excellently, showing some improvement; the mill runs steadily.

VIRGINIA CONSOLIDATED.—Water still interferes with progress somewhat at the 500-foot level drift from the new shaft. A few tons per day of good ore from the old upper mine.

CALEDONIA.—A body of superior ore was struck Tuesday in the south portion of the 200-foot level, which is already yielding handsomely.

SIERRA NEVADA.—Both mine and mill being run satisfactorily and yielding good returns.

OCCIDENTAL.—The new mill still running on good ore from the lower mine.

HOPE.—Daily yield 43 tons, averaging \$24 per ton, keeping both mills running.

ITEMS.—*Enterprise*, 11th: Mr. Phillips, who bought the old Phoenix mill at Silver City, at auction, is taking down the machinery. The ground under the floor has been washed up two or three times since 1861, but will pay again. One hundred pounds made a bar worth \$14. Some 75 tons of tailings will be obtained in the cleaning up.... The Bullion Co. is about taking out ore again.... The Sutro tunnel is in 1,516 feet, in very hard rock.

WHITE PINE.

REVIEW.—*News*, 11th: Our report this week shows a healthy condition. Miners are at work, their ores are marketable; nearly all the mills are in motion. The Matteson works are approaching completion. Another furnace is under way. The blast machinery is nearly completed, and the finished furnace is drying. The separating machinery is on its way from the East.

The bullion shipments amount to \$39,543.34.

ITEMS.—Daily Beecher runs north 300 ft. from the "Earl Chamber." Large body high-grade ore disclosed in it this week.

Fifteen tons per day raised. Average yield \$35 per ton....Original Treasure shows good ore on dump, but its extent is not known to outsiders. There has been a change of Supt. and Foreman....Silver Wave shaft down 58 feet, and very rich ore taken from the drifts....Considerable good ore from Silver Wedge.... Burning Moscow is turning out some very rich chloride ore; small lots of 5 or 6 tons gave \$72 to \$250 per ton....Aurora Consolidated and Eberhardt, belonging to the English Co. are still a 'sealed book' to the outside world. The street is full of rumors.... Jack Ober & Co. get daily 20 tons ore worth \$800 per ton, from the Calico mine in Secret Canyon, Lander county. The ledge is 40 feet wide....Handerson mill was to start on the 8th. Bowie & Brown mine have leased it.

OUTSIDE DISTRICTS.—The mill at Reveille is to start about the 20th....On the 6th, came by stage from Pioche, 14 bars of bullion, weighing 1,599 pounds, valued at \$17,698.75.

STARTED.—A Hamilton telegram of 12th says: "Matteson's furnace started this morning, and has already turned out seven tons bullion."

MINING ON A GRAND SCALE.—Elko Independent, Sept. 7th: The English capitalists who purchased the Eberhardt and other properties in White Pine, are embarking in business on a mammoth scale. The lumber for the mill and buildings, loaded thirty-four cars, while the machinery amounts to about two hundred tons.

EUREKA.—Sentinel, 10th: Full reports, all favorable. Shipments of bullion during the week are: Consolidated Co. 43 tons and 137 pounds, which assayed \$350 per ton; Collier Robbins, 20 tons, assay value \$450 per ton; Jackson Company, 22 tons, assay value \$350 per ton.

One thousand pounds Paige & Corwin ore worked at the Manhattan mill, gave \$1,100.

Spring Valley ore from the Reeves and Berry mine gave \$77 per ton without roasting, at the Smoky mill.

Arizona.

ITEMS.—Prescott Miner, Aug. 27th: McCrackin & Co., discoverers of the Del Pasco, worked one month two astras, and brought to town gold \$1,900. The claim is near the summit of Bradshaw mountain. Several other claims are located.

LYNX CREEK.—Uncle Billy Pointer is crushing better ore than ever before. C. Y. Shelton is in 100 feet on the Vernon, and getting splendid rock....Alex. Harris, with two men, working for the Bashford Co., five days on Lynx Creek, brought in ten and one-half ounces.... Jackson & Lovejoy, on their hydraulic claims on Lower Lynx Creek, put in five days' work with three hands, and three nights with two hands, and cleaned thirty-one ounces.... Evans & Co. have struck it rich. They got \$1.70 to three pans of dirt.

BIG BUD.—C. T. Rogers reports water plenty, the mill running steadily, a good clean-up this week and everything lovely.

HASSAYAMPA.—Duff & Kelly got water for a five days' run, and took out a little over a pond of dust, some chispaa in the lot weighing from \$2.50 to \$12 and \$14 each.

STERLING.—Same, of Sept. 3d, says the mill started up on Monday. Everything worked well. No attempt will be made at present to work the sulphurets.

Idaho.

ITEMS.—Avalanche, 3d: They have struck it richer than ever in the Ida Elmore mine, 80 feet below the fifth level.... The Comos mill has started up and will run regularly on Corduroy ore.... In the Wagon town diggings, a miners' meeting laid over the claims to July 1st, 1871. There are 300 Chinamen at work in the creek below and a number above. Tom Walls sold his race track claims for \$2,000.

SNAKE RIVER.—With one exception, the claims are all worked with rockers and pay from \$10 to \$20 to the hand. Capt. Bledsoe is working a string of sluices and making \$10 per day to the hand. It is now thought that the rock on each side the river is the source of the gold.

The Elko Independent of 10th says Johnny Hill has returned from Snake River, and calls it a bilk. He saw more rattlesnakes than gold.

A Corinne telegram of 12th says there is a stampede from Snake River to some new mine discovered 80 miles northeast of Corinne.

RICH STRIKE.—Avalanche, 10th: Catalow & Bailey are developing a mine on the east side of Jordan creek, named the "Blue Jacket." A shaft is down forty feet. The ledge is eighteen inches to two feet in

width. It is immensely rich in silver, mingled with which much free gold can be seen. We are informed that samples have assayed \$2,000 to \$5,000 per ton.

LOON CREEK.—Statesman, 3d: Miners are doing well. Boyd Varney & Co. can pan out two dollar prospects on the shovel. John Gray has his claim open. An eighty dollar nugget was found the other day.

ALTURAS COUNTY.—The Statesman of Aug. 20th, says the Monarch Co. have probably sold the Atlanta mine to a party of London capitalists. Captain Nancarrow, a mining expert sent out by the party, says that there is no such mine in Nevada as the Atlanta, and never has been, not excepting the Comstock. He went down in one shaft and pried up a piece of rock as large as a man could lift, which on breaking was found a solid mass of threads and shafts of silver. In the old Idaho mine, Ford & Co. lately took out twenty tons of ore which, worked in an arrastra, yielded \$4,300.

New Mexico.

CHESTER MILL CO.—Press and Telegraph, Sept. 3d: Affairs have been arranged, and the mill will soon start up again. Work has been progressing on the lode.

REO RIVER REGION.—Messrs. Floorman & Co., have erected a smelting furnace for testing, preparatory to more extensive works. We were shown several small buttons of silver and gold already taken out. The ore is supposed to run \$75 per ton.

THE BURRO MINES.—The Arizonian of Aug. 13th says: Mr. Power, superintendent of the Harpending Co., has set forty men to work upon the claims. Partisan from New Mexico as also from Tucson, are commencing operations in good earnest.

Montana.

A BRICK.—Helena Gazette, Sept. 5th: Messrs. Bohm & Co. cast one gold brick 2,282 ounces, coin value \$41,859.

It is computed that the yield of gold this season will be greatly in excess of last year.

IRON CLAD LODGE.—Saventine tons ore realized 50 ozs gold bullion. The shaft is 124 feet deep.

HORSE PRAIRIE.—Cor. of same: Jeff Davis Co. is at work; Merrill & Co. are on a bar making \$12 per day to the hand.

The next ground below is "\$10 diggins," the property of Mr. Hyde: Faaring & Co. are taking out an ounce per day to the hand. Mr. Cooper averages \$8. and Bonghardt & Co. own the lower claim, which is \$8 diggins.

PIKES PEAK.—New North West, Sept. 2d: The yield on Pilgrim Bar was up to average. Yesterday Catching, Kohrs & Co. cleaned up \$2,700; Beeroy & Co. \$2,000 from the sluicing of one head—the other not cleaned up, but will yield over \$2,000; Blair & Co. \$2,250. The remainder of the claims yielded from \$800 to \$1,000.

BOULDER.—From 75 to 100 men are working. Two main companies have been organized to run drain ditches. A prospect of 15 cents was taken from discovery. The general opinion is favorable to the camp. Nesbitt, partner of Nasons, struck bed rock on a side gulch opposite discovery. There are four feet of loam, and three of gravel. All the gravel prospects good.

HIGHLAND.—Independent, 3d: The Nevins arrastra is running. The Only Chance Co. are cleaning up between \$5,000 and \$6,000 per week. The water in Basin gulch, is not yet sufficient to run the flumes. On Moose creek, Day & Harvey mill will get into operation next week. Mr. William Crisp sold a one-eighth interest in the Only Chance for \$6,000.

BEAVER CREEK.—A few companies are running drains and sinking shafts. Outside of a few claims near discovery, the ground is believed to be deep, as fourteen feet, no bed-rock has been reached.

Wyoming.

SWEETWATER.—The South Pass News of Aug. 24th says: There is more real labor now being performed upon our mines, and more gold being actually produced than ever before."

A GOOD IDEA.—The Folsom Telegraph says: Messrs. Eberhart & Luchman, have erected a spacious building on Poverty Ridge, near Sacramento, on the line of the S. V. R. R., with a side track running from the building, designed for a wine house and presses. The location is convenient and with little trouble and at low prices they can obtain all the grapes from the foothills by rail, that they may require. The location of wine houses on the line of our railroads, when large supplies may be obtained at a small cost for freight will render valuable many vineyards, which are now unproductive for want of a market.

San Francisco Stock Market Review.

THURSDAY EVENING, Sept. 15, 1870.

We notice that a larger number of stocks were upon the market during the past week than for some time past, embracing a goodly share of what we call outside stocks, as distinctive from the claims located on the Comstock lode, which usually comprise the bulk of the Board transactions. An improvement in prices is a rather noticeable feature of the market; however, a lessened degree of firmness is observable at the close in a few leading descriptions.

CHOLLAR POTASSI—has been in good demand at a smart advance. During the week closing Sept. 10th, they extracted 1,600 tons of ore, showing an average value of \$74 20 per ton. All the faces of the ore-producing localities continue to look well. Received \$19,570 in bullion.

GOULD & CURRY—changed hands to a considerable extent, realizing an improved price over opening rates. For the week ending Sept. 12th, the following amount of ore was taken from the mine: 1st class, Potosi, 17½ tons, the assay value of which is given at \$742 46 per ton; 2d class, Potosi, 500½ tons, valued at \$79 46, and 2d class, from other localities, 140 tons, valued at \$43 45 per ton. No favorable results have yet been obtained from further prospecting, which is vigorously continued.

HALE & NORCROSS—sold to a limited extent at slightly fluctuating rates. The bullion returns for the month of August aggregate \$149,328, against \$200,863 in July. The ore extracted for the week ending Sept. 10th amounted to 1,146½ tons, as follows: 175 level, 41½; 300 level, 194; and seventh station level, 910½ tons. They have in the dumps, 5,745 tons.

IMPERIAL—seems to give better promise of good results in the future; few sales are now transpiring. On the 13th inst. they started a winze in the centre of the Alta mine to connect the 1,200 and 1,300 levels. This winze is made for ventilating purposes, as it is the intention to thoroughly prospect on the 1,300 level. The bottom of the shaft carries lively quartz, with the exception of a vein of porphyry about a foot in width. They are now extracting about fifty tons of ore per day from the old works.

CROWN POINT—was in the market to a moderate extent. On the 11th inst. the incline had attained a depth of 41 feet below the 1,100 level, the material they are running in consisting of hard barren quartz and porphyry. The south drift is in some sixty feet, and the face is reported to show some favorable looking quartz. It is the intention to make cross-cuts at intervals of 100 feet until the south boundary is reached. Bullion returns for August, \$16,475.

—BELCHER is dull of sale. They have stopped work on the 730 level, and are now prospecting on the 152, 200, and 420 levels. —OPHIR met with free sales. An assessment of \$3 per share was levied on the 9th inst. —SIERRA NEVADA has been in good demand at an advance. A dividend of 50 cents per share is payable since the 16th. —GOLD HILL QUARTZ levied an assessment of \$10 per share on the 8th inst. —IDA ELLMORE (Idaho) levied an assessment of \$5 per share on the 10th inst.

SAGE—was in the market to a very large extent, selling at an improved price. The prospects from their lower developments are more encouraging of late. From the winze now being sunk from the 8th level, extending to the Hale & Norcross lower level, it is the "intention to run north to connect with drift from shaft, also to drift south to Hale & Norcross line. A drift has been run on D street level to reach what is called the north Potosi body of ore, and by this drift have made connection with Gould & Curry works, and have found a very good body of ore lying next the line which promises well. In a few days they will be able to take out from this quarter 30 to 50 tons of ore daily, which, according to assays already made, will mill \$30 to \$50 per ton."

MINING STOCK QUOTATIONS, SEPTEMBER 13, 1870.

	WASHTOE.		WASHTOE.
Alpha Con....	8½	Gold Hill M.O.	8½
American.....	1½	Hale & Norcross.	8½
Belcher.....	1½	Imperial.....	28
Bullion.....	—	Justice.....	—
Crown Point.....	5½	Kentucky.....	40
Cole, Va.....	—	Lady Bryan.....	—
Confidence.....	—	Occidental.....	19½
Chollar-Potosi.....	55½	Ophir.....	4½
Con. Virginia.....	—	Overman.....	8½
Daney.....	—	Sage.....	38½
Empire.....	—	Sierra Nevada.....	12½
Excelsior.....	—	Soc. Belcher.....	1½
Flower.....	—	Yellow Jacket.....	2½
Gould & Curry.....	14½		
		WHITE PINE.	
		Aurora Con.....	—
		Brook.....	—
		Chloride Con.....	—
		Featherstone.....	—
		Hidden Tr. Co.....	—
		Mammoth.....	20c
		AMADOR.	
		Golden Char'L.....	33½
		Ida Elmore.....	9½
		IDAHO.	
		Gold Silver Cord.....	—
		CALIFORNIA.	
		Adams.....	\$230
		Eureka.....	\$300
			\$320

Our Agents.

OUR FRIENDS can do much in aid of our paper and the cause of practical knowledge and science, by assisting Agents in their labors of canvassing, by lending their influence and encouraging favors. We intend to send none but worthy men.

Traveling Agents.

WM. H. MURRAY—Montana, and Utah.
S. H. HERRING—California.
J. M. WOLF—Oregon.
L. P. MCCARTY—California.
L. MINER—Nevada, and Colorado.

Resident Agents.

CENTREVILLE, Alameda Co., Cal.—L. G. Yates.
OAKLAND—W. H. Hardy.
SACRAMENTO—A. S. Hopkins, No. 70 J street.
JACKSON, Amador Co., Cal.—J. S. Andrews.
TREASURE CITY, Nev.—J. L. Robertson.
HAMILTON, Nev.—Thomas Starr.
CARSON CITY, Nev.—John G. Fox.
SHELMANTOWN, Nev.—P. C. Renfrew.
BOISE CITY, Idaho—Lankin Bros.
HELENA, Montana—E. W. Carpenter.
EL PASO, Texas—Harper M. Orshead.
CENTRAL CITY, Col.—Richards & Crane.
GEORGETOWN, C. T.—John A. Lafferty, Postmaster.
DENVER CITY, C. T.—Woodworth & Moffat.
CHEYENNE, D. T.—Robert Beers.
OMAHA, N. T.—Barlow & Brothers.
PHILADELPHIA, Pa.—Piller, Quigg & Co.
LOANES—George Street, Richmond, E. O.
HUNSON & MEYER, 41 Park Row, New York.
NEW YORK—H. D. Dumont, 73 and 75 Fulton street.
A. C. KNOX, City Soliciting and Collecting Agent.

Mining Shareholders' Directory—Meetings, Assessments and Dividends.

[Compiled weekly from advertisements in the SCIENTIFIC PRESS and other San Francisco journals.]

ASSESSMENTS

NAME, LOCATION, AMOUNT AND DATE OF ASSESSMENT.	DAY	DATE OF ASSESSMENT.
Alpha Cons., G. H., July 13, \$1.....	Aug. 22—Sept. 20	
Belcher, G. H., Sept. 6, \$2.....	Oct. 10—Oct. 20	
Bromide Tunnel, W. P., Aug. 9, 10c.....	Sept. 13—Oct. 3	
Brush Creek, Sierra Co., Aug. 5, \$2.50.....	Sept. 9—Sept. 29	
Cherokee Flat, Butte Co., Sept. 10, \$3.....	Oct. 14—Oct. 31	
Crown Point, G. H., \$3.....	Sept. 6—Sept. 12	
Cossola, July 30, \$1.....	Sept. 14—Sept. 27	
Cons. Virginia, Storey, July 6, \$1.....	Aug. 10—Sept. 7	
Eagle, Sta. Barbara Co., July 27, \$20, Sept. 10	Sept. 26	
Empire, G. H., Aug. 4, \$6.....	Sept. 8—Sept. 29	
Empress, G. H., Aug. 4, \$6.....	Sept. 8—Sept. 29	
Gold Hill, G. H., Sept. 8, \$10.....	Oct. 13—Oct. 31	
Gould & Curry, July 14, \$12.50.....	Aug. 18—Dec. 12	
Julia, July 22, 75c.....	Aug. 25—Sept. 12	
Ida Elmore, Idaho Ter., Sept. 10, \$5.....	Oct. 15—Oct. 17	
Kentucky, G. H., Aug. 27, \$5.....	Sept. 29—Oct. 17	
Kincaid Flat, Tuoli. Co., July 20, \$2 50, Aug. 24—Sept. 14	Sept. 14*	
Latawana, W. P., Aug. 15, 10c.....	Sept. 14—Oct. 3	
Land Purchasers' Ass'n.....	Aug. 30—Sept. 24	
Mountain City, July 15, 25c, Aug. 29—Sept. 26	Sept. 26	
Noonday, W. P., July 20, 20c.....	Aug. 24—Sept. 30*	
Nevada L. & M. W. P., Aug. 11, 2c.....	Sept. 14—Oct. 3	
North America Cons., July 16, 5c.....	Aug. 17—Sept. 17*	
Ophir, Virginia City, Sept. 9, \$3.....	Oct. 13—Nov. 2	
Hidden Treasure, W. P., Aug. 27, \$2.....	Sept. 30—Oct. 20	
Pinto, W. P., July 22, 10c.....	Aug. 25—Sept. 15*	
Segregated Belcher, W. H., Aug. 25, \$1.50, Sept. 29—Oct. 18	Sept. 29—Oct. 18	
Silver Vault T. & M. W. P., July 20, 5c, Aug. 25—Sept. 15*	Sept. 15*	
Tecumseh, Calaveras Co., July 26, \$3.....	Sept. 20—Oct. 20	
Wheeler, Esmeralda Co., Nev., Aug. 25, 5c, Sept. 20—Oct. 20	Sept. 20—Oct. 20	

MEETINGS TO BE HELD.
Chicago and Detroit Cons..... Annual Meeting, Oct. 3
Hope Gravel..... Special Meeting, Oct. 20
Manchester..... Annual Meeting, Oct. 3
Meadow Valley Extension..... Annual Meeting, Sept. 27
Oriental..... Annual Meeting, Sept. 17
Pinto..... Annual Meeting, Sept. 17
Jennie A..... Annual Meeting, Sept. 10
Segregated Belcher..... Annual Meeting, Sept. 19
LATEST DIVIDENDS—(Within Three Months)
Eureka, div., \$7.50..... Payable August, 1870
Hale & Norcross, div., \$5..... Payable Sept. 10, 1870
Sierra Nevada, div., 50c..... Payable Sept. 16
Union, div., \$1..... Payable Aug. 6, 1870
—Advertised in this journal

CROPS IN SONOMA.—A correspondent of the Petaluma Journal thinks that the present year's yield of serials in Sonoma county, is but little below the average, while that of the vine and other fruits is equal, if not greater.

HOPS FOR EUROPE.—Two car loads of hops, raised by Capt. W. M. Haynie, near Sacramento, left by rail, a few days since, en route to London, England, the first foreign shipment of this article yet made, we believe.

A MODEL OF THE WHITE MOUNTAINS.—Prof. Hitchcock and class, from the Chandler Scientific School, are making important discoveries in relation to the geological structure of the mountains, and the extent of the ice in the glacier period. They will soon construct a model of the mountains—the first attempt of the kind in the country.—College Courier.

THE SCIENTIFIC PRESS devoted to mining, farming and the mechanic arts, and is inferior to no publication of the kind in the United States.—Owyhee Avalanche.

THE SCIENTIFIC PRESS is one of the most interesting of our Exchanges, and is especially devoted to giving full accounts of mines and all new inventions and improvements in mining machinery, and machinery of all kinds. It also contains a general review of mining operations in all parts of the United States, with an epitome of the latest mining news, selected from the local papers of each district. All very interesting to miners and mechanists.—Helena Gazette.

NEW VOLUME.—The San Francisco SCIENTIFIC PRESS has entered its 21st volume, and is one of the most valuable journals published. Containing, as it does, articles on every branch of home industry, the sciences, arts, etc., the Press should find its way into every hamlet in the land. The four dollars expended for a year's subscription to this journal may be repaid by the information gained by the perusal of only one number.—Alpine Chronicle.

THE SCIENTIFIC PRESS.—An illustrated Pacific States weekly, devoted to mining, farming, mechanic arts and industrial progress, generally, but especially in the west. This work is published in San Francisco, at 24 Pacific street. Mr. Asa Lee is canvasser for subscribers, with specimens of the work, which we can commend to our readers—the general public.—Deseret Daily News, Salt Lake.

Farming and Gardening.

Communications for this department are solicited from all parts of the Pacific States and Territories.

Profits of Forest Culture.

From what we said on this subject two weeks ago, it will be observed that in the system of forest culture there marked out, there are four harvest periods, at intervals of six years between each, or 24 years for the entire term—the aggregate of the returns from which ought to reach fully \$9,000, or a full average of \$375 per acre, for each year during which the forest has been growing; while there will still be left upon the soil at the end of that time, 300 trees, that ought to be worth, something about \$2,000, for timber alone, which may be considered the then value of the land. If the 300 trees thus left are English or black walnut or pecan nuts, the annual yield of fruit from each tree, from thence onward for the next 50 years or more, ought to be at least \$10, or an aggregate of \$300 per annum, per acre, for the mere trouble of gathering the nuts; while the trees will at the same time be making a slow growth (slower, of course than non-bearing trees) until they reach a value of at least \$3,000 per acre for timber.

In order that there may be no mistake about these figures, and to give each one an opportunity to see how we have arrived at the above results, we will recapitulate, premising that we are supposing our artificial forest has been placed in close proximity to water or railroad communication, and not in the distant redwood or other mountains, where transportation forms the chief item of cost.

For reasons given in the previous article, to secure a more ready and vigorous start, we commence with close planting—about three feet apart, or 4,900 trees to the acre. At the end of the first period we shall have 2,300 saplings suitable for poles, stakes, etc., and a few large enough for fence posts, besides much that will be left for fuel. The whole, being just where it is needed, will be worth to the farmer himself or his neighbors, we may say \$175.

The second period, or season of income, at the end of 12 years, would give us 1,150 trees from which could be obtained at least 1,000 railroad ties, worth 40 cents each net, which, with the fence posts, poles and fuel, would bring the receipts up to fully \$525—and very probably six or seven hundred dollars, if we take into account the quality of the timber. Timber of the size now produced would be large enough for sawing up into staves, for which it might be worth more than for any other purpose.

The third period (18 years,) will give us 573 trees which will average 18 to 20 inches in diameter, and from 60 to 70 feet high. The timber now obtained will be suitable for the saw mill or small spars. Each tree ought to furnish at least 350 feet of the best hardwood lumber, which would be worth on the ground, \$16 per M.; or \$3,200 for the entire lot. In addition to the lumber, the lot ought to furnish 860 railroad ties worth \$344, and fence posts and fuel worth \$100, or \$3,644 in all. We have now an average annual product from the time of planting (18 years) of \$241 per acre.

The fourth period will give us the same number of trees, but now, by increased growth yielding 500 feet each, or 277 M. in all, worth \$4,432, besides ties, posts and fuel worth \$444; aggregating for the last six year period \$812 per year.

If we aggregate the receipts for the entire period of 24 years, we have a total of \$9,220, to which must be added the value of the trees still remaining, say \$2,000, making a grand total of 11,220 or a yearly average of \$467, for a single acre of land, with no more labor than would have been required to cultivate the same with corn.

Large as this account is, we can see no

reason for deducting from the figures we have made, except for loss by fire, which might be insured against for a small per centage. The casualties which might arise from the failure of trees to grow would be very small, and would be confined to the first three years at farthest; moreover, new ones would of course be supplied from the nursery to make the original number good. It is barely possible we may have overstated the growth a little; but it would be difficult to show such a result from figures based on any actual experience in growing trees in this State.

We may here add as an instance of the rapid growth of forest trees in California, the fact recently stated by the *Colusa Sun*, that a cottonwood tree which was planted in that town in 1855, was cut down the present year—at 15 years of age—and yielded seven cords of wood! Cotton woods in Sacramento have attained a height of 40 feet, and a diameter of 20 inches in 10 years. These cottonwood trees make poor timber or fuel; but they do not grow much faster than either the locust or larch, both of which make the best of timber.

We may also add to the above the fact that the President of the Council Bluffs (Iowa) Agricultural Society is now living in a house, the lumber of which was made from timber of his own planting, which was cut at 15 years from the time seed was put in the ground. California ought certainly to do as well as Iowa or any other State.

In the above calculations we have confined our product to timber alone. If we were to mix with our timber, a few nut trees, we should greatly increase the receipts after the sixth year from the sale of nuts, as has already been shown.

The man who plants an acre or any considerable number of forest trees at the birth of a son, as many do in Europe, may have as the product of that acre or less, a handsome fortune or start for his boy when he attains his majority, and at the same time fully reimbursed himself for the original cost of land, interest upon the same for 21 years, and principal and interest for all the labor expended thereupon. There is scarcely a man in California, owning a farm, who cannot plant with trees one acre every year or period of two or three years, without interfering with his income or other farm work; as all the work of planting and caring for the same can be done during leisure days and weeks of the year.

Value of Larch for Timber.

One word with regard to the usefulness of the larch for lumber. It is but little inclined to shrink or crack, and is odorless, which latter quality especially renders it extremely valuable as timber for wine and other casks, a suitable wood for which is greatly needed in the State, and for which the demand must constantly increase. It is also very valuable for cabinet work. Larch fence posts are said to stand for fully 20 years; while for grapevine and other stakes, it is said to have been known to do duty in Switzerland and Germany for two full generations. There are said to be larch piles now standing in the London docks, and in good condition, which were driven a thousand years ago!

A Valuable Larch Forest in Scotland.

Artificial forests, chiefly of larch, are quite common in various parts of Europe, where many landowners derive their chief incomes from such investments. The larch will flourish in the poorest soil. The Duke of Athol, in Scotland, has a larch plantation of some 10,000 acres, set out on what was formerly a barren mountain tract, utterly worthless for cultivation. This plantation was started by his ancestor in 1730 as an experiment, and when experience had proved its success, the planting was continued for a number of years until the entire tract was covered. The trees were planted thickly at first, much as we have shown above, and gradually thinned out. At 20 years of age they are found to attain a size available for a great variety of uses, and at 70 they are fit for the largest ship timber. Such timber averages about 300 trees to the acre, and its value in the forest is estimated at half its value in the nearest ship yard. The value of this entire forest, as it now stands is set down at \$32,000,000. If a young man in California had 10,000 acres planted out in a young forest, he might, if he should live to reach eighty years of age, be able to leave to his heirs a similar fortune, at less than a quarter the cost that would be required to build up such a fortune in any other manner. Moreover, in this case the result would be absolutely certain; while in mercantile or speculative pursuits the chances would be

more than ten to one against acquiring a moderate fortune. If he died at an earlier age, and before his work was fully done, the foundation of such a fortune would remain, and its value be counted by the number of years which he had lived.

Who would not rather leave to posterity one thousand trees, than one thousand dollars, though they were might be saplings? Living groves are better than decaying mansions. The former are growing monuments, which may flourish and wave, and feed ones descendants for centuries after a marble monument may have crumbled to dust.

The Exhibition Awards.

California Wines.

The Committee appointed to inspect the exhibits of California wines and liquors at the late fair, and report as to their comparative qualities and merits, submitted the result of their labors on Thursday evening as follows:

WHITE WINE.

United Anaheim Wine Growers' Association, best white wine of 1869.

Orleans Hill Vinicultural Association, best white wine of 1869 (equally as good as the above, but foreign grape).

Lake Vineyard, of Los Angeles, best white wine of 1868.

O. W. Craig (H. D. Dunn, Agent), best white wine of 1867.

Jacob R. Snyder (Bowen Brothers, Agents), best white wine of 1866.

CLARET.

Migharracca, best red wine of 1863.

M. Keller, best red wine of 1868; also of 1867; also of 1866.

PORT.

Orleans Hill Vinicultural Association, best port wine of 1869.

Lake Vineyard of Los Angeles, best port wine of 1868; also of 1867.

SHERRY.

George West, best sherry wine of 1868; also of 1866.

CHAMBERTIN.

P. N. Bugby, best chambertin (foreign grape) of 1868.

ANGELICA.

M. Keller, best angelica.

BEST SPARKLING WINE.

First Premium—I. Landsberger & Co., muscatel.

Second Premium—I. Landsberger & Co., Private Cuvee.

Third Premium—I. Landsberger & Co. Dry Champagne.

Fourth Premium—J. Finke, sparkling wine.

BRANDY.

F. Schleifer & Co. best brandy of 1869.

M. Keller, best brandy of 1868; also of 1867; also of 1866.

MISCELLANEOUS WINES.

Eberhardt & Lachman, Cucumongo wine.

S. W. Shaw, Muscatel.

Eberhardt & Lachman, Muscat.

O. W. Craig, Malaga.

Lake Vineyard of Los Angeles, Sultana.

Orleans Hill Vinicultural Association, Resling of 1866 and 1869.

B. D. Wilson, bottle of fine old port (twelve years' old).

P. N. Bugby, for a variety of fancy brands of sweet wine.

BITTERS.

M. Keller, best wine bitters.

Eberhardt & Lachman, best cocktail bitters.

I. H. Wanser, best root bitters.

The committee recommended that diplomas be awarded to all of the above, for the reason that they have entered the best wines and liquors for competition.

Samples of sparkling wines, only were selected from stock in store for exhibition.

The committee further stated that they were unable to agree on the subject of awarding the grand prize, and asked for further time to submit a supplementary report as soon as they have arrived at a definite conclusion.

PERSIMMON TREES IN CALIFORNIA.—The *Sacramento Bee* says there is a persimmon tree, which has been in full bearing for several years at the northwest corner of Q and Third streets, Sacramento. It was planted by Col. Sanders fourteen years ago. The *Grass Valley Union*, in noticing the above, says: "And there are several trees at Threlke's ranch, between Auburn and Rattlesnake Bar, Placer county. Ten years ago, or more, the largest tree there bore fruit. Now, there is a large orchard of trees, and plenty of the fruit. The persimmon is not only a fine fruit, but the wood of the tree is the best out of which pulleys can be made." We have already noticed the fact that Mr. James Lick cultivates the persimmon on his ranch, near Santa Clara.

MICHIGAN BLUFFS.—Our correspondent, "L. P. Mc.," writes from Michizan Bluffs: "Some half dozen very fine little mountain ranches exist within a few miles of the Bluffs, from which the inhabitants, for ten or fifteen miles each way, are supplied with fruit and vegetables of the choicest kinds. The principal one is that owned by Mr. James Wills, one half mile from Michizan Bluffs. Mr. W. informs us that the late frosts killed nearly all the winter apples in this vicinity, which were in full bloom when the last frosts occurred; and the cabbages and turnips have all been destroyed by a plague of lice. The former of those vegetables commands 15 cents per pound in this market at the present time. Mr. Wills informs me that the grape vine does better here without irrigation than with; he says that if only planted deep (say 12 inches), no irrigation is necessary. He also gets a crop of grapes the first year from settings by a system of grafting."

It is impossible to obtain grapes from "settings" the first year; but old vines or roots, grafted, will often produce from one to six pounds each.

LICE ON CATTLE.—A correspondent of the *Country Gentleman*, for the purpose of killing lice on cattle, dissolved about a pint of strong soft soap in a pail of warm, soft water, and saturated the whole surface of a lousy cow with it; after thirty minutes, repeated the operation, and in thirty minutes longer, took a pail of clean warm water and quickly and thoroughly washed out all the soap, water and dead lice in large quantities, put her in a warm stable and covered her with a dry blanket. The next day, after being thoroughly dried, she looked and seemed to feel like a new animal; more than doubled her quantity of milk within twenty-four hours, and immediately commenced gaining flesh and general thriftiness.

PRECOCIOUS FRUIT PRODUCT.—The *San Diego Union* says that on the ranch of Mr. Russell, in Tia Juana Valley, San Diego county, "there are now ripe grapes on one year old cuttings, set out in January;" and that on the same ranch "figs have been grown from one year cuttings." Are we to understand from the above that grapes and figs are there obtained from cuttings the first year they are set out as cuttings, or that the cuttings were first rooted and then set out? The same paper further adds that "apple trees, three years old, are now bearing—one tree having one, another six and another seven apples."

TOBACCO IN SAN DIEGO.—Mr. Russell, a farmer, living in the Tia Juana Valley, according to the *San Diego Union*, planted three-quarters of an acre with tobacco, in May last, from which a magnificent crop of very superior quality was gathered a short time since. Encouraged by this success, Mr. Russell has determined to plant five acres the coming season.

SUGAR CANE.—An experimental lot of sugar cane planted by Mr. Thompson, near Suscol, is doing well.

There is said to be a "Corner" in the Peanut market, in Cincinnati. The crop was "short" last season, and a Cincinnati firm has been buying up all the peanuts that could be had, to make the "Corner," and run up the article to a "giddy" point. The firm claims to have 300,000 bushels in store, and the quantity still increasing.

WITHOUT IRRIGATION.—The *Gazette* of Nevada says:—We have alluded on several occasions to the statements of individuals that grape vines will thrive on our hill sides without irrigation, and within the last few days we have received further evidence of the fact that grape cuttings if well planted early in the spring will survive the drouth of summer. Messrs. Rolfe and Frink set out a thousand cuttings on the hill side two miles east of Nevada last March and April, and nine-tenths of them are growing finely. They have not received a drop of water by irrigation. The vines that have been kept the most free of weeds, and where the ground has been frequently stirred, have done the best. The ground where these cuttings were set out, was spaded to the depth of about eighteen inches. The vineyard is on the north side of a hill, which in a measure protects it from the heat of the sun.

The Late Horticultural Exhibition at the Mechanics' Institute.

[Concluded from page 199.]

ALAMEDA COUNTY was favored by the splendid exhibit of J. Luelling & Son, of San Lorenzo, who made the best general display at the fair. These gentlemen were the first nurserymen on the Pacific Coast, as well as the pioneer orchardists. They have 100 acres of orchards in Alameda County, and 150 in Napa, in the former of which they have 112,000 standard trees and plants growing.

The First Nursery on the Pacific Coast.

As early as 1846, W. H. Luelling brought a wagon load of assorted nursery stock across the plains, and started the first nursery and orchard, near Portland, Oregon.

In 1847, Wm. Meek brought a wagon load of trees and seeds by the same route, and settled in Lynn County, but subsequently removed to a locality near Portland. In 1848, Luelling & Meek joined in partnership. In 1849, Mr. J. Luelling arrived in Oregon, joined with the firm, and established branch nurseries in various parts of Oregon and in California. This partnership continued until 1856. The original orchard, planted by Luelling & Meek, is now standing.

The San Lorenzo Nurseries

Were started in 1852—Mr. Meek, the old partner, has an extensive farm and orchard, and a fine residence adjoining Luelling, in San Lorenzo. It was on Mr. Meek's farm that the Rainie plant, exhibited by Mr. J. French was grown. The San Lorenzo orchards and nurseries are as fine as any in the State, and several other orchards along the San Lorenzo might have exhibited with credit. J. Luelling & Son exhibited 125 varieties of fruit. These gentlemen have 3,000 Almond trees ready for market in their nursery, also 93,000 Cherry Currant plants, and several thousand Cherry trees. They have marketed this season, 120,000 lbs of currants; and 40,000 lbs of cherries.

They have 70,000 young Grape vines, of fine foreign varieties, just beginning to bear, which will produce 100 tons of fruit this season. Their place must be seen to be appreciated; all who carefully observed their display of fruit at the fair must have been much gratified.

Mr. W. Hunt of Oakland, exhibited some choice Norway Oats, and took a premium.

Mr. H. also exhibited some fine bunches of Grapes.

Oakland also gave the magnificent Century plant, which formed such an attractive feature. Gen. Kirkham, for his liberality, will long be remembered, by every admirer of this wonderful plant.

Although Alameda County is one of the garden spots of the State, and produces as fine specimens of vegetables and cereals as any part of the State, but few samples were on exhibition—why was this? Surely the management of this fair has been in strict accordance with the high reputation of the Mechanics' Institute, and no distrust could reasonably deter any one from participating, while every incentive of enterprise and competition has been open to all.

Santa Clara County,

Made a very creditable show of fruits. L. A. Gould exhibited about 120 varieties from his extensive and wonderful orchard, pronounced by the Wilder party, the *finest in the world*? One who rides through its numerous avenues cannot fail to admire the well arranged groves and collections of apples, pears, peaches, plums, cherries, grapes, nut trees, strawberries, etc., etc., all loaded with beautiful fruit, and under a most complete system of cultivation, and irrigated from an artesian well, the water of which is conducted in pipes to all parts of the orchard. Mr. Gould did not exhibit so much for a premium, as to encourage the enterprise and compare notes. He, like all good orchardists, is more interested getting a few of the best varieties, than in cultivating many indifferent sorts. He took two premiums; but showed more interest in the display of others than in that his own. B. F. Headen, of Santa Clara, a near

neighbor of Mr. Gould, also an orchardist, made a very good showing of fruit from his fine orchard. He took one premium for apples, and his plums, pears, etc., were very fine; indeed his whole display was creditable. He placed some unfermented juice of the grape on his table that was quite a novelty, but did not attract much attention, probably because the firoking had not taken possession with his glittering seductive poison. Both Mr. Gould and Mr. Headen exhibited some fine Catawba Grapes.

Mr. King, also of Santa Clara, made a very creditable showing of excellent fruits in variety. His place is irrigated by artesian wells.

Fox & Farney, of San Jose, exhibited a very large variety of apples, 43 kinds; pears, 50 varieties; plums, 26; strawberries, 5, besides other fruit. Their establishment was started, in San Jose, in 1854, by Mr. B. S. Fox. Mr. Mark Farney, planted a nursery in 1838, on a piece of land adjoining. In 1865 the two entered into partnership, and have been doing a large nursery business ever since. They cultivate a nursery of some 30 acres, while their orchards cover some 120 acres. Their nursery contains all the leading varieties of fruit trees. They are, this season, budding some 20,000 pears, 10,000 plums, 10,000 cherries, 6,000 peaches, 4,000 almonds, 4,000 apricots, 2,000 nectarines, besides large numbers of apples and other fruit trees.

Their place is on the banks of Coyote Creek, and is a light adobe soil. They grow all fruit, excepting strawberries, without irrigation.

Mr. J. M. Patterson, also of San Jose, who has a fine little orchard "among the willows," on alluvial soil that requires no irrigation, made a beautiful display of pears and blackberries, for both of which he took premiums. He also showed some fine specimens of other fruits. But his dried prunes, which constitute the chief attraction, were certainly very superior, especially the ones dried by hot air. Mr. P. makes the raising and drying of prunes a speciality.

From Napa Valley.

S. Wing, R. S. Thompson and A. Beaufreton, exhibited some nice specimens of grapes in fine variety. These gentlemen took some premiums, already specified in our report of awards, which were especially deserved. Napa Valley is now credited, as it deserves to be, with a reputation for excellent fruits. R. B. Woodward exhibited some of the fairest apples on the tables and took a premium for the same.

Some fine corn, melons, squashes, one enormous cucumber and some choice nuts, etc., were exhibited from Napa.

TO KEEP FLIES FROM HORSES.—The *Journal of Chemistry* gives the following as a preventive of horses being teased by flies:—Take two or three handfuls of walnut leaves, upon which pour two or three quarts of cold water; let it infuse one night and pour the whole next morning into a kettle, and let it boil for a quarter of an hour. When cold it will be fit for use. No more is required than to moisten a sponge, and before the horse goes out of the stable let those parts which are most irritable be smeared over with the liquor, namely, between and upon the ears, neck, the flanks, etc. Not only the gentleman or lady who rides out for pleasure will derive satisfaction from the walnut leaves thus prepared, but the coachman, the waggoner, and all others who use horses during the hot summer months."

A GOOD MOVE.—The farmers in some directions are already making preparations for plowing, in order to secure the early sowing of their grain, so that they may get the full benefit of the winter rains. This is a move in the right direction, and should be supplemented by deep plowing, fallowing and improved culture generally. The benefits of deep plowing and summer fallowing have been fully shown the past season, by some of the more intelligent farmers in almost every portion of the State. It is to be hoped that the examples they set will be still more generally followed the coming season.

THE VINTAGE IS NOW AT HAND. The *Sacramento Reporter* of last Saturday says:—"We are advised that the vintage at B. N. Bugbey's Natoma Vineyard will commence next week, and that the work will be in full progress in about three weeks from this date. It is calculated that the yield of wine will be at least 90,000 gallons this season. Casks, etc., for the yield of the current season are being forwarded daily to the vineyard."

What I Know of Farming—No. 35.

Accounts in Farming.

Farmers, it is urged, sometimes fail; and this is unfortunately true of them, as of all others. Some fail in integrity; others in sobriety; many in capacity; most in diligence; but not a few in method or system. Quite a number fail because they undertake too much at the outset; that is, they run into debt for more land than they have capital to stock or means to fertilize, and are forced into bankruptcy by the interest ever accruing upon land which they are unable to cultivate. If they should get ahead a little by active exertion throughout the day, the interest would overtake and pass them during the ensuing night.

Few of the unsuccessful realize the extent to which their ill-fortune is fairly attributable to their own waste of time. Men not naturally lazy squander hours weekly in the village or at the railroad station, without suspicion that they are thus destroying their chances for success in life. To-day is given up to a monkey-show; half of to-morrow is lost in attendance on an auction; part of next day is spent at a caucus or a jury trial; and so on, until one-third of the year is virtually wasted.

Now, the men who have achieved eminent success, within my observation, have all been rigid economists of time. They managed to transact their business at the county-seat while serving there as grand or petit jurors, or detained under subpoena as witnesses; they never attended an auction unless they wanted something which was there to be sold, and then they began their day's work earlier and ended it later in order to redeem the time which they borrowed for the sale. I do not believe that any American farmer, who could count up three hundred full days' work in every year between his twenty-first and thirtieth, ever yet failed, except as a result of speculation, or endorsing, or inordinate running into debt.

I would, therefore, urge every farmer to keep a rigid account current of the disposal of his time, so as to be able to see at the year's end exactly how many days thereof he had given to productive labor; and how many to such abiding improvements as fencing and draining; and how many to objects which neither increased his crop nor improved his farm. I am sure they would be amazed at the extent of this last category.

If every youth who expects to live by farming would buy a cheap pocket-book which contains a diary, wherein a page is allotted to each day of the year, and would, at the close of the day, or at least while its incidents were still fresh in his mind, set down under its proper head whatever incidents were most noteworthy, he would thus provide himself with annual volumes of facts which would prove instructive and valuable throughout his maturer years.

The good farmer will, of course, keep accounts with such of his neighbors as he sees fit to deal with, and he ought to charge all, credit a borrowed plow, harrow, reaper, log-chain or other implement, precisely as though it were meal or meat of an equal value. I judge that borrowed implements, if regularly charged at cost, and credited at their actual value when returned, would generally come home sooner and in better condition.

But the farmer, like everyone else, should be most careful to keep debt and credit with himself and his farm. If a dollar is spent or lent, his books should show it, and let items and sum total stare him in the face when he strikes a balance at the close of the year. If there has been no leakage either of dimes or of hours, he will seldom be poorer on the 31st of December than he was on the 1st of the preceding January.

Most farmers fail to keep accounts with their several fields and crops, yet what would be more instructive than these? Here are ten acres of corn, with a yield of 20 to 40 bushels per acre—a like area and like yield of oats, a smaller or larger of rye, buckwheat and beans, as the case may be. If the produce is sold, most farmers know how much it brings; but how many know how much it cost? Say the corn brings 75 cents per bushel, and the oats 50 cents; was either or both produced at a profit? If so, at what profit? Here is a farmer who has grown from 100 to 300 bushels of corn per annum for the last 20 years; ought he not to know by this time what corn costs him in the average, and whether it could or could not with profit give place to something else? Most farmers grow some crops at a profit, others at a loss; ought they not to know, after an experience of five to ten years, what crops have put money into their pockets, and what have made them poorer for the growing?

Of course, there is complication and some degree of uncertainty in all such account-keeping; for every one is aware that some crops take more from the soil than others, and so leave it in a worse condition for those that are to follow, and that some exact large reinforcements of fertilizers, whereof a part only is fairly chargeable to the first ensuing product, while a large share inures to the subsequent harvests. Each must judge for himself how much is to be credited for such improvement, and how much charged against other crops for deterioration. He, for example, whose meadows will cut from two to three tons per acre of good English hay may generally sell that hay for twice if not thrice the immediate cost of its production, and so seem to be realizing a large profit; but, if he gives nothing to the soil in return for the heavy draft thus made upon it, his crop will dwindle year by year, until it will hardly pay for cutting; and the diminution in value of his meadows will nearly or quite balance the seeming profit accruing from his hay. But account-keeping in every business involves essentially identical calculations, and the merchant who this year makes no net profit on his goods, but doubtless the number of his customers and the extent of his trade, has thriven precisely as has the farmer whose profit on his crops has all been invested in drains permeating his hogs, and in lime, plaster, and other fertilizers, applied to and permanently enriching his dryer fields.

"To make each day a critic on the last" was the aspiration of a wise man, if not a great poet. So the farmer who will keep careful and candid accounts with himself, annually correcting his estimates by the light of experience, will soon learn what crops he may reasonably expect to grow at a profit, and to reject such as are likely to involve him in loss; and he who, having done this, shall blend common sense with industry, will have no reason to complain thereafter that there is no profit in farming.—*Horace Greeley.*

CHEESE FROM THE EAST.—It is said that about 2000 cheeses were received in this city, by rail from the East for the four weeks previous to the 15th instant, which sold to jobbers at 18 to 20 cents per pound, although there was plenty of California cheese in the market at from 12½ to 15 cents. This does not speak very well for our California dairymen.

SHEEP POISONED.—Mr. Wm. Knox lost 700 sheep, by poison, last week, out of a flock of 2,500 in a pasture near Pacheco, hired for their temporary herding. It is said that poison had been scattered in the field some time ago to kill squirrels. A case of most gross carelessness.

THE CAMELS of which we formerly heard so much in the state of Nevada, are still doing well, and packing salt from the desert, to Virginia city. They now number 54 in all, 24 of them being natives of Nevada.

San Francisco Market Rates.

Wholesale Prices.	
THURSDAY EVENING SEPT. 15th, 1870.	
Flour, Extra, 48 lbs.	\$5 50
Do. Superfine, 48 lbs.	4 50
Corn Meal, 48 lbs.	2 25
Wheat, 48 lbs.	1 40
Oats, 48 lbs.	1 05
Barley, 48 lbs.	95
Beans, 48 lbs.	2 00
Potatoes, 48 lbs.	1 25
Hay, 48 lbs.	8 00
Live Oak Wood, 48 lbs.	10 00
Beef, extra, dressed, 48 lbs.	7 00
Sheep, on foot, 48 lbs.	2 50
Hogs, on foot, 48 lbs.	6 00
Hogs, dressed, 48 lbs.	7 00
GROCERIES, ETC.	
Sugar, crushed, 48 lbs.	14 00
Do. Hawaiian, 48 lbs.	8 00
Coffee, Costa Rica, 48 lbs.	20 00
Do. Rio, 48 lbs.	20 00
Tea, Japan, 48 lbs.	75 00
Do. Green, 48 lbs.	60 00
Hawaiian Rice, 48 lbs.	7 00
China Rice, 48 lbs.	4 00
Corn Oil, 48 lbs.	2 50
Candles, 48 lbs.	14 00
Overland Butter, 48 lbs.	20 00
Lard, 48 lbs.	20 00
Isthmus Butter, 48 lbs.	25 00
Cheese, California, 48 lbs.	12 00
Eggs, 48 lbs.	15 00
Lard, 48 lbs.	15 00
Ham and Bacon, 48 lbs.	16 00
Shoulders, 48 lbs.	9 00
Retail Prices.	
Sauces, California, 48 lbs.	50 00
Do. pickled, 48 lbs.	40 00
Do. Oregon, 48 lbs.	20 00
Cheese, 48 lbs.	25 00
Honey, 48 lbs.	25 00
Eggs, 48 lbs.	50 00
Lard, 48 lbs.	18 00
Ham and Bacon, 48 lbs.	22 00
Grauberry, 48 lbs.	1 00
Potatoes, 48 lbs.	2 00
Potatoes, Sweet, 48 lbs.	2 00
Tomatoes, 48 lbs.	2 00
Onions, 48 lbs.	2 00
Apples, No. 1, 48 lbs.	4 00
Pears, 48 lbs.	10 00
Plums, dried, 48 lbs.	10 00
Peaches, dried, 48 lbs.	10 00
Oranges, 48 lbs.	1 00
Lemons, 48 lbs.	1 00
Chickens, 48 lbs.	75 00
Turkeys, 48 lbs.	10 00
Snap, 48 lbs.	15 00
Soup, Castle, 48 lbs.	15 00

Scientific Press.

W. B. EWER,.....SENIOR EDITOR.

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San Francisco:

Saturday Morning, Sept. 17, 1870.

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Notices to Correspondents.

RECEIVED.—We shall notice, at the first opportunity, the correspondence received from L. P. Mc., on Placer and Nevada counties; from C. H. A., on a roasting furnace; from MINER, on the Smelting and Mining Interests of White Pine; besides one or two previously mentioned. We are glad to receive so many communications, and are stretching our columns to their utmost, to insert as much as possible at the earliest possible moment.

A PUBLIC BENEFACTION.—When Mr. R. B. Woodward threw open to the public his beautiful gardens, asking only a nominal entrance fee to pay for the expense of keeping them in order, he did an act which deserves public recognition. Here the laboring man can take his family and give them a day's pleasure, which they cannot otherwise obtain without considerable expense. They may see here all varieties of natural curiosities, may witness varied and entertaining performances, may wander amid tropical groves or take a sail on the beautiful little pond, or listen to enchanting music. Not only does the liberal proprietor give a pleasing entertainment on the ground, but he provides a cheap conveyance thither, and his "What Cheer House" affords excellent and inexpensive board and lodging to those who are obliged to spend a part of their time at public houses. We have lately received a number of photographs taken at the gardens. The Museum, Art Gallery, Gymnasium, and different parts of the grounds are here shown; there are illustrations of the various birds and animals, of a Japanese performance, etc. For these and many pleasant hours at Woodward's Gardens, we return thanks.

UNIVERSITY OF THE PACIFIC.—The cornerstone of the University building, at San Jose, was laid on the 10th inst., under the auspices of the Odd Fellows of that place. The exercises attracted a large number of people. The opening address was by Judge T. H. Lane, the first graduate of any college in this State. Dr. Sinex, President of the University, laid the cornerstone. Considerable enthusiasm was evinced by those present.

Mr. Hoop.—The height of this mountain, according to the late measurement of Prof. Collier, is 11,218 feet.

The City Foundries.

A walk among the foundries shows more activity than there has been for some time previous. Although the times still are dull in many respects, yet the foundry-men generally are doing very well, and although there are, perhaps, not so many larger orders on hand as might be desired, yet there is plenty of work to keep a large number of men employed.

The Golden State Coöperative Works have just sent off a 15-stamp mill for the Wheeler mining company at Pine Grove, Nevada. They have previously sent up the engine, etc., for these works. They are building a 10-foot cast iron astrata for the Pioneer mine near Volcano, Amador county. They are making shifting, pulleys, etc., for the California Peat compny, which is at work, on Sherman Island, ditching, building dykes, etc. They have on hand some work for a Smith Truss Bridge, which is to be thrown over Tanitus creek at Pescadero; and they have large orders for shoes and dies, principally for Washoe.

The Fulton Works are building a large 40-stamp mill for the Sierra Buttes mining company in Sierra county. This mill is to be driven by a 65-foot overshot water-wheel. They have lately sent off one of Severance & Holt's tunnel drills, which has given such excellent satisfaction that more are to be made, of such a construction as to work four drills at once. They are getting up a 15-horse engine and boiler and a Brodie Crusher of the largest size, which is to be used at Oakland for breaking up rock for macadamizing purposes. A large machine, with a 10-foot iron disk, is being made for the purpose of dressing the freestone used in the new Mint. There is an order for hydrants for San Jose. A press is being made for taking off and putting on car-wheels, for the Los Angeles and San Pedro Railroad, and they have some bridge work on hand. They are also making castings for Taylor's Smelting Works; rolls, cores, etc., for the Asphaltum Pressure Pipe company; and have various smaller jobs on hand, which keep them busy.

At the Etna, work is being done on a house front for a building near the corner of Kearney and Post streets. A large steam engine (cylinder 25x35) for a ferry boat is being manufactured to go up to Oregon. A 5-stamp mill is being constructed for a mine in Arizona. They have on hand a Tule plow, a late invention of Mr. A. Swingle. In this the plow-frame carries several rollers which are provided with knives so arranged as to cut in different ways. They are also about to commence work on a new steam plow—the Eureka—the invention of Messrs. Stewart & Starr, of Vallejo, with four revolving cutters, at the rear of the engine, working something after the fashion of screw propellers. They are making a tie-laying machine, the invention of Mr. J. R. Adams, of the Central Pacific Railroad; heaters, irons, boiler-fronts, etc., for the Anti-Coolio Laundry; and have various other job-work of different kinds.

The Risdon Iron Works have the full complement of men busy on the iron pipe, to which we have previously alluded, and on orders of varied description.

The Vulcan Works have also, apparently, enough to do to keep them from complaining, to say the least. They are building a 15-stamp mill to go to Mexico, with iron mortar-beds, wrought iron honeings, 650-pound stamps, steam engine and tubular boiler, Hepburn pans, settler, etc. They are making two large tubular boilers for the San Francisco Sugar Refinery; also a large boiler for Duncan & Warren's tannery. A 30 horse power engine for the Mission Woolen Mills, with shaftings, etc., for the extension, is under way. And a large number of car-wheels, axles and castings of varied description are being made, giving work enough to employ about a hundred and fifty workmen.

California Sugars.

An attractive and interesting feature of the present State Fair, in Sacramento, is the exhibit of indigenous sugars by W. Wadsworth.

There are three samples of beet sugar, No. 1, 2 and 3, which were made last year, whilst Mr. Wadsworth was Superintendent of the Sacramento Valley Beet Sugar Company's works and were made by him or rather he made the raw sugar, sample No. 1, and from this made the improved samples No. 2 and 3.

These sugars are of excellent flavor and superb grain, showing conclusively that the two points or qualities that constitute the essential excellence of all good sugars, are not wanting in California grown beets. The only possibility that can stand in the way of a grand success in the manufacture of sugar in California, is the high price of labor and fuel.

But even at the present rates, a fair margin of profit is left the producer above the cost of production, and this should stimulate our agriculturists to active exertions in the way of introducing and fostering this new industry.

Melon Sugars.

Mr. Wadsworth also exhibits two samples of melon sugars, of his own production, which are even superior to his beet sugar, in point of flavor, if they do not quite equal it in grain.

The sample from canteloupes is of a peculiar flavor but decidedly good; whilst that from watermelon has a beautiful color and possesses an excellent flavor.

If there is one product besides grapes and beets, in which the soil and climate of California excel all others in producing, that product is the melon. As many melons can be raised on one acre, with one fourth the cost of cultivation, and the surplus seeds over what are required for the next year's crop of melons, will yield a table oil equal to the best, and in quantity that will pay one half the cost of cultivating the melon crop.

We think Mr. Wadsworth deserves great credit for his persevering efforts to introduce the manufacture of home made sugar in California, as he has certainly demonstrated its entire practicability.

DEEP DRILLING.—We have been presented with a piece of quartz of the hardest, crystalline description, which was taken out of a hole, 234 feet deep, by one of Severance & Holt's Diamond Drills. The machine has been at work at the Union mine, at Carson Hill, near Angell Camp, Calaveras county. It was desired to prospect the vein, which dips at an angle of about 45°, at a low depth. The drill was placed at an angle of 45°, so as to strike the ledge at right angles, and after drilling the above given distance, the vein was struck and found to be 20 feet wide. The core was removed and is now in the hands of the assayers. We are informed that the rock promises better at this depth than it did nearer the surface. The drill worked excellently well.

THE GRAND BALL, given by the proprietors of the Lick House, in honor of Gen. Sherman, came off on Thursday evening, after our forms were made up for the press. The preparations were of the finest character and on the grandest scale. The Governor, Major General Cobb and other officers of the army, and distinguished persons of our city were invited, and, indeed, an attendance of some three thousand persons was expected.

ACKNOWLEDGMENT.—We are indebted to Mr. L. A. Gould for several boxes of assorted fruit from his extensive fruit orchards in Santa Clara. The *Hearth and Home*, in a late issue, pronounces the products of these orchards "the best on the Western slope."

The State Fair at Sacramento.

The exhibition at the Pavilion presents many interesting articles, which we shall mention in future numbers. The display of sheep is excellent, and larger than usual. The show of horses is extensive and in part very good. It almost monopolizes the fair grounds. The "croppings" of several new products and home industries are the most encouraging features of the show, and we are glad to welcome them as indications of a brighter future coming on with its diversified products and manufactures.

As usual, exhibitors were slow in getting their articles in place. During Monday and Tuesday, the Pavilion displayed a scene of bustle and activity, the multitude of operations in progress being quite past finding out. The display of fruit, though creditable, is quite inferior to the late exhibit in this city. At our latest dates there was but one exhibit of flowers. The show of agricultural machinery and of stock, are both quite good. Owing to the early hour at which it is necessary to go to press, we are obliged to defer our regular report until next week. In the meantime, however, we have given, in another column, a somewhat extended notice of the very suggestive exhibit, by Mr. W. Wadsworth, of some sugars made by him from California grown beets and melons. The experiment of making sugar from melons is very interesting, and may lead to important practical results.

Our report may be expected from week to week hereafter.

LECTURE.—Prof. Price delivered a lecture on Gases, last Saturday evening before the Mechanics Institute. The lecture was rendered all the more attractive by a number of beautiful experiments showing the brilliancy of the light produced by gases under certain conditions. A slight accident, caused by the bursting of a bottle, created a momentary sensation, but did not otherwise interrupt the lecture, which was most interesting.

THE SURVEY of the boundary line between Nevada and Utah will be commenced next week. Isaac Jamee has the contract and will take a party of twelve to fourteen men. The survey will be commenced at the railroad and the line run north to Idaho. Then the party will return to the railroad and run the line south.

THE SOUTHERN PACIFIC RAILROAD, according to a telegram from New York on the 13th inst., has temporarily organized, with General Fremont as President, A. M. C. Hunter as Vice-President, John D. Freres as Secretary and Marshal J. Roberts as Treasurer.

A small photographic apparatus, somebody says, has been invented, which gentlemen can carry around in their pockets, and with which they can take the likeness of their lady friends at a moment's warning. That supposes, we presume, that the lady friends will be kind enough to remain quiet a moment. With this apparatus, Jenkin will be able to add likenesses to his descriptions in the papers.

STEEL RAILS.—It is estimated, in round numbers, that 110,000 tons of steel rails, equal to 1,100 miles of steel road, had been laid in the United States up to the close of 1869.

SUGAR REFINERY.—Jersey City, close by New York, has a sugar refinery which covers over seven acres and is the largest in the United States. Three hundred boxes of raw sugars are used daily, and the refinery employs between 300 and 400 workmen.

GILROY is to be supplied with water brought from Uvas creek. An eight-inch pipe is to be laid, which will bring in 350,000 gallons daily.

Patents and Inventions.

A Full List of Patents Issued to Pacific Coast Inventors.

[FROM OFFICIAL REPORTS TO DEWEY & CO., U. S. AND FOREIGN PATENT AGENTS, AND PUBLISHERS OF THE SCIENTIFIC PRESS.]

FOR THE WEEK ENDING SEPTEMBER 6TH.

GANG-PLOW.—James H. Andrews, Benicia, Cal.

STREET-LAMP.—Emil Boesch, San Francisco, Cal.

MAXILLARY COMPRESS.—Cornelius E. Davis, St. Helena, Cal.

FRUIT-CARRYING BOX.—George A. Lloyd, San Francisco, Cal.

REACTION ROTARY STEAM-ENGINE.—Antedated August 26th, 1870.—Francis E. Mills, San Francisco, Cal.

GUN CARRIAGE.—Antedated August 27th, 1870.—Abiather F. Potter, Oakland, Cal.

NOTE.—Copies of U. S. and Foreign Patents furnished by DEWEY & CO., in the shortest time possible (by telegraph or otherwise), at the lowest rates. All patent business for Pacific coast inventors transacted with greater security and in much less time than by any other agency.

Notes on Contributions to our Cabinet.*

Following the specimens noted in our last, come a number of minerals from Eureka and adjoining places and from Mineral Hill. We will first speak of those from Eureka district, Nevada.

These may be divided into three classes, viz:—those which consist principally of carbonate of lead; those which contain a large amount of galena; and those which are stained with copper carbonates and hold tetrahedrite.

No. 475.—This is a specimen from the Champion mine and belongs to the first class. It is of an earthy appearance, is stained with iron oxide, and might easily be passed by without notice, were it not for its weight.

No. 476.—From the Sea King ledge, is an example of the second class. Besides the yellow carbonate, there is a very large proportion of sulphuret to be seen. No. 477, from the Bull Whacker ledge, consists of two specimens,—one of carbonate and one of coarsely crystallized galena.

No. 478 and 479, from the Excelsior and the Mary Ann ledges, are examples of the third class. These are stained green with copper and show considerable tetrahedrite. No. 480 is from the Gem of Nevada.

No. 481.—This is a piece of sandstone from Pancake mountain, a sandstone containing some alumina. No. 482 is a similar piece from McDonald's quarry, two and a half miles out of Eureka. These are used for lining the smelting furnaces. We have also a specimen, No. 483, of the "sandstone" used for building the retaining walls of the furnaces, which is a tufa-like rock.

Nos. 483, 484 and 485 are from Spring Valley. The first is from the North Star, the second from the Murray and the third from the Reeves and Berry ledge. They contain different minerals, as carbonate of lead, etc., but the most noticeable is an antimonial silver ore, in which the second specimen is especially rich.

From Secret Cañon we have four specimens, two from Messrs. Paige and Corwin (Nos. 486 and 487), one from the Bromide ledge (No. 488), and one from the Hodgdon mine (No. 489). These present rather different appearances, according to the amount of iron stains. The specimens from the Paige and Corwin ledge are very handsome. We have previously alluded to one of them in a former issue of our paper. It is somewhat decomposed, holds some fahl ore, and has some specimens of beautifully crystallized hornsilver.

No. 490 is a specimen from a copper mine on the Woodruff and Ennor stage road near Eureka district. It is generally of a green color, from carbonate of copper, with, perhaps, some tetrahedrite.

*Under this heading we shall continue to mention and describe, according to merit, such specimens of ores, minerals, fossils, curiosities, etc., as may be sent to us by mail or express prepaid. Each article will be numbered, marked with the name of the donor and the locality, and placed in our cabinet. A full account of the place, occurrence, etc., when sent adds much to the value of such specimens.

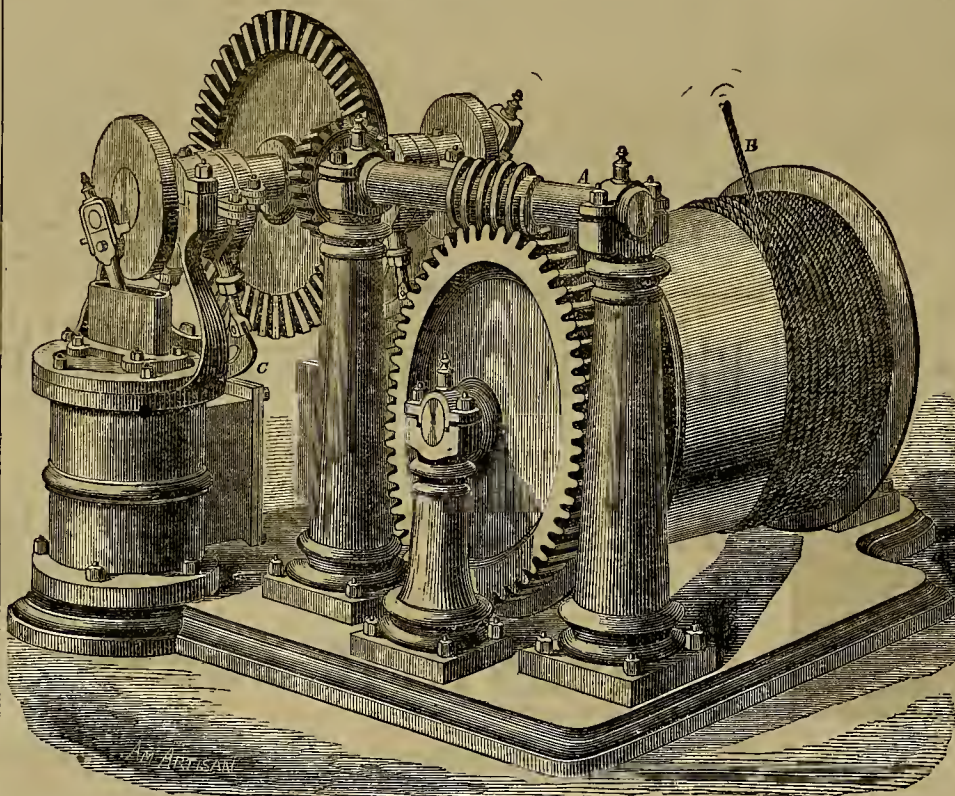
Safety Hoisting Machine.

So long as our mines extended but a short distance below the surface, we heard but occasionally of accidents in the shafts. Now, however, that the miner has, in certain localities on the coast, penetrated far down into the bosom of the earth and the operations are conducted on a larger scale, so that it is necessary to provide especially for the ascent and descent of the workmen, the reports of ugly mishaps are getting more and more frequent. It is only a few days ago that we heard of a bad accident which happened to miners while ascending a long shaft. Our hotels are now using "elevators" for the use of their guests, and the number of hoisting machines in our stores is getting very large. It behooves us then to look carefully to the engines used, and to employ all possible means to prevent the possibility of accidents.

The manufacturers of the machine here

when only one engine is used. Power is transmitted by a beveled gear and pinion and a worm, or endless screw, to the spur-wheel on the winding drum on which the rope is wound. Thus should the engine or gearing break, the drum will be merely stopped and held in place. We might speak at length on several other points, but we think this hardly necessary, as the cut shows the engine clearly enough.

The machine is in a very limited degree liable to derangement when in use, and can be operated by comparatively unskilled attendants, although, in our opinion, none but skilled engineers should be allowed to touch an engine. Patents covering the apparatus have been granted, and the machines, being compact, powerful and economical, are very favorably known in many localities. The agents for the Pacific Coast are Messrs. Wiester & Co., 314 Bush street, San Francisco, and from them any desired information may be obtained.



BACON'S PATENT SAFETY HOISTING MACHINE.

illustrated, claim to have an apparatus which possesses in a high degree the characteristics of simplicity, cheapness and readiness for being set up for work, combined with the strongest safeguards against accidents. The engraving itself shows the machine so that it can be readily understood by any one who is at all conversant with engines of the kind. We can, however, indicate one or two points of importance.

The engine used is of the variety known as the trunk engine, and has, besides the general advantages of this class, several peculiar to itself. The trunk is of oblong form, in horizontal section, instead of being cylindrical, as is usual, and thus a smaller cylinder is required while a greater area of piston is obtained. This greater area of piston gives a proportionately greater stroke, which, in practice, is more than double that obtainable in the ordinary trunk engine.

The connecting-rod is made of strong pipe, and in it is inserted another rod, which is worked by gib and key at the upper end, and serves to tighten simultaneously both the upper and the lower brasses of the connecting rod.

There is an engine of the kind at each end of the driving shaft, thus avoiding all danger of wrenching this shaft, and escaping the liability of stopping at the dead points of the stroke, two sources of trouble

A BUSINESS CHANCE.—We are sorry to learn that Messrs. Faulkenau and Hanks, of the Pacific Chemical Works, have concluded not to continue the manufactory, their term of partnership having expired. Henceforward Mr. Falkenau, who is State Assayer, may be found at 421 Montgomery street, where he has a laboratory and will continue to make assays, analyses, etc., as heretofore. Mr. Hanks is fitting up some large rooms at 649 Clay street, where he has his assay rooms and chemical laboratory. Mr. H. will make the buying and selling of minerals a special branch of his business and will have a room filled with minerals which may be examined by the public. He will make fine chemicals, analyse minerals, give lessons in the determination of minerals, assaying, etc. Both of these gentlemen have excellent and well deserved reputations and we wish for them continued success. We are sorry, however, to have their former business removed from our list of home industries.

COMPLETED.—A telegram from Portland, on the 12th Sept., states that the Oregon Central Military road, commenced in 1864, is now open from Eugene City to Silver City, Idaho, one hundred and sixty miles. Over one hundred and fifty thousand dollars have been expended by the company, which has a grant of land amounting to 300,000 acres in alternate sections.

SNOW PLOW.—The Sacramento Union has been shown a working model of a snow plow recently invented by Mr. T. C. Churchman, of that city. The nature of the invention consists in providing the front part of the railroad track with flat aprons, two perpendicular cylinders, with flanges located back of the apron, and fenders back of the cylinders. With the apron the snow is lifted from the track, when the engine driving the plow is in motion, and carried to the cylinders, which, revolving rapidly by means of usual gearing attached to the engine, throw the snow to the side or sides of the road, as the case may be, from whence it is pressed outwardly by the fenders.

THE MAXWELL LAND GRANT & R. R. Co. The Santa Fe Post, of Aug. 27th, thus speaks of an enterprise, which, if properly managed, bids fair to be of great importance to New Mexico:

Since it became known that Hon. L. R. Maxwell contemplated a sale of his land grant, much interest has been felt in its future, and the people of our Territory have looked forward with hope and anxiety for its speedy development under the management of its new owners. As reported in our columns yesterday, the purchasers, under the title of the Maxwell Land Grant and Railway Co., have perfected their organization and assumed control of the estate. Of their plans we cannot speak in detail as yet. It is known, however, that they are determined to move on energetically in the improvement and development of the estate. The management of the affairs of the company is at present vested in the President, John Collinson, Esq., a gentleman of shrewd business capacities. It is now believed that during the next season a number of immigrants, who come under the auspices of the company, will settle on the grant, and it is proposed to select that class of people who will be at once an advantage to themselves and the community. A portion of them will be practical and skilled miners; mechanics, farmers and laborers will constitute the remainder. No one really interested in the welfare of New Mexico can be disinterested in the success of this company. Their success will attract immigration, capital and railroads and practically prove the wealth of New Mexico.

GRAIN ELEVATOR.—They have grain elevator buildings in Detroit capable of holding seven trains of grain, forty cars to the train. During a busy season it is nothing unusual to receive and ship 30,000 bushels a day, and that, too, with the aid of but 15 men. The two belts which run all the elevating apparatus are each 240 feet long and 30 inches wide, not only scooping 30,000 bushels from the cars, but also lifting this grain (if to be shipped) up more than 130 feet twice during a single day. These belts cost \$5,000 a piece, and it took the combined hides of 1,200 cattle to make them.—Etc.

THE WOODS above Nevada City, on the Washington ridge, have been burning some three or four weeks. It's nobody's business in particular, as the Alta has remarked, to put out this fire, and nobody is going to do it. The State, County, Central Pacific R. R., and individuals all lose immensely. Carelessness occasioned the fire and carelessness will let it burn out.

COLONIZING.—The agent of a colony of Southern and Western families have purchased 3,000 acres of the Juapa grant in San Bernardino county. So we hear, and hearing, rejoice at the prospect of seeing good colonists in our State.

Professional Cards.

JOHN GORMAN,
NOTARY PUBLIC.
COMMISSIONER FOR
Nevada, New York, Etc.
No. 612 MERCHANT STREET. 6v20-3m

JOHN ROACH, Optician.
Has removed from 322 Montgomery street to
540 Washington street,
East of Montgomery.
Surveying Instruments made, repaired and adjusted
2v17-1m

GILES H. GRAY. JAMES M. HAYES.
GRAY & HAVEN,
ATTORNEYS AND COUNSELLORS AT LAW,
In Building of Pacific Insurance Co. N. E. corner Cal-
ifornia and Leidesdorf streets,
SAN FRANCISCO.
3v16

REMOVAL.

DR. BEERS, Dentist,
Has removed from Tucker's Building to
No. 109 Montgomery street, three doors
north, opposite the Occidental. 2v20-3m

Dr. J. H. PAINE, Dentist,
Wadsworth House, No. 225 Bush street,
between Cosmopolitan and Occidental
Hotels, San Francisco.

Business Cards.

A. H. JORDAN,
Architect, Designer and Draughtsman,
No. 430 Montgomery Street,
SAN FRANCISCO. 16v19-qy

Farmers and Mechanics
BANK OF SAVINGS,
No. 225 Sansome Street.
Interest paid on Deposits. Money Loaned on Real Estate.
H. DUTTON, President.
GEO. M. CONOEE Cashier. 19v16-3m

Trades and Manufactures.

NELSON & DOBLE,
AGENTS FOR
Thomas Firth & Sons' Cast Steel.



MANUFACTURERS OF
Sledges, Hammers, Stone Cutters', Black-
smiths' and Horse-Shoers' Tools,
13 and 15 Fremont street, near Market, San Francisco.
10v14q

W. BARTLING. GERRY KIMBALL.
BARTLING & KIMBALL,
BOOK BINDERS,
Paper Rulers and Blank Book Manufacturers.
505 Clay street, (southwest cor. Sansome),
16v12-3m SAN FRANCISCO.

SAN FRANCISCO
PIONEER SCREEN WORKS,
JOHN W. QUICK,
No. 203 Fremont Street, near Howard.
Screen Punching of all kinds and qualities for Quartz,
Cement, Flour and Rice Mills, at Eastern prices. 10v20

SAN FRANCISCO MILL.
HOBBS, GILMORE & CO.,
Manufacturers of Boxes,
Market Street, bet. Beale and Main.
For sale—Mahogany, Spanish Cedar, and other Woods.

J. M. STOCKMAN,
Manufacturer of
PATTERNS AND MODELS,
(Over W. T. Carratt's Brass Foundry,
S. E. Corner of Mission and Fremont sts.,
7v614f SAN FRANCISCO

THOMPSON BROTHERS,
EUREKA FOUNDRY,
and 134 Beale street, between Mission and Howard
San Francisco.

LIGHT AND HEAVY CASTINGS,
of every description, manufactured 24v16q

L. SCHUMANN,
PIONEER

Meerscham Pipe Manufacturer,



No. 341 KEARNY STREET,
Between Bush and Pine streets, San Francisco.

The first and only Manufacture on the Pacific Coast.
MEERSCHAUM MOUNTED WITH SILVER. Meerscham
Pipes Boiled and Repaired. Amber Mouth-pieces Fitted.

AMERICAN MILLS,

M. BURKE, PROPRIETOR,
Nos. 30 and 32 California Street.
Job work of all kinds in the Drug and Spice Line
promptly attended to.
SECOND DEPARTMENT.—Feed Ground. Corn Meal, Oat
Meal, Graham Flour, etc., constantly on hand. 7v206m

SAN FRANCISCO
CORDAGE COMPANY.

Manila Rope of all sizes. Also, Bala Rope and Whale
Line constantly on hand. Mining Ropes of any size
and length manufactured to order.
TUBBS & CO., Agents,
611 and 613 Front street.

THE GIANT
POWDER COMPANY.

BANDMANN, NIELSEN & CO.,
General Agents,
No. 210 Front Street, San Francisco. 26v19

THEODORE KALLENBERG,
Machinist, and Maker of Models
for Inventors.

All kinds of Dies, Stamps and Punches made. Also,
all kinds of Small Gears cut. Repairing done on very
reasonable terms, and in the best manner. 27 No. 10
STEVENSON STREET, near First, Pioneer Mills. 26v19-3m

J. F. PAGES,
SEAL ENGRAVER,
AND LETTER CUTTER,
Brass and Steel Stamps and Dies, 608 Sacramento street,
San Francisco. Orders by express promptly attended to.

LOUIS FALKENAU,
STATE ASSAYER,
Analytical and Consulting Chemist,
421 Montgomery St. up stairs.

Particular attention given to the Analysis of Ores,
Minerals, Metallurgical Products, Mineral Waters, Soils,
Commercial Articles, Etc.
One or two pupils can receive theoretical and practi-
cal instruction in Assaying, Analysis, or any particular
branch of Chemistry at the laboratory.
11v21-3m.

The California Powder Works

No. 614 CALIFORNIA STREET,
SAN FRANCISCO.

Manufacturers and have constantly on hand

SPORTING, I
MINING,
And BLASTING
POWDER,

OF SUPERIOR QUALITY, FRESH FROM THE
MILLS. It being constantly received and transported
into the interior, is delivered to the consumer within a
few days of the time of its manufacture, and is in every
way superior to any other Powder in Market.
We have been awarded successively

Three Gold Medals
By the MECHANICS' INSTITUTE and the STATE AG-
RICULTURAL SOCIETY for the superiority of our
products over all others.
We also call attention to our

HERCULES POWDER,
Which combines all the force of other strong explosives
now in use, and the lifting force of the BEST BLASTING
POWDER, thus making it vastly superior to any other
compound now in use.
A circular containing a full description of this Pow-
der can be obtained on application to our Office.
16v20-3m JOHN F. LOHSE, Secretary.

HAYWARD & COLEMAN

IMPORTERS AND REFINERS
—OF—

Illuminating, Lubricating,

—AND—
PAINT OILS,

CONSISTING OF
KEROSENE, LARD, SPERM, ELEPHANT, POLAR,
TANNERS, NEATSFOOT, BOILED AND RAW
LINSEED, CASTOR AND CHINA NUT.

—ALSO—
Spirits of Turpentine and Alcohol.

Lamps and Lamp Stock!

An elegant and complete assortment.

SOLE IMPORTERS OF

Devoe's Illuminating Oil,

PATENT CANS.
5v17-1f 414 Front street, San Francisco.

California Bonzest,

A CALIFORNIA PATENT, manufactured in San Fran-
cisco. A Condiment

Rare, Rich and Spicy.

Very palatable, productive of digestion and health.
An ANTI-SCORBUTIC, and sure preventive

Against Diseases incident to Sea Life.

A SPLENDID APPETISER.

TRY IT ONCE, and you will never be without it.

LABEL AND TRADE MARK COPYRIGHTED.

SOLD AT No. 53 CALIFORNIA MARKET,

And by authorized Local Agents. 3v21-3m

THE

PACIFIC INSURANCE COMPANY,

422 California Street,
SAN FRANCISCO, CAL.

FIRE AND MARINE INSURANCE!

Capital Stock..... \$1,000,000 00
Amount in excess of Capital available to
pay Losses and Dividends..... 740,065 51

ASSETS IN GOLD.

July 1, 1870.

Loans on Real Estate and Collaterals worth \$2,420,000..... 1,087,058 61
Cash in Banks..... 177,863 73
United States and other Stocks owned by
the Company..... 122,600 00
Real Estate: Company's property, corner
California and Leidesdorf streets.... 146,000 00
Other Assets..... 102,642 77

Total Assets in Gold..... \$1,740,066 11

Losses paid promptly in Gold on Adjustment.

J. HUNT, President.

A. J. RALSTON, Secretary.

Insurance effected on the most reasonable terms. 2v
Office, 422 California Street.

LEA & PERRINS'

CELEBRATED

Worcestershire Sauce.



Declared by Consola-
ments to be the only good
SAUCE. The success of
this most delicious and
unrivalled Condiment
having caused certain
dealers to apply the
name "Worcestershire
Sauce" to their own
inferior compounds, the public is
hereby informed that the only way to
secure the genuine is to ask FOR LEA &
PERRINS' SAUCE, and see that their names
are upon the wrapper, labels, stopper and
bottle.

Some of the foreign markets having
been supplied with a spurious Worcester-
shire Sauce, upon the wrapper and labels
of which the names of Lea and Perrins have been
forged, L. and P. give notice that they have furnished
their correspondents with power of attorney to take in-
stant proceedings against manufacturers and vendors of
such, or any other imitations by which their right may
be infringed.

Ask for LEA & PERRINS' Sauce and see names on
wrapper, label, bottle and stopper.

Wholesale and for export by the Proprietors, Worces-
ter; Crose and Blackwell, London, &c. &c., and by
Grocers and Oilmen universally. Agents, CROSS &
CO., San Francisco. 1v20-1yoo



The "Pain Killer,"

After thirty years trial, is still receiving the most
unqualified testimonials to its virtues, from persons of
the highest character and responsibility. Physicians
of the first respectability, recommend it as a most effec-
tual preparation for the extinction of pain. It is not
only the best remedy ever known for Bruises, Cuts,
Burns, etc., but for Dysentery or Cholera, or any sort of
bowel complaint, it is a remedy unsurpassed for effec-
cy and rapidity of action. In the great cities of India,
and other hot climates, it has become the Standard
Medicine for all such complaints, as well as for Dys-
pepsia, Liver Complaints, and other kindred disorders.
For Coughs and Colds, Canker, Asthma and Rheumatic
difficulties, it has been proved by the most abundant
and convincing testimony, to be an invaluable medi-
cine. Directions accompany each bottle.

Sold by all Druggists.
Price 25 cts., 60 cts., and \$1 per bottle.



THE EARLIEST WAY IS BEST.—To send fire and sword
through the bowels of the land, would be scarcely more
cruel than it is to tear and wreck the delicate and excu-
sive membranes and tissue of the discharging organs,
with a convulsing purgative. No medicinal preparation
at present known, so completely, permanently, and
painlessly relieves constipation, as TARRANT'S EFFE-
VESCENT SELTZER WATER, and as it simultaneously
invigorates the digestion, regulates the action of the
liver, and refreshes the debilitated system it is justly es-
teemed both by medical men and the public at large, as
an indispensable specific in dyspepsia, bilious attacks,
sick headache, physical prostration, and all complaints
affecting the secretive, assimilating and discharging
organs.

SOLD BY ALL DRUGGISTS.

Notice.

To the Readers of the
SCIENTIFIC PRESS

Special attention is called to the

FURNITURE WAREROOMS

George O. Whitney & Co.,

Nos. 31, 317, 319 and 321

PINE STREET, SAN FRANCISCO.

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Coast. At Wholesale and Retail. 8v213m

50,000 ACRES
CHOICE FARMING AND GRAZING
LAND!

IN SIESTA VALLEY
In Tracts of 160 to 20,000 Acres.

Abundance of Rain and Running streams all the year
round—the whole valley ALWAYS covered with a rich
growth of grass.

PRICES VERY LOW—TERMS EXTREMELY EASY

For full particulars, maps, etc., apply to
YOUNG & PAXSON,
Jy 30 No. 424 Montgomery St., San Francisco.

DESIGNS AND PLANS
—FOR THE—
NEW CITY HALL
—OF—
SAN FRANCISCO.

Office Board of City Hall Commissioners, southeast
corner of Sacramento and Montgomery streets, San
Francisco, June 22, 1870.

The Board of City Hall Commissioners hereby give
notice that they will be prepared to receive at their
office, on or before the FIRST DAY OF NOVEMBER
NEXT, designs and plans for the new City Hall of San
Francisco.

The Commissioners, in order to obtain the very best
design and plan, invite the fullest competition among
architects, and to this end have resolved to offer the fol-
lowing premiums:

First—For the design and plan selected and
adopted..... \$2,500
Second—For the second best design and plan..... 2,000
Third—For the third best design and plan..... 1,500
Fourth—For the fourth best design and plan..... 1,000
Fifth—For the fifth best design and plan..... 500

The premiums payable in City Hall warrants.

As a guide to architects in the preparation of the de-
signs and plans, the Commissioners have prepared a
pamphlet containing full instructions and suggestions,
as well as the terms and conditions upon which the pre-
miums will be awarded.

Pamphlets can be had on application at the office of
the Commissioners.

Any design or plan in which the requirements of the
Board, as set forth in the printed instructions, have not
been reasonably complied with, will be rejected from
the competition.

P. H. CANAVAN, Chairman,
JOS. G. EASTLAND,
CHAS. E. McLANE,
City Hall Commissioners.

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American and Foreign

Patent Agents.

Scientific Press Office, 414 Olay Street,
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ness promptly and thoroughly conducted.
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DEWEY & CO.,
Publishers and Patent Agents, No. 414 Clay street
below Sansome, San Francisco.

Reading for the Hour.

Rail And Wire.

BY THE AUTHOR OF "THE CLOUDS."

Rail and wire, by wheel and fire,
Plying hard their joint vocations,
As they sweep o'er land and deep,
Are bringing close the scattered nations.
Over land the iron steed
Swallows distance up in speed,
And the chariot of the sun
Is by courier wire outrun.
Albion speaks to Hindostan;
She replies, ere dove or swan
Could on swiftest pinion fly
From Isle of Wight to Isle of Skye.
Friction's drag is rent asunder,
Lightnings speak, but not in thunder;
Up they dash the breathless steep,
Down they dive into the deep.
Ocean bars the way no more,
Shore is linked to furthest shore;
And in weather fair or foul,
Talk together cheek by jowl.
Night no longer blocks the way,
Darkness works as well as day;
And while mca and fishes sleep,
O'er the land, and through the deep,
Rush the fiery couriers on,
Swift as thought, and mute as stone:
Let us, then, with plaudits hail
Steam and lightning, wire and rail!

Wheel and wire, by steam and fire,
Are breaking up the whole foundations,
And blotting out the base and doubt
Which kept apart the jealous nations.
Gates and walls are giving way,
Mountain range and briny bay
Ope their bosoms to embrace
Men of every clime and race.
Ancient laws are put to rout,
Which erewhile shut aliens out;
Boa-like, with fold on fold,
Clings the new around the old.
Commerce widens, traffic thickens,
Errors languish, knowledge quickens;
And by every conquest gained,
Other triumphs are attained.
One by one the scattered nations
Join in mutual ministrations—
East and west, and south and north,
Pour their special treasures forth.
Soon from pole to torrid zone
Earth one common board will own,
And Babel's curse be half forgot
When men shall speak in polyglot:
Let us, then, with welcome hail
Steam and lightning, wire and rail!

Rail and wheel, and wire and keel,
Are changing fast the old locations,
Nor will cease till pipes of peace
Are handed round to all the nations.
Men in troops the world are ranging,
Crafts and occupations changing,
Arts advancing, science, learning,
Enterprise new conquests earning;
And as stones by streams are polished,
Old aversions are abolished.
Prejudice is giving way,
Reason reassumes its sway;
Power departs from east and hue,
Customs old give place to new;
Yokes relax and cease to gall;
Fetters from the bondsmen fall.
Forced is pride, as best it can,
To own as man his fellow man;
And the nations strive to find,
Fitting laws to guide mankind.
Bigotry conceals its ire,
Persecution damps his fire;
Truth is finding open door
Where the blind wall frowned before:
Let us, then, with welcome hail,
Steam and lightning, wire and rail!

New Gazetteer and Directory.

The Western Shore Gazetteer and Commercial Directory for the State of California is the title of a work, the first volume of which is now in the hands of the printer. One volume is to be devoted to each county. The scope of the work, as illustrated in this first part, is the widest of any yet undertaken. The history, organization, and thorough description of each county, its towns, roads, lands, resources, financial condition, all will have an ample devoted to them. The names, business, and profession of each inhabitant will be given in a convenient arrangement. Each hoof of stock, each cultivated acre of ground will be enumerated, with its possessor. The quality and value of the land in all parts of the district will be given, and the kind and quantity of crops grown thereon. The merchant will be able to learn the position of his customers, the farmer and the mechanic will know what chances are here open to them. The convenience and importance of the work, if properly managed, will be immense.

Of course, it is necessary that the work should fall into proper hands. We are assured that no pains have been spared, and that the greatest care has been exercised to get the most correct information. The projector of the enterprise is Mr. H. W. Atwell, who is familiar to many as "Bildad the Scribe." This gentleman has traveled over the county of which Volume I. treats, on foot and by horse, and has worked personally for a long time, besides having employed numerous responsible agents. He is connected in the enterprise with Mr. C. P. Sprague, a lawyer of Woodland. The present volume comprises some 3,000 names and makes a book of 600 pages. If there is a fair prospect of success held out, the work will be extended to all the counties of the State, and a new edition will appear each year. Being interested in the progress and development of our Coast, we cannot but give our best wishes for the projected enterprise.

Leather in the Tea-Cup.

Everybody knows, we presume, that leather is made by steeping hides in an infusion of certain vegetable substances which contain a compound called *tannin*. The cheapest source of this tanning principle is oak bark, but it is found in greater or less quantity in many other plants, as in the grape, the hop, coffee, tea, etc., and from these it can be dissolved out with water. The skins of animals consist mainly of albumen and gelatine; indeed these substances are abundant in all animal matter. In the blood and in milk the albumen is merely suspended, as it were, in the water which constitutes by far the larger portion of these fluids. Tannin and albumen have a remarkable affinity for each other, and unite as soon as they are brought in contact. The result of their union is the insoluble, tough material which gives leather its distinctive character. When the hide is steeped in the infusion of oak bark, the albumen of the former thus combines with the tannin of the latter, and the loose, soft tissues of the skin is converted into hard, tough leather.

Now when we pour milk into a cup of tea or coffee, a similar chemical combination occurs. The albumen of the milk and the tannin of the tea instantly unite, and form leather—or minute flakes of the same compound which is produced in the texture of the tanned hide, and which, as we have said, makes it *leather* as distinguished from the original skin.

Tannin has a peculiar taste which is technically called *astringent*. We can detect this flavor in chewing the skin of a grape or the stones of a raisin, and in coffee and before the milk is added. One of the main objects in using the milk is to mitigate this astringent taste, and thus enable us to enjoy more perfectly the true flavor of the tea or coffee. Some people prefer the full astringency of the tannin, unmodified by the milk, and so take the beverage without the leather; but with most of us the tea-cup regularly becomes a miniature tannery.

In the course of a year, a tea-drinker of average habits will have imbibed enough leather to make a pair of shoes, if it could be put into the proper shape for the purpose.

It will be found, upon experiment, that a small quantity of milk produces a much greater opacity with tea than with water which has been made of the same color as the tea by the addition of burnt sugar.

Of course it is the minute particles of leather floating in the liquid in the former case, that causes the difference. If we put the tea into a glass and hold it up to the light, while the milk is dropped in slowly, the chemical action will be very clearly seen.

If we use a very strong infusion of tea, and put in a considerable quantity of milk, we can get a distinct precipitate of the *tannate of albumen*, or solid leather, by letting it stand for an hour or more.

We may add that the presence of tannin in tea is shown by the action of the liquid upon iron. Tannin, in most of its forms, unites instantaneously with this metal to form *ink*; and a drop of tea upon a knife-blade produces that familiar black compound at once. Singularly enough, the tannin in coffee does not unite with iron in this way, so that other tests are necessary to detect it.—*Boston Journal of Chemistry*.

PETRIFIED.—The telegraph said, last week, that a petrified seal and a petrified tree had been found in Volcano District, in Nevada. We might have doubts as to the tree, but the seal is all right; we have one ourselves.

Clothes Sprinkler.

The common method of sprinkling clothes, before ironing, by dipping the hand in a vessel of water, and then shaking it over the article of raiment, is rather an inefficient method. The clothes are unequally moistened and hence, in ironing, some parts are quite dry, while others are too damp.

The way practiced by the Chinese washerman would seem to be superior as far as regards the equal moistening of all parts of the garment. This is however, peculiarly Chinese, and will never be introduced generally in this country; at least, we hope not.



We find in the *Rural New Yorker* an illustration of a simple sprinkler, which we here reproduce. It is of tin, of the form shown, with its lower part perforated with minute holes. This is put in a vessel of water, when to be used, when it fills with water of itself. After the sprinkling of each garment, it is replaced in the water to again fill. Old dipper handles, properly perforated, are said to answer excellently well. The arrangement can also be used for watering delicate plants, sprinkling carpets, etc. The invention is credited to Mr. A. Perry, of Tyrone, New York.

REMARKABLE CREVICE.—At the northern end of Blue Hill, near the Truckee mine, was discovered, not long since, a remarkable crevice in the limestone. It is 10 or 15 feet from the surface and of sufficient width to admit the entrance of a man. Its depth is not known. Our informant states that he descended nearly 200 feet, almost perpendicular, and yet saw no evidence of its termination. The entire crevice is lined with most beautiful stalactites. It is the intention of a party of gentlemen to explore it soon.—*White Pine News*.

IRON CARS.—Cars constructed of iron are fast superseding wooden ones in all our leading mines. Though they may be sufficiently light at first, the wooden ones soon become water-soaked, heavy and clumsy, while the iron ones are always light and strong as when new. A cushion of india rubber is fastened on the end of the car to hold the miner's candle-stick, which is thrust into it as formerly into the body of the wooden car.—*Ter. Enterprise*.

THE MATTESON FURNACES.—The proper hillside site having been selected, the ground was so excavated in benches that the ore landed by teams is moved downward continually; first from the dump level into the roasting furnaces, through these to the mixing floors, thence into the melting furnaces, the metal and slags from these going off into still lower levels. The main furnace building is 189 feet long, and including the fire room, stretches out to 220 feet, all with solid stone walls, roofed with tin. This will inclose three blast furnaces, separating works, office, laboratory, engines and blast. Adjoining this, and on a level with the furnace tunnel heads, are arranged the charcoal buildings. The mixing floors, stretching out one hundred and fifty feet in length and covering an area of 7,500 square feet, are to be roofed, and the dump levels also, so far as may be necessary to protect men in assorting ores during the winter months. Five roasting furnaces for desulphurizing, rise just even with the edge of the dump levels. The three blast furnaces are of the ordinary cupola construction, with certain interior changes and peculiar discharge for slag and metals, the molten metal running into a heated iron box that is so arranged as to skim or collect the oxides that are formed by the atmosphere, leaving only the pure metals to be poured in the moulds. The appliances and machinery for the separating works, already ordered in the East, will soon be on the ground and placed in working order.—*White Pine News*.

LUMBER STATISTICS.—The following statistics, furnished the *Alta* some time ago by "Lumber Dealer," are worth republishing. The annual production in the large mills of Puget Sound, the Columbia River and the coast of California, per record kept in this city, is given as follows: 149,000,000 feet of pine (fir) lumber, of which 15,000,000 feet was dressed; 91,000,000 feet red wood lumber, of which 36,000,000 feet was dressed; 2,000,000 feet pickets dressed and undressed; 4,500,000 feet white cedar; 126,000 feet maple; 177,000 feet oak; 37,000,000 laths; 50,000,000 shingles. In addition to the above about 20,000,000 feet was exported direct from the mills to foreign ports, making in all 266,800,000 feet besides lath and shingles.

We have no reliable statements of the amount of lumber manufactured at this many mills located in the mountains east of Sacramento, none of which comes to this market, other than the sugar pine, but is all consumed in Sacramento, Marysville, Stockton, and the many mining towns and villages scattered throughout the interior portions of California. The yearly production from these various sources is not less than 40,000,000 feet, which is additional to the first estimate. The amount of fir, or spruce, which is manufactured at Humboldt, will exceed 6,000,000 feet yearly. This is embraced in the sum total as it comes under the head of pine lumber. The manufacture of laurel lumber is beginning to attract much attention, and as it is a timber growing only in certain localities, and that not extensive, it should be preserved with the utmost care, as at the last it will be but a few years before this one of the most beautiful woods of California will become extinct in use.

THE SCIENTIFIC PRESS.—To the miner and farmer we consider the *Press* the most valuable publication on the Pacific Coast. Every number contains matter of interest to the farmer and general reader; and to the miner the *Press* is a *sine qua non*.—*Inyo Independent*.

THOMAS O'NEIL, Ornamental Glass Cutter, No. 10 Stevenson street, up stairs. Stained, Ground and Ornamental Cut Glass to order on reasonable terms. 14720

MARAVILLA COCOA.—For Breakfast.—The *Globe* says: "Various importers and manufacturers have attempted to attain a reputation for their prepared Cocoas, but we doubt whether any thorough success has been achieved until Messrs. Taylor Brothers discovered the extraordinary qualities of 'Maravilla' Cocoa. Adapting their perfect system of preparation to this finest of all species of the Theobroma they have produced an article which supercedes every other Cocoa in the market. Entire solubility, a delicate aroma, and a rare concentration of the purest elements of nutrition, distinguish the Maravilla Cocoa above all others. For homeopaths and invalids we could not recommend a more agreeable or valuable beverage." Sold in packets only by all grocers, of whom also may be had Taylor Brothers' Original Non-Cathartic Cocoa and Soluble Chocolate. Steam Mills—Brick Lanes, London. 6720-ly

AN OVER-DOCTORED WORLD.—All great physicians admit that the world is over-doctored with violent drugs. In cases of indigestion, biliousness, constipation, wind colic, diarrhoea, and other casual or even chronic affections of the stomach, liver, and bowels, all that is needed to restore the regular action of this disordered organ, is a dose or two of TARRANT'S EFFERVESCENT SELTZER. APERIENT, the most delicious and harmless of all laxatives, and alterative, in the whole range of medicinal remedies. It is sufficient for the strongest, cannot harm the feeblest, and immediately relieves the nausea which ordinary cathartics aggravate.

A NEW BOOK FOR MINERS.—We have received, from the publishers, in San Francisco, a new book entitled, "Roasting of gold and silver ores, and the extraction of these respective metals without the use of quicksilver." This is a handsome little volume of 140 pages, treating on the subject quoted, and is a book that should be in the hands of every intelligent quartz miner, mill owner, and owner of quartz in this Territory. It contains an immense amount of useful information, is well gotten up, and is deserving of public patronage in all mining countries. Its author is G. Kustel, mining engineer and metallurgist, author of "Nevada and San Francisco Processes of Silver and Gold Extraction," and "Concentration of all kinds of Ores." Published and sold by Dewey & Co., proprietors SCIENTIFIC PRESS, San Francisco, California. The *Press*, by the way, is one of the best and most ably edited papers we receive, and we recommend it to intelligent readers as a journal well worthy of their patronage.—*Helenia Gazette*.

A VALUABLE BOOK FOR INVENTORS AND ARTISANS.—Dewey & Co., publishers of the SCIENTIFIC PRESS and Patent Agents, have just issued a neat little volume of over five hundred well executed cuts of the principal mechanical movements known. These useful representations of the various appliances of power are printed side by side with explanatory notes, which makes the subject clear to every reader. Such a book should be in the hands of every mechanic, and form part of every public school library. It is a handy book, and cheap enough for every farm, shop and factory. Sent by any address from the SCIENTIFIC PRESS office, postpaid, for \$1.—*New Age*.

PHOTOGRAPHY.—FOR CABINET PHOTOGRAPHS, or Enamelled Cards, of the very best quality, you must go to the NEW YORK GALLERY, Nos. 25 and 27 Third street, San Francisco. Every picture warranted to give satisfaction. 10418 6m B. F. HOWLAND.

BOILER FELTS saves twenty-five per cent. of fuel. BERRY & PLACE'S MACHINERY DEPOT, No. 114 California street. 1v21-3m

BLOCK TIN AND SOLDER WIRE, broom wire, piano covering wire, etc., manufactured by Joshua Gray, 437 Brannan street. 2v19-3m

HAVING had numerous applications to purchase the right to manufacture CHAMPAGNE MEAD (the great temperance drink), we will state that we are now prepared to sell State and County Rights on reasonable terms. KENTON, GARR & CO. 2v21-3m

San Francisco, July 10, 1870
The Scientific Press is devoted specially to matters of machinery, inventions and processes pertaining to the development of mines, and gives free and full discussions of such matters. Terms, \$4 per year.—*White Pine News*, May 40.

The Northern District Fair.

Our special correspondent has furnished us with a large mass of notes from the Northern District Fair, held last week at Marysville, which we are compelled, for want of space, to greatly condense.

Notwithstanding the lengthy notice given and ample space provided by the managers, many things were lacking on the part of the exhibitors to make the Fair what it should have been. It is really provoking and to be deplored that no more interest is taken in such matters here in California, where there is so much need of enterprise, intelligence and improvement in everything pertaining to agriculture.

The weather was very fine during the week, the days delightful, and the nights cool and refreshing. The hotels and carriages were reasonable in charges and accommodating; the regulations in the city and in the Fair were without fault. The pavilion was simply, but beautifully, decorated with evergreens and such ornaments as the ladies who had charge of it know how to arrange. At the race track decorations, with slight exceptions, ruled; and the management and display of stock was good. The management generally reflects credit upon the people of Marysville.

The Exhibition of Fruits

Was good, so far as it went. The show of grapes by H. T. Hutchinson and J. R. Nickerson could scarcely be excelled in any part of the world. The Grass Brothers also made a fine display of leading varieties. Meehan & Tremble exhibited fine specimens of California and Black Hamburg grapes and 15 varieties of peaches.—Mr. Hutchins exhibits 25 varieties. Mr. Nickerson, Mr. Johnson and Mr. J. A. Hall were not much behind. The mountains can beat the valleys in color and flavor, if not in size, of peaches.

PEARS.—California can beat the world in this fruit, of which there were five different displays, containing over 20 varieties.

THE APPLE is a fruit which everybody must have, and there was a great variety on exhibition. Our fruit growers have been trying the different varieties, and are now selecting the best standard sorts, as proven so by experience and comparison. The importance of such selection cannot be over-estimated.

PLUMS.—No country can excel California in growing plums. No eurolio destroys our plum crop, neither does any other insect interfere. The present is the season of the full glory of this fruit, and very good use was made of it. Several varieties of magnificent fresh figs lent their richness to this portion of the exhibition, also sundry plates of delicious pomegranates.

Dried and Preserved Fruits.

This portion of the exhibition was faultless in quality, though less than it should have been in quantity. It is one of the most astonishing things in the world that such quantities of delicious fruit should be suffered to rot upon the ground in this State, while we are sending thousands of miles away to get dried and preserved fruits far inferior in quality to what we might obtain at our very doors.

Miscellaneous.

The display of vegetables was small, but good. Dr. McDaniel, of Marysville, exhibited samples of castor oil, and Mr. Purdy, of Monterey, of sorghum sugar and eyrup. Grain and wool sacks were also shown from the Oakland factory. There was also a small show of nuts, a product which is deserving of far more attention than it is receiving, not so much for the fruit as for the hard wood timber upon which they must be produced. There were several exhibits of silk cocoons, raw and spun silk, and eggs. It is gratifying to see the constantly growing interest that is being taken in this branch of industry.

The display of agricultural implements was quite good and varied; but we have no space to particularize, at this time.

The exhibit of stock was good and well worth examining. The show of blooded sheep was quite full. Some China and Berkshire hogs were also exhibited.

Mining and Company Advt's.

Eagle Quicksilver Mining Co.—Location of Works: Santa Barbara County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 27th day of July, 1870, an assessment of twenty dollars (\$20) per share was levied upon the mines of said Company, payable immediately, in United States gold and silver coin, to the Secretary, at his Office, room No. 26, Haywood's Building, No. 419 California street, San Francisco, California.

Any share upon which said assessment shall remain unpaid on Monday, the 19th day of September, 1870, shall be deemed delinquent, and will be duly advertised on September 24th, for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 26th day of September, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

T. W. COLBURN, Secretary.

Office, Room No. 26, Haywood's Building, 419 California St., San Francisco, California. July 30.

Owing to the resignation of T. W. Colburn, and election of Wm. H. Watson, as Secretary of said Eagle Quicksilver Mining Company, and the change of the Office of said Company to Room 5, No. 302 Montgomery Street, the above mentioned assessment must hereafter be paid to the said Wm. H. Watson, at the present office of said Company, above stated.

By order of the Board of Trustees.

WM. H. WATSON, Secretary, Office, Room 5, Building No. 302 Montgomery Street, San Francisco, Cal. September 10th, 1870.

Latawana Mining Company—Near Hamilton City, White Pine County, State of Nevada.

NOTICE.—There are delinquent upon the following described stock, on account of assessment levied on the fifteenth day of August, 1870, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. of Certif.	No. of Shares.	Pd. on Amount.	Due.
D. M. Hosmer.....	6	20	3 00	
D. M. Hosmer.....	7	20	3 00	
D. M. Hosmer.....	9	20	3 00	
D. M. Hosmer.....	10	20	3 00	
D. M. Hosmer.....	12	10	1 00	
D. M. Hosmer, Trustee.....	150	1000	150 00	
D. M. Hosmer, Trustee.....	151	10	1 00	
D. M. Hosmer, Trustee.....	152	10	1 00	
D. M. Hosmer, Trustee.....	153	104	15 00	
Richard Savage.....	20	50	2 50	
Richard Savage.....	194	300	45 00	
Richard Savage.....	199	100	15 00	
S. A. Post.....	36	10	1 50	
P. Conklin.....	104	400	60 00	
S. E. Holcombe.....	127	10	1 00	
M. M. Baldwin.....	114	10	50 1 00	
M. M. Baldwin.....	149	40	24 50	
Richard H. Savage.....	115	10	1 50	
John H. Wise.....	126	768	115 00	
R. Canfield.....	128	40	6 50	
D. Walker, M. D.....	129	20	3 00	
A. P. Everett.....	134	100	15 00	
A. P. Everett.....	166	50	7 50	
William Krug.....	138	50	7 50	
William Krug, Trustee.....	167	100	15 00	
William Krug, Trustee.....	197	227	34 05	
William Krug, Trustee.....	198	400	60 00	
John Clement.....	141	98	18 50	
A. Martindale, Trustee.....	188	4248	637 20	
Quorum of Trustees.....	145	2875	431 25	
Chas. C. Bowman.....	155	500	75 00	
L. D. Simpson.....	157	95	14 25	
R. Cohn.....	179	100	15 00	
C. H. Burton.....	180	328	49 20	
Botts & Wise.....	175	800	120 00	
S. F. McDermott.....	176	100	15 00	
C. Haydenfield.....	181	300	45 00	
Chas. Wellington, Trustee.....	182	672	100 80	
Chas. Wellington, Trustee.....	183	300	45 00	
Chas. Wellington, Trustee.....	184	100	15 00	
Chas. Wellington, Trustee.....	189	100	15 00	
Chas. Wellington, Trustee.....	191	100	15 00	
John G. Ayres.....	193	200 10 00	30 00	
T. Arond Charrard.....	195	100	15 00	
R. E. D. Ayres.....	200	200	30 00	
Geo. W. Foreyth, Trustee.....	203	600	90 00	

And in accordance with law and an order of the Board of Trustees, made on the fifteenth day of August, 1870, so many shares of each parcel of said stock as may be necessary will be sold at the office of the Company, 614 Merchant street, Room 26, San Francisco, California, on Monday, the third day of October, 1870, at the hour of 2 o'clock P. M., of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

A. MARTINON, Secretary, Office, 614 Merchant street, Room 26, San Francisco, California. sept-17

Mountain City Mining Company.—Location of Mine: Cope District, Elko County, State of Nevada.

NOTICE.—There are delinquent upon the following described stock, on account of assessment levied on the fourteenth day of July, 1870, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. of Certif.	No. of Shares.	Amount.
Best, John T.....	34	400	\$100 00
Enright, John T.....	bal 48	250	62 50
Greck, H. A.....	bal 42	100	25 00
Meek, C. Moses.....	bal 46	250	62 50
Otis, Stephen.....	bal 32	250	12 50
Rogers, F. A.....	bal 11	500	125 00
Rogers, F. A.....	bal 12	200	50 00
Rogers, F. A.....	bal 13	100	25 00
Rogers, F. A.....	bal 14	100	25 00
Rogers, F. A.....	bal 15	50	12 50
Rogers, F. A.....	bal 16	50	12 50
Rogers, F. A.....	bal 17	50	12 50
Rogers, F. A.....	bal 18	10	2 50
Rogers, F. A.....	bal 19	10	2 50
Rogers, F. A.....	bal 20	10	2 50
Read, Francis.....	33	400	100 00
Swan, A. B.....	45	250	50 00
Sharp, Wm H.....	31	900	225 00

And in accordance with law and an order of the Board of Trustees, made on the fourteenth day of July, 1870, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the salesroom of Maurice Dore & Co., No. 327 Montgomery St., San Francisco, on the twenty-sixth day of Sept. 1870, at the hour of 11 o'clock A. M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

T. B. WINGARD, Secretary, Office, 408 California street, San Francisco. Advertising charges \$2.00 per certificate.

Pinto Silver Mining Company.—Location of Works: Silverado, Pinto District, White Pine County, Nevada.

The adjourned annual Meeting of the Pinto Mining Company will be held at the office of their Secretary, 436 Montgomery Street, San Francisco, California, on Wednesday evening, September 29th, 1870, at 7½ o'clock P. M.

By order.

D. B. ARROWSMITH, Secretary.

E. A. FRIEND & CO.

COMMISSION PATENT AGENCY,

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Introduce and sell Patents and useful inventions on the Pacific Coast.

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E. A. FRIEND & CO. 601 California Street.

Silver Sprout Mining Company.—Location of Works and Mines: Kearsarge District, Inyo County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 29th day of August, 1870, an assessment of twenty-five (25) cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary, at the office of the Company, No. 408 California street, San Francisco, Cal.

Any stock upon which said assessment shall remain unpaid on the eighteenth day of October, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Thursday, the first (1st) day of December, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

T. B. WINGARD, Secretary, Office, 408 California street, San Francisco, Cal.

A NEW BOOK FOR MINERS.

[Issued July 1870.]

ROASTING OF GOLD AND SILVER ORES AND THE EXTRACTION OF THEIR RESPECTIVE METALS WITHOUT QUICKSILVER.

BY G. KUSTEL,

MINING ENGINEER AND METALLURGIST, Author of "Nevada and California Processes of Silver and Gold Extraction," and "Concentration of all kinds of Ores."

CONTENTS:

I. INTRODUCTION. Classification of Ores; Important Silver Ores; Difference between Real Silver Ores and Argentiferous Ores; Important Combinations; Means of Desulphurization; Means of Reduction; Desulphurization of Ores Not Efficient; What a Chloride is, and How Chlorination is Effected; Means of Separating the Metals from Chlorine.

II. ROASTING OF ORES. A. Chloridizing Roasting; Necessary Amounts of Sulphureta; Amount of Salt Used; Permanent Stirring Not Essential; Signs of a Good Chloridizing Roasting; Means of Destroying Base Metal Chlorides; Steam decompose Base Metal Chlorides; Application of Steam in Roasting; Lead has a Bad Influence; Difference in Roasting Processes; In what condition the Metals are after Roasting; Charges in Roasting. B. Oxidizing Roasting; Chemical Changes in Roasting; What Process requires Oxidizing Roasting; Roasting Furnaces; Furnaces managed by Handwork; Reverberatory Furnaces; Single Roasting Furnace; Double Roasting Furnace; Long Roasting Furnace; Muffle Furnace; Furnaces with Mechanical Apparatus; Revolving Hearth Furnace; Ernst's Rotary Furnace; Parke's Furnace; Buckner's Furnace; O'Hara's Chain Furnace; Stetefeldt's Furnace; Chimney and Flues.

III. EXTRACTION OF SILVER BY LIXIVIATION. O. Solving Process; Extraction of Silver; Precipitation of the Silver; Treatment of the Precipitated Silver; Precipitation of Copper; Quality of Ores fit for the Solving Process; Sulphide of Calcium; Hypoaliphite of Lime; Patena Process; Kiss Process; Patena and Roszner Process; Kustel and Hoffmann Process; Angustin Process; Ziervogel Process; The Leaching Process.

IV. EXTRACTION OF GOLD. D. The Chlorination Process (Plattner's); Chlorination of Sulphureta and Arsenureta. This new book on the treatment of gold and silver ores without quicksilver, is liberally illustrated and crammed full of facts. It gives short and concise descriptions of the various processes and apparatus employed in this country and in Europe, and explains the why and wherefore. It contains 142 pages embracing illustrations of furnaces, implements and working apparatus. It is a work of great merit by an author whose reputation is unsurpassed in his speciality. Its price, considering its special character and value, is reasonable and small in comparison to the information so well rendered in its crowded pages. Price \$2.50 coin or \$3 currency, postage free. Printed and Sold by DEWEY & CO., Publishers and Patent Agents, Scientific Press Office, San Francisco.

NEVADA AND CALIFORNIA PROCESSES OF SILVER AND GOLD EXTRACTION, FOR GENERAL USE, AND ESPECIALLY FOR THE MINING PUBLIC OF CALIFORNIA AND NEVADA, With full explanations and directions for all metallurgical operations connected with silver and gold from a preliminary examination of the ores to the final casting of the ingot. Also, a description of the general metallurgy of silver ores.

BY GUIDO KUSTEL, Mining Engineer and Metallurgist, former manager of the Obfir Works, etc.

Containing 350 quarto pages, and illustrated with accurate Lithographic Engravings. 1863, Sold by DEWEY & CO., Publishers SCIENTIFIC PRESS, San Francisco.

As its title indicates, this work gives a wide range of information, applicable to all vein miners and workers in precious metals, affording hints and assistance of exceeding value to both the moderately informed and the most expert operator. Once in hand it is held for trusty reference by the owner and highly recommended to others who do not possess it. Price \$5 (coin) bound in cloth, \$6 bound in leather. Address DEWEY & CO., SCIENTIFIC PRESS Office, San Francisco.

The Best Treatise Published. Concentration of Ores (OF ALL KINDS,) INCLUDING THE CHLORINATION PROCESS FOR GOLD-BEARING SULPHURETS, ARSENURETS, AND GOLD AND SILVER ORES GENERALLY.

By GUIDO KUSTEL, MINING ENGINEER AND METALLURGIST, Author of "Nevada and California Process of Silver and Gold Extraction."

With 120 Lithographic Diagrams.

Published and sold by DEWEY & CO., Publishers SCIENTIFIC PRESS, San Francisco, 1868.

Heads of Table of Contents.

I. INTRODUCTION.—The Dressing; The Separation; Cleansing and sizing Contrivances; Rotary Sizers, etc. II. EXTRACTION.—Reduction of Ores; Description of Batteries; Details of a Battery; Speed, Curves and Order of Lifts; The Discharge of Batteries; The Feeding of Batteries; Reduction by Rolling Mills; Grinding; Pans with Plane Mullers; Pans with Conical Mullers; Pans with Tractory-Conical Mullers; Pans with Perpendicular Mullers. III. CONCENTRATION.—Concentration of Reduced Ores; A Concentration of Ores (Jigging, Stamping, Movable Jiggers; Stationary Jiggers; Continual Jiggers; Rotary Machines; Concentration of Ore Sands; Assorting of Sands; Feeding of Concentrator; Stationary Concentrators; Percussion Table; Oscillating and Shaking Tables; Steady Moving Concentrators. IV. SPECIAL CONCENTRATION.—Concentration of Gold Ores; Concentration of silver Ores; Concentration of Lead and other Ores. V. CHLORINATION.—Extraction of Gold from Sulphureta by chlorination; Assay ditto; Loss of Gold in Roasting; Roasting Furnaces and Operation; Roasting with Salt; Dampening of Roasted ores; Sifting; Production of Chlorine Gas; Lixivation; Precipitating; Precipitation; cost of Process; Remarks; Other methods of Dissolving and Precipitating the Gold from Sulphureta, etc. This work is unequalled by any other published, embracing the subjects treated. Its authority is highly esteemed and regarded by its readers. Containing as it does, much essential information to the Miner, Millman, Metallurgist, and other professional workers in ore and minerals, which cannot be found elsewhere in print. It also abounds throughout with facts and instructions rendered valuable by being clearly rendered together and in simple order. Price, postage paid, \$7.50, in gold or its equivalent.

THE ORDER OF THE DAY.—A general order for Sodom. In the teeth of ALL OPPOSITION it has become the supreme doctrine of the age. No impurity can infect the teeth cleaned daily with SODOMONT. QUILLEY, the bark of the Chilean Soap Tree, an article which possesses cleansing properties superior to those of any other known substance, is one of the ingredients of this peerless compound. SODOMONT is the only dentifrice in existence in which this salubrious botanical product is incorporated.

San Francisco Metal Market.

PRICES FOR INVOICES

Jobbing prices rule from ten to fifteen per cent. higher than the following quotations.

THURSDAY, Sept. 15, 1870.

IRON.—Duty: Pig \$9 per ton; Railroad, 60c @ 100 lbs.; Bar, 1@1½c @ lb; Sheet, polished, 3c @ lb; common, 1½@2½c @ lb; Plate, 1½c @ lb; Pipe, 1½c @ lb; Galvanized, 2½c @ lb.

Scotch and Eng. Pig Iron, @ ton... 29 @ \$30 00

White Pig, @ ton... 26 00 @ 28 00

Refined Bar, bad assortment, @ lb... 03 @ —

Refined Bar, good assortment, @ lb... 04 @ —

Boiler, No. 1 to 4... 0½ @ —

Plate, No. 5 to 9... 0½ @ —

Sheet, No. 10 to 13... 0½ @ —

Sheet, No. 14 to 20... 05 @ —

Sheet, No. 24 to 27... 05 @ —

COPPER.—Duty: Sheathing, 3½c @ lb; Pig and Bar, 2½c @ lb.

Sheathing, @ lb... 20 @ —

Sheathing, Yellow... 10 @ —

Sheathing, Old Yellow... 21 @ —

Composition Nails... 21 @ —

Composition Bolts... 21 @ —

TR. PLATES.—Duty: 25¢ cent. ad valorem.

Plates, Charcoal, 1X, @ box... 12 00 @ —

Plates, 1 C Charcoal... 10 00 @ 10 50

Roofing Plates... 10 00 @ 10 50

Blank Tin Slabs, @ lb... 04 @ —

STERLING—English Cast Steel, @ lb... 15 @ —

QUICKSILVER.—@ lb... 70 @ —

LEAD.—Pig, @ lb... 7½ @ —

Sheet... 10 @ —

Pipe... 11 @ —

Bar... 9 @ —

ZINC.—Sheets, @ lb... 10½ @ —

BORAX... 35 @ —

Machinists and Foundries.

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Foundry and Iron Works.

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MANUFACTURERS OF

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Quartz, Flour and Saw Mills,

Hayes' Improved Steam Pump, Brodie's Improved Crusher, Mining Pumps, Amalgamators, and all kinds of Machinery.

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JOSEPH MOORE.....Vice President and Superintendent.

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16-16-7f

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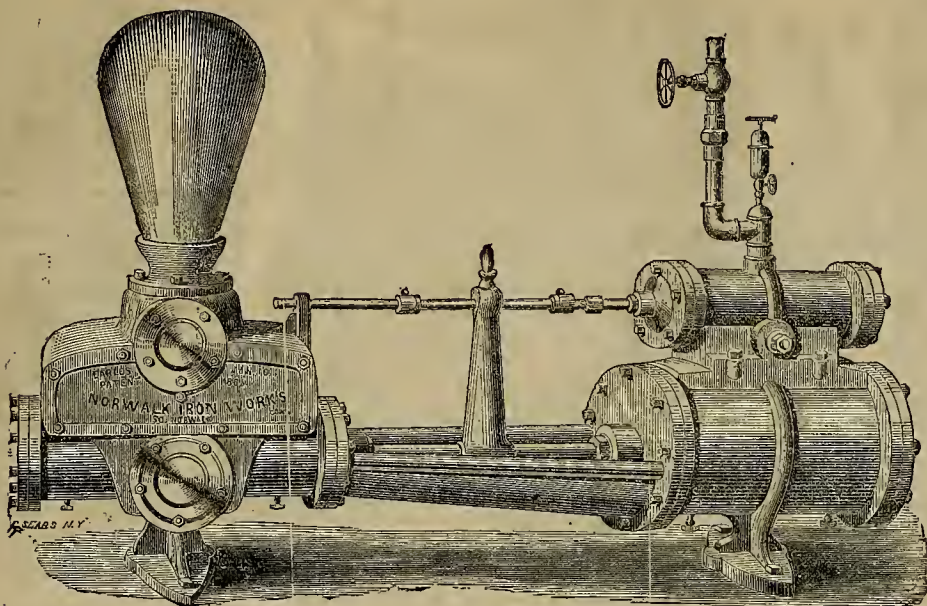
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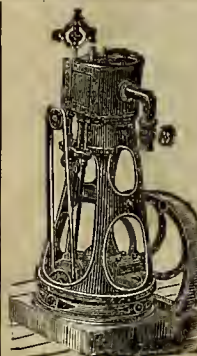
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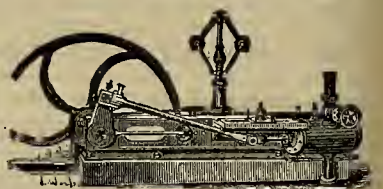
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San Francisco, Saturday, September 24, 1870.

VOLUME XXI.
Number 13.

A New Thimble.

We address ourselves more particularly in this article to our lady readers, and we think we have something of interest to show them. We are particularly desirous of pleasing the gentle sex, and like to have them pleased with our modest selves.

When the sewing machins came into vogue, it was expected that the device would lessen to a great degree the work of our female relatives. This expectation, as far as our personal experiences goes, has not been realized. We do not see but what our mothers, wives, sisters and daughters



(it takes the collective editorial force to say all this) are as busy as ever. No doubt very much more is accomplished than was done previously, but there seems to be always as much as ever to do.

The thimble has by no means lost its vocation. It is as indispensable as ever. But "there's odds" in thimbles. They have a good side, but also a dark one. The ordinary article forms a continuous cap for the end of the finger and, when worn a considerable length of time, heats the finger and renders it tender. Indeed, by constant usage, hang-nails are formed, which tear down into the flesh and form bad sores. Our gentle readers will then readily appreciate the benefits of any invention which obviates this difficulty.

Mr. Law, in his thimble here illustrated, cuts away that portion of this article which would otherwise cover the lower part of the finger-nail, where the nail and flesh unite and where hang-nails are apt to be caused to occur. Around the lower rim or open end of the thimble is a clasp spring which is extensible and which clasps the finger below the nail and holds it firmly in place without undue pressure.

Now we think our friends of the needle will find this a preventative for the ills spoken of above, and we recommend them to try it; and if they address themselves, through proper channels, to Mr. Albert H. Law of this city, this patentee, they can obtain as many thimbles as they desire.

A SERIOUS FIRE.—We are sorry to be obliged to record another disastrous fire, at Grass Valley, on the 20th inst. The mill, hoisting works, store houses and some two or three thousand cords of wood, the property of the Empire company on Ophir Hill, were entirely consumed. The powder magazine, containing 150 kegs of powder, was exploded. This is a serious blow to the mining interests of Grass Valley. About 150 men are thus thrown out of employ, and a loss of some \$150,000 results. The insurance is given as for \$80,000.

IMPROVED CARRYING FACILITIES.—It is represented to us that the facilities for transporting bullion, etc., to the interior of Arizona, are entirely inadequate to the demands of the country. Wells, Fargo & Co. carry only to Fort Yuma and La Paz, and from these points people must make the best terms they can with the most reliable parties they can find; and this is not always easy nor safe. While greenbacks are nominally the currency of Arizona, there is not a sufficient supply of these, and it is very inconvenient to parties trading this way to deal in a currency subject to such fluctuations. Many of the miners and millmen are paid in crude bullion which is not convertible

Tilting-Stand for Ice-Pitchers.

To the luxurious American iced water is, at least in many parts of the United States, almost a necessity. While the Englishman is contented with its use in hot weather, and the people of the Continent partake of it only on exceptional occasions, our people regard it as an article to be had the whole year.

But the ice-pitcher, filled with its cool beverage, is so heavy that it is quite an exertion for ladies and children to lift it, and of these the exertion is required the oftenest. Devices for tilting, without lifting, the pitcher have previously been



GIBSON'S PATENT TILTING-STAND FOR ICE-PITCHERS.

into coin, (a rare article there,) and the value of which is, at least, uncertain. We are informed from several parties that at present there is much trouble experienced in the interior of the country on this account. It would certainly appear that the business would pay Wells, Fargo & Co. to extend their lines, and we respectfully submit the matter to that firm for their consideration.

MINERAL LAND SURVEYS.—Parties are already making surveys and subdivisions of mineral lands in Nevada county, under the direction of the U. S. Surveyor General for California. There is quite a general disposition among the miners, it is stated, to avail themselves of the provisions of this law.

THE RAILROAD PARTY.—On Sunday the representatives, eighty in number we are told, of Eastern railroads, arrived in this city. It is hoped that their visit will result beneficially to the interests of both east and west. On their return, they are to attend the Railroad Convention to be held at Chicago.

known, but these all demand that the pitcher should be made expressly to fit the stand. We illustrate to-day a new invention which can be used with vessels of any common form or material.

The base of the stand is of the form shown in the cut, and has, at one end, a recess for the reception of the goblet, and, at the other, one to hold a bowl wherein is caught any water which may drip from the tilted pitcher. On the opposite sides of the central part are standards, to the top of which are pivoted the side-pieces of the frame or basket which holds the pitcher. The bottom of this frame is circular, and in it is placed the pitcher which is securely held in place by a spring-catch acting in conjunction with the projecting rim of the bottom piece. It will be readily understood that very differently shaped vessels for holding water, coffee, tea, etc., etc., may all be used in this stand.

Of course, there is room for an indefinite amount of ornamentation, and where the pitcher is made to match the stand, the whole forms a very handsome article.

By means of this any person may pour out water without an effort and without spilling the liquid on the table or other articles of furniture on which the device may stand. And for pouring out tea or coffee at meals, this will be found very useful and convenient.

Patents for this invention have been granted, in the United States and Europe, to Mr. John Gibson Jr., of New York. Letters for further information will reach this gentleman, if addressed him at to 711 Broadway, Albany, N. Y.

The State University.

The examination of applicants for admission to the University commenced on Wednesday. How many have applied for admission, we know not at the time of writing, but the majority wish to enter the fifth class. We see it stated that probably some 150 students will attend the University next term.

This fifth class is a new thing and is intended as preparatory to the regular course of studies. Candidates for this class must be at least fourteen years of age and pass a satisfactory examination in English Grammar, History of the U. S., Arithmetic and Geography. The Board of Regents, moreover, have passed a resolution looking to the establishment of branches of the class at various localities in the State. As there are no funds on hand to be used for this purpose, all that can be done is to exercise some supervision over such branches, wherever they may be organized by other parties, and give the students thereof some advantages with respect to their admission to the University.

The establishment of this class has provoked some discussion. For our part, we see but little in its favor. We have good preparatory schools, without having a new class incorporated as a part of the University, which is not, or ought not to be, a grammar school for children. We believe in raising, not lowering the standard of such an institution. We believe, moreover, that many of those who enter this class will not continue in the higher classes. Boys of fourteen are not generally able to decide as to their future, and while we think that the greatest amount of education possible should be given to our youth, we do not consider it proper to incorporate such instruction as this, which belongs to this grammar and high schools, in a University. If the Regents are desirous of making the establishment meet the requirements of the State, they will have no trouble in finding a hundred different and better ways. We may add that the Faculty of the University, if our information is correct, objected to this class from the beginning, and even went so far as to send a written protest to the Regents.

The competitive examinations for scholarships are to commence on Friday, after our paper has gone to press. We shall probably have more to say on the subject in our next issue.

Communications.

IN THIS DEPARTMENT we invite the FREE DISCUSSION of all proper subjects—correspondents alone being responsible for the ideas they advance.

Notes of Travel in Placer County.

[CONTINUED FROM PAGE 202.]

The Craig Nozzle.

The Messrs. Craig have been engaged for the past three years in perfecting this invention, and their efforts have resulted in the production of an apparatus for hydraulic mining that, after thorough trial in over a hundred of the most extensive and prominent mines in the State, has received the highest recommendations of experienced miners. The invention consists of a hollow globe or reservoir, in which fits a ball or socket which is provided with an elbow, the globe being cut open on top. The ball revolves entirely round horizontally, and up or down at an angle of about 40 degrees. This play has been found amply sufficient for all ordinary mining purposes and the water, being fed to the discharge pipe from the globe or reservoir, has not the bad effect caused by a short turn in the pipe, like that produced by a common elbow, but causes a perfect stream to emerge at any point to which the nozzle may be directed. As a matter of economy, it not only places the water of 7 or 8 ordinary hose pipes under the control of one man, but its durability is so great (one lasting a life time) that its extra first cost is seldom noticed, it being in convenience alone worth more to the miner than the difference of cost of canvass hose. No canvass being used, it is not liable to breakage under heavy pressure, and saves the annual outlay for canvass, while the concentration of a larger body of water in one column has been found to nearly treble the amount of execution in comparison with ordinary expenses. The Globe Nozzle and its improvements are covered by three different patents, owned by Messrs. Craig, who now have two suits pending in the U. S. Circuit Court against manufacturers and users of alleged infringements thereon. The address of the owners is R. R. & J. Craig, Nevada City, Cal.

Hydraulic Claims.

Messrs. Brogan & Co. cleaned up in 15 days run (just past) \$3,500. The pay dirt here is very easily managed, there being little or no large rock in it. This pay channel extends from Bear river, above Dutch Flat, to the north fork of the American river, below Gold Run, a distance of 5 miles. It is from $\frac{1}{2}$ to 1 mile wide and from 50 to 500 feet deep. Just below the Indiana Hill claims, and next adjoining, are the Indiana Hill Cement Mill Co.'s diggings. They run an 8-stamp mill, and with it crush 35 tons of pay cement per day (24 hours). Alvin Gentry is foreman. Eight men are interested, and they work an average of 20 men; their claim is from 200 to 400 feet wide and 1,600 feet long; the pay about 10 feet deep. In 22 days run, just past, they cleaned up \$2,800 clear of expenses. They have a system of under currents here for saving gold, which I will fully explain hereafter.

Dutch Flat.

Dutch Flat proper is one-half mile east of the railroad station of the same name, and 3 miles east of Gold Run. This district was discovered as far back as 1849 as a placer mining camp. Tunneling was first commenced in 1852, and hydraulic mining first introduced here in 1857. This lead is a portion of the same that extends through several counties east and west. The main lead is about 2,000 feet wide, until it reaches the Dutch Flat Ravine, when it widens (as before mentioned at Gold Run). It averages 300 feet deep to the bed rock, from 70 to 100 feet of which have already been mined off; but in no place has the bed rock been reached (save by shaft) except a small portion of Thompson Hill, which has been drilled to bed rock, and which is the extreme west portion of the lead. The channel lies in the shape of a horse shoe. The principal owners of these claims are: James Teaff, who owns about 40 acres; J. S. Colgrove & Co., who own from 40 to 45 acres, and Bradley & Kelsey, owning from 20 to 30 acres of the main lead. The latter only are at present working. The portion they are on is very strongly cemented. They drift or tunnel into a bank—200 feet high—some 75 or 100 feet, then cut chambers right and left, fill the cavity with from 50 to 100 kegs of powder, and then throw it off. The result is that an immense bank of pay-dirt is thrown down, thoroughly broken up, so as to be easily washed. In the claims of Jas. Teaff, one shaft is sunk to bed rock, 220 feet from the original surface, and prospects from 2 to 3 cents to the pan from the top down; he also has a very extensive tunnel (the longest sluice tunnel in the State, 2,200 feet, cost \$50,000,) which drains the claims as far down as worked. I understand that this claim is now in the English market for sale and is held at fabulous figures; something like a quarter of a million dollars. J. S. Colgrove & Co. have a shaft down to the bed rock in their claims, 196 feet from the present surface, and about 275 feet from the original. To give an idea of the amount of work that has been done here, you can look over an area of 2,000 acres that has been washed down from 50 to 75 feet over its entire face; and in no instance, I am informed, has it failed to pay wages. Capital is necessary to run bed rock tun-

nels and otherwise successfully work these claims, which the present proprietors (at least a majority of them) have not got. Their water privileges are very good;—3 large ditches, of the South Yuba Co., the Dutch Flat Co., and the Miners Ditch Co. These furnish about 7,000 inches of water at present, and have a capacity of furnishing about twice that amount by the system of reservoirs. The average pay of these hydraulic claims was, when working from 5 to 7 men, with from 200 to 400 inches of water, from \$100 to \$300 per day, or about \$140 per day clear of expenses, or about \$20 per day clear to the man.

The Eureka Hair Co.

This manufactory, the only one of the kind on the Coast, I believe, is situated $\frac{1}{2}$ miles from Dutch Flat. The hair is made from "Soap Root," gathered by Chinamen, under contract, for from \$30 to \$35 per ton delivered. To give a minute description of this Company's works and the process of manufacturing would require a full column article. I will state, however, that the machinery is run by water power, was first built in 1866, burnt down last Fall, and was immediately re-built at a cost of about \$6,000. About 360 tons of the raw material are used up annually—yielding 240 tons of a 2nd quality of hair, worth 9 cents per lb.; or, by extra washing, a first quality of hair is produced, which, from 360 tons, would net about 200 tons, worth 13 cents per lb. The process was patented Jan. 15th, 1867. L. P. Mc.

From Utah Territory.

[Continued from page 202.]
President Brigham Young.

The private residence of most interest to the stranger is that of President Brigham Young. This is on the square next to Temple square and is surrounded on all sides by a high crenel wall. In this area of about ten acres, where the emblem of the eagle and the bee-hive is to be seen, are, besides the President's home and private school house for the family, all the central business offices of the church and state, the stables and warehouses of the establishment, and gardens rich with fruits and flowers.

I had the pleasure of meeting and enjoying the hospitality of this remarkable man. He was born, I believe, in Vermont, in 1801, and is now in his 70th year. Although he has passed through and held a prominent part in so many scenes, he is still hale and hearty. In 1847, he led the pioneer band of 143 from the Missouri to the Rocky mountains and brought them to this place to settle. There being then no organized government in this territory, which belonged to Mexico, a provisional government was formed, with the title of Desert, and he was elected governor. When the land was ceded to the U. S. in October, 1850, Mr. Young was appointed governor of the territory.

That President Young has been the leading spirit in this territory, is everywhere known. He has taken part in all public improvements, not refusing to work often with his own hands. He has been active in opening communications to the east and west, formed express companies and stage lines, built some few hundred miles of the Western Union Telegraph, graded 450 miles of the U. P. R. R., is President of the Utah Central, and has done manifold extra duties in addition to those devolving on him as head of the Church. He receives many visitors and is quiet, gentlemanly and hospitable in his deportment. He still shows a most energetic spirit, notwithstanding his years, and is deservedly one of the most prominent men of the age.

The Mines.

Utah makes quite a show in the way of minerals. Iron ore is known to exist in several places in large amounts. In Iron county, works were built in 1852 and a small quantity of ore was smelted, but want of proper fuel compelled a suspension of operations. The Union Iron company, previously spoken of, had two furnaces in operation in January, 1869, and one in the course of construction. Coal has been found in quite extensive beds, but principally in the neighborhood of Chalville, Summit county. Copper, lead, silver, zinc and sulphur occur, and different sorts of building stone abound.

The mines at the Little and the Big Cottonwood cañons, 28 miles southeast of Salt Lake City, are the centre of the present mining excitement. Communication is had with these places by a stage which runs three times a week.

The largest mine at Little Cottonwood is the Emma ledge, located in August, 1868, and owned by the Walter Bros., J. F. Woodman and others. In July, 31 car loads of ore were shipped from the ledge, and that month upwards of \$3,000 were paid for haulage. The cost of transportation (by team to Salt Lake City and thence by rail) to New Jersey and the expenses of treatment amount to \$90 per ton, but the ore sent averages, I am told, nearly \$2.00 per ton. There are 20 men employed here extracting the rock, of which some 15 tons are obtained daily. A tunnel is being run in to tap the main shaft, which is down about two hundred feet. I send you a specimen of the ore. There are other promising locations here, as the North Star, owned by Bruno & Co., and the Western State, which takes out some twenty tons weekly.

Not far off, over the ridge, is Big Cottonwood-

cañon. Here the Empire Tunnel company propose to run a tunnel in towards Little Cottonwood. Here are also the Wellington, Theresa, Davenport and other leads. The general formation is limestone.

Mr. C. L. Stevenson, who has lately visited the various mining districts, gives me the following approximate product of the different mining localities during the month of July. The average value of ore exported was about \$105 per ton.

Little Cottonwood,	314 tons,
Bingham,	6 "
Parley's Park,	40 "
Brush Valley,	70 "
Deep Creek,	10 "
Tintic,	30 "
Total,	470 tons.

Smelting Works.

Messrs. Woodhull Brothers have built a furnace here and have made the first run of this territory. This run created, naturally, considerable excitement here. The result was a production of five thousand pounds of bullion in 36 hours. This assays about \$500 to the ton in silver. The metal was hauled to town and stocked up in front of the Elephant store, where it attracted large numbers of people who were curious to see the pioneer bars of Utah. The Woodhull works are capable of working about ten tons daily.

Mr. Milton Robbins is about to put up smelting works. He will have the able assistance of Mr. Chas. C. Ruegar, who will take the active management and the construction of the furnaces in hand. Mr. Ruegar has studied in Germany and has spent considerable time among the mines of California. He appears to be well fitted for his work.

Mr. Leopold Balbach, a cousin of the Balbach Brothers of Newark, N. J., has been visiting the mines of Utah and was so impressed with their extent and richness that he telegraphed to parties East, (he tells me) that he thinks best to erect smelting works in the Valley; and these are to be put up.

There are others here who engage in buying ores, and the mines are attracting persons from different quarters. There seems to be every reason to suppose that Utah contains valuable mineral deposits, and probably these will be developed quite extensively henceforth.

W. H. M.

Salt Lake City, August, 1870.

The Auburn Mill, Reno, Nev.

[Written for the Scientific Press.]

Your correspondent visited the Auburn Mill, located about $\frac{1}{2}$ miles from the C. P. R. R. depot at Reno, Nevada. This was originally built to work rock from a lead near by, which did not prove profitable, however, and was abandoned. It is being run at present on rock received from various points on the line of the railroad. The proprietors are purchasing large quantities of ore. A large ditch, three miles in length, conducts water from the Truckee river to an overshot wheel, 32 feet in diameter by 18 feet breast, which drives all the machinery. Mr. J. J. Danno, the manager, kindly conducted me through the works.

The mill is situated on the side of a hill which gives sufficient fall for one set of machinery to discharge into the other. A rock crusher discharges the ore upon plates, (warmed by waste heat from the furnace) where it is mixed with a proper quantity of salt and dried. It is then fed into a battery of twenty stamps and crushed dry. The dust is conducted from below the screens by an endless chain apparatus to elevators that discharge it into a perforated plate on the top of a stack or chimney 30 feet high by 5 feet square at the bottom,—the shaft of a Steffelt furnace which has been fully described in the PRESS of Dec. 11, 1869. The heated air from the furnace passes under the plates below the rock breaker, thence through an inclined dust chamber, five feet square, up the hill perhaps 75 feet, and terminates in a chimney whose top is 25 feet above the top of the furnace shaft. The chloridized ore is amalgamated in 12 Wheeler pans, whose sides are lined with $\frac{1}{2}$ inch wooden staves, to prevent the iron from being eaten up by the pulp; the miller is not let down heavy on the dies, it not being necessary to grind after roasting. The pans discharge into six separators. The company have rooms fitted up in the most complete manner for retorting, assaying, etc. They design constructing a side track from the C. P. R. R., in a short time, which will enable them to run the cars into the mill. Mr. Brown, the Supt. of the works, claims that this furnace saves 4 per cent of salt, and that the amount of work that required 36 men and 12 cords of wood by the old process, is done by this with 8 men and $2\frac{1}{2}$ cords of wood.

I have met quite a number of miners and millmen, who speak very favorably of the results from ores worked at this establishment,—among others, Mr. D. R. Stewart, Superintendent of one of the silver mines of Unionville, Humboldt Co., Nev. Several tell me that they have previously shipped their high grade ores to San Francisco but of late they have had considerable work at Reno and have obtained decidedly better results; and hence have determined to have all their high grade rock worked there. The San Francisco dealers will have to look out or they will lose this tough ore trade.

L. M.

The White Pine Smelters and the Mining Interest.

Editors Press:—Since my last communication, regarding the smelting business here, a great change has taken place, one detrimental to the prosperity and permanency of this camp—more especially that portion of it called the Base Range. Every furnace in the district has ceased operations, and there is no certainty of a resumption of work by any of them. To what causes can be assigned this sudden stoppage? Plainly enough to those who are here, but one cause is prominent, namely, a lack of capital to carry on the business even long enough to allow time for returns from bullion to arrive. Only three furnace proprietors out of more than twenty that have operated, have even paid for the ore which they have received from the miners. Some of the furnace men, after accumulating large stocks of silver-lead bars, have shipped them away to Newark or San Francisco, and then followed them to obtain the returns, leaving the miners and operatives to whistle for their pay and keep their courage up in the same manner.

The prices paid for ore have always been low enough in all conscience, leaving a large margin of profit to the smelter, without the necessity of running away with all the proceeds. Indeed, as I wrote you in my last, so little inducements have the miners received to work their mines, that the Base Range has been and is now almost wholly deserted. Yet it is not by any means unprofitable to the smelter to work these ores, even after paying fair prices to the miners. The fact that so many have rushed into it, and built furnaces of varying capacity and cost, shows that large profits were expected. Even now, the largest enterprise of the kind yet attempted is being effected at Hamilton by Ex-Governor Matteson, of Illinois, and his associates. Three large cupolas are being erected, with a forced blast by means of an engine of 40 horse power; and five roasting kilns also, to prepare the ores for the furnaces. The boilers, engine, blower, and refining furnaces, are all of Chicago manufacture. The works are all enclosed in a substantial stone building. Separation will be performed here, both of the metal produced, and of all that may be brought from other furnaces. The works occupy a whole block of ground, and there are four blocks in all belonging to the Company. A never-failing spring upon the property has been converted into a reservoir which supplies the building and boilers with an abundance of water. The total cost of these smelting and refining works cannot be much short of \$50,000. The Company have a large capital and it seems to be their determination to "push things." All which will be very acceptable to the mining interest, if they do not push the miner to the wall.

As to this latter contingency, although there are but few left to be the subjects of it, I must say that the managers have made a bad beginning. They insist upon the delivery of ore at the furnaces by the miners, at their own cost. The managers then procure an assay to be made of samples of the ore and afterwards affix their own valuation upon the various lots so brought to them. If the miner is not satisfied, he has the alternative of earling away his ore again at his own expense. All this is very vexatious, and the miners are already making up their minds to abandon the district, unless there is a change. About one thousand tons of ore have so far been thus purchased from them, and the proprietors have now resorted to advertising for more.

MINER.

[TO BE CONTINUED.]

Good.—The Vallejo Recorder says that the employés of the Central Pacific Railroad, who become sick or crippled, have all the comforts of a home in an asylum at Sacramento, in which they have a share. It is conducted thus: Each employé of the company pays into the Asylum Fund fifty cents per month, and if he is disabled so as to be unable to work, he is cared for as well as if at home—enjoying luxuries and comforts. A movement, we believe, is on foot among the mechanics of this region to establish a similar institution. We learn there is from time to time quite a drain on the pockets of the employés of Mare Island for charitable purposes, and it would, no doubt, be to their advantage, in every respect, to encourage this project. Probably a lot would be donated, and then it would cost but little for a house and outfit for disabled mechanics.

PREVENTION OF BOILER INCORUSTATION.—A very simple mode of preventing boiler incrustation is in general use at the Darmstadt Gas Works. The engine has worked night and day since 1854, almost without interruption, and the formation of calcareous deposits has been entirely prevented by the use of crude pyrolineous acid, combined with tar; it is either introduced into the boiler or mixed with the feed water. Since this mixture has been in use they have never had to use a hammer to remove scale. Each year, during the summer, when less gas is required, the boiler is opened, and perhaps a couple of handfulls of loose sediment taken from the bottom. The quantity employed is very small—just enough to redden litmus paper; consequently the iron is not attacked, as indeed is apparent from the fact that the boiler has been but twice under repair.—*Gas Light Journal.*

Mechanical Progress.

THE TROY BESSEMER WORKS.—The N. Y. *Engineering and Mining Journal* has an interesting account of a Bessemer "heat," recently witnessed by the editor at the Works in Troy, N. Y. We give a brief abstract. This Bessemer product is really not steel at all, but "a very pure homogeneous, somewhat highly carbonized wrought iron." It is true that the introduction of ferro-manganese, or *spiegeleisen*, at the conclusion of the heat, does re-introduce a small amount of carbon, but not enough to entitle the product to the name of steel. It is, however, far better than steel, for many purposes, and especially for rails. The process does not differ essentially in chemical reactions, from the puddling process. But in the latter, the fluidity of the metal decreases as the carbon burns out of it; it coagulates in lumps "like butter in a churn;" homogeneity is impossible. "The Bessemer process effects both mechanical stirring, and the chemical purification, by the agency of a powerful blast of air through numerous small perforations in the bottom of the converter;" maintaining also thereby a temperature (sometimes as high as 5000 Fah.) which secures extreme fluidity throughout. The converter is a huge pear shaped iron vessel, 14½ feet high and 9 feet in diameter at the middle, lined with refractory material a foot thick, and supported by trunnions upon which it can be revolved by hydraulic power. The trunnions are hollow, for the introduction of the blast, which is led downward by a rib-like passage outside, and escapes inside by ten dozen ¾ inch holes, arranged in groups. This converter, having been heated up by a fire within, is tilted, emptied, and turned upon its side. The open mouth in its sidewise neck is thus presented to a trough leading from the cupola furnace, and five tons of melted pig-iron run into it. The blast is then let on, and the vessel is swung back to a vertical position. For fifteen or twenty minutes the flames roar and dazzle. This suddenly ceases; why, is yet a puzzle to chemists, for there is still more or less carbon left for fuel. The blast is stopped, the vessel is turned upon its side, and six hundred pounds of melted *spiegeleisen* poured in. "The reaction is instant and violent. The manganese of the *spiegeleisen* combines with any sulphur that may remain in the bath, forming compounds which pass into the slag. It also decomposes in the slag silicates of iron, taking the place of the iron, and returning it to the bath. Finally the carbon and manganese together reduce the oxide of iron which is formed during blowing, and which would destroy the malleability of the product." This takes but a moment. The "heat" is over. The converter is again tilted and discharged into an immense ladle, brought into place by a gigantic crane. This is then swung over the moulds, into which its contents are drawn off through a tap-hole in the bottom. The works produce from ten to twelve hundred tons of ingots per month; nearly twice as much as an English plant of the same size, owing to the improvements and improved arrangements planned by Mr. Holley the manager.

PORT LEYDEN IRON WORKS.—The *Tribune* of Sept. 5th says:—These works were started a few years ago in Lewis county above Utica, on some \$500,000 invested, and were a failure, as pig iron could not be produced from the ore. "Professor Seymour" has recently taken hold of the matter, and now produces steel at one fusion. "The ore is crushed to the fineness of rifle powder. It is then thrown into a revolving cylinder, in which are set numerous magnets. The ore is 'magnetic.' By an arrangement of small brushes, the metallic particles are separated from the refuse. The application of certain chemicals and fusion by charcoal are the next steps, and the product is pure steel, ready for moulding into 'ingots.' Specimens manufactured into finely tempered table cutlery, and the certificate of a well known cutler of Brooklyn, who made the articles, that it is as good steel as he ever worked, have been exhibited. The estimated cost of this steel is less than four cents per pound."

NOTE FOR PHOTOGRAPHERS.—The drying of the collodion film often causes great inconvenience. "I avoid this difficulty," says M. Lecourt, "by placing a very little distance before the sensitized plate a second plate, thin, and perfectly clean; I thus maintain the moisture during a sufficient space of time for any exposure whatever, be it an hour or more, without any apparent drying."

CENTRALIZING MOTIVE POWER.—J. Richards, M. E., in the Sept. number of the *Journal of the Franklin Institute* says:—"May we not look for the next great innovation in motive power to consist in centralizing it and distributing it by means of pneumatic apparatus? The difference in cost of generating 1000 horse-power by a single condensing engine, favorably located, when contrasted with the cost of producing the same power with forty non-condensing engines with 25 horse-power each, is as two to one. * * With a 'pneumatic main' laid through the streets of our manufacturing districts, and each manufacturer taking off his power through a meter, we would gain not only in economy and convenience over local steam power, but obviate nearly all that is objectionable in it. The danger from boiler explosions would be gone. The smoke from steam furnaces would be avoided, the heat and danger from fire would be avoided. The room would be saved, the water rate would be saved. The engine would not freeze in the winter. The cost would be as the amount of power used, which could be varied with the state of business; or a change in the capacity of the motive power could be made at a trifling cost."

ANOTHER MITRAILLER.—The English Government is experimenting at Shoeburyness with a gun of this kind, invented by Major Fosberry, which consists of a compound barrel, composed of thirty-seven rifled tubes of the size of Enfield rifle barrel, hexagonal on the outside, and thus closely fitted together, the whole being enclosed in an iron cylinder. The breech block, containing 37 strikers, each actuated by a spiral spring, is drawn back for loading, and a plate containing the cartridges is inserted vertically. The block is then pressed forward by a lever, forcing the cartridges into the barrels, and at the same time putting the springs in tension. In firing, these springs are released by a lever. The machine is mounted on a field carriage.

IRREGULAR MOLDING MACHINE.—The *Iron Age* says that A. S. & J. Gear & Co., of Boston, have brought out a new machine, that moulds, planes and panels all kinds of irregular finish on the face of lumber. It also does all kinds of dovetailing. It makes both mortise and tenon at one operation. The Messrs. Gear completely revolutionized the manufacture of furniture with their variety machine, and every kind of molded crook and sweep seen upon the edges of lumber—on furniture, sewing machine cases, railroad cars, and house finish—has been done by it.

PROPORTIONAL COMPASSES.—An exchange describes a compass with two long and two short arms, so proportioned to each other that the distance between the former gives the length of the circumference of the circle whose diameter is measured by the distance between the latter. This is an instrument useful to many artisans. Thus, to mark the width of tin plate necessary for a tube of a given diameter, it is only necessary to lay off that diameter with the short arms, and the long ones give the width of plate desired.

THE BROWN PROCESS OF GAS-MANUFACTURE.—This converts hydrocarbons into a fixed gas by a new method—that is, the naphtha is placed in a still where a low heat is applied, until it is converted into a vapor. This vapor is introduced through pipes into a retort, heated to a red heat; where it is entirely and instantly converted into a fixed gas, of remarkable purity and high candle power. Other materials can be used besides naphtha. Any oily or fatty matter may be used. It is necessary, where the materials do not vaporize by the application of a steam coil, to apply heat through a furnace.—*Gas-Light Journal*.

NEW POWER.—"Two Cincinnati machinists have patented a new power in mechanics. A furnace is placed at end of a heavy iron tube, which acts as a flue, and is expanded by the heat. The expansion acts upon a lever of heavier metal than the tube, and as the latter becomes heated, the lever moves slowly but powerfully backward and forward, and this motion, once secured, is repeated at will by the application of cog wheels. The supply of heat to the tube is regulated by side flues, which carry off superfluous heat, or leave all the furnace produces for application to the generating tube, at the will of the operator."—*Iron Age*.

Scientific Progress.

NEW CHEMICAL RELATIONS OF SILICA.—Fidel and Laeburg recently announced to the Academy certain new organic compounds containing silicon, among which was what they called *silicopropionic acid*, containing in its constitution, with silicon and hydrogen, the organic radical *ethyle*. They say it "much resembles silicic acid, but is easily distinguished by its combustibility, burning like tinder when heated." It is insoluble in water, but readily soluble in warm concentrated potash. It appears to be a feeble acid analogous to silicic acid, and "is in fact, the first carburetted silicic acid." The authors say that "it constitutes one term of a series of homologous acids," of which others will be obtainable by like processes. Dumas, in commenting on this paper, throw out the conjecture that as "there are so often found in nature silicious matters, containing traces more or less visible, of organic matter, it would not be surprising that, just as at times natural compound ammonias have been confounded with ordinary ammonia, so compound silicas, in nature, may have been regarded as ordinary silica. In response to this came a communication from PAUL THENARD, of a most striking character, being the announcement of the discovery that certain modifications of the substances of the humic acid group have the power to dissolve silica in large quantity. These new silicious solvents are produced by fixing ammonia upon the humic matters, in ways not yet explained, by which the ammonia is not merely combined as a salt, but enters into the molecular constitution. He has thus formed four distinct derivatives of the humic type, which are not alkaline but acid, and he calls them *acides azhumiques*, which we must render into English as *nitrohumic acids*. Their fixity is remarkable, as they do not wholly lose their nitrogen at 1000 deg. to 1200 deg. They combine with silica to new acids, *siliconitrohumic acids*, which are instantly dissolved by alkalies, including ammonia, even when very weak, forming salts, from which the siliconitrohumic acids may be recovered in all this integrity. The proportion of silica taken up is in proportion to the amount of nitrogen present, varying from 7.5 to 24 per cent. A new relation is here indicated between silicon and nitrogen. THENARD finds these nitrohumic acids in soils, and attributes the silica always found in solutions of the acids of soils to this cause.

Prof. Henry Wurtz, from whose *Chemical Experiments* we take the above, remarks upon it as follows:—"We have demonstrated thus, at once, a theory, not only of new relations of plant decay to plant nutrition, but also of the far broader subject of the transformation and migration of silica throughout all past geological ages, and of the continual, and (as the writer of this abstract has long believed) sole agency of LIFE in these, as in the past and present migrations and transformations of carbon."

POST-TERTIARY IN MICHIGAN.—Prof. Winchell, State Geologist of Michigan, read a paper upon this subject at the late meeting of the American Association for the Advancement of Science. He showed that the peat-beds are the sediment of ancient lakelets. This sediment encloses vast mastodon and mammoth remains, found so near the surface, that it would seem that they must have been buried there within five hundred years. The remains of the gigantic extinct beaver of North America have, within a short time, been unearthed in Michigan. The flint arrow head discovery was made in Washtenaw county, within seven feet of the surface, and the mastodon remains were found near Tecumseh, a few miles distant, but two and a half feet from the surface; the Adrian mastodon, but three feet deep. The bog iron ore in one county covers several townships and penetrates to an undiscovered depth. It is of remarkable purity and lies directly in the projected line of the Northern Pacific Railroad. This prodigious deposit is derived from the disintegration of the hematites and magnetites of the West.

MOUNT WASHINGTON IN THE WINTER.—Prof. Huntington, Assistant State Geologist of New Hampshire, proposes to spend the next winter upon the summit of Mt. Washington. The party will be furnished with instruments for scientific observations, and will be connected with the rest of the world by a telegraphic cable.

HETEROGENY.—The following is an extract from an article by G. Bentham, in *Nature*, on "The Progress of Botany in 1869":—"In all organized beings which in their earlier stages are appreciable through our instruments, every individual has been proven to have proceeded in some stage or another from a similarly organized parent. But there are cases where living beings, Vibrios, Bacteria, &c., first appear under the microscope in a fully formed state, in decaying organic substances in which no presence of a parent could be detected or supposed. Three different theories have been put forward to account for their presence: first, that they are suddenly created out of nothing, or out of purely inorganic elements, which is perhaps the true meaning disguised under the name of spontaneous generation, a theory not susceptible of argument, and therefore rejected by most naturalists as absurd; secondly, that they are the result of the transformation of the particles of the organic substances in which they are found, without any action of parent Vibrios or Bacteria; and this appears to be what is specially termed Heterogeny; thirdly, that there existed in these organic substances germs which had proceeded from parent Vibrios and Bacteria, but too minute for optical appreciation, and that their generation was therefore normal. The supporters of Heterogeny rely upon the impossibility of accounting for the appearance of the Vibrios and Bacteria in any other manner; for they say that although you treat the medium by heat in a hermetically closed vessel in such a manner as to destroy all germs and to intercept all access, still these beings appear. Their opponents deny, if the experiments are conducted with proper care. So it was seven years ago, and so it is still, although the experiments have been frequently repeated in this country, in France, and in North America, almost always with varying results. All reasoning by analogy is still in favor of reproduction from a parent; but Heterogeny has of late acquired partisans, especially in Germany, among those who are prepared to break down the barriers which separate living beings from inorganic bodies."

ALL FORCE IS WILL FORCE.—"If, therefore, we have traced one force, however minute, to an origin in our own WILL, while we have no knowledge of any other primary cause of force, it does not seem an improbable conclusion that all force may be will force; and thus, that the whole universe is not merely dependent on, but actually is, the WILL of higher intelligences or of one Supreme Intelligence."—Wallace on Nat. Selection.

CHLOROFORMING PLANTS.—According to Jourdain, the irritability of the stems in the barberry is suspended by chloroform. A hit of cotton sprinkled with chloroform, and introduced into the glass bell-glass which covered the plant operated on, produced tetanic rigidity of the filaments in one minute; but exposure to the air soon restored the irritability, unless the action of the chloroform had been continued ten or twelve minutes, in which case the vitality of the flowers was greatly impaired or destroyed.—*Academy*.

FOSSIL TOOTH FROM TABLE MOUNTAIN.—Prof. Wm. P. Blske, in a communication to the *American Journal of Science and Arts*, which appears in the September number, says he has compared the fossil tooth found by Mr. Hughes in Table Mountain, with specimens in the Smithsonian Institution, and finds it to be a molar of an animal of the genus *Hipparion*, one of the links between the *Paleotherium* and the horse. He remarks:—"This fossil is the first of the kind discovered west of the Rocky Mountains. It adds to the list of the fauna of the period antedating Table Mountain—a list which includes the mammoth (*Elephas*, from Knight's Ferry), the rhinoceros, and an animal allied to the elk. I have believed that remains of man were also found under the lava; but upon this point, after diligent inquiry, I am satisfied that the evidence is insufficient. But we now add this fossil allied to *Hipparion*, and I regard it as another indication that the Table Mountain beds are Pliocene, and homotaxial with those of the Bad Lands of Nebraska."

A NEW ASTEROID.—Dr. C. H. F. Peters sends the editors of *Silliman's Journal* the notes of the first observations made upon an asteroid discovered by him at the Litchfield Observatory of Hamilton College, Clinton, N. Y., Aug. 14th. This is the 111th of the group.

Mining Summary.

The following information is gleaned mostly from journals published in the interior, in close proximity to the mines mentioned.

California.

ALPINE COUNTY.

TARSHISH.—*Miner*, Sept. 10th: A body of very rich ore was struck in the lower tunnel on Wednesday. Guns were fired, the town flag was hoisted, and lager was free. This soft ore is easily concentrated into "sack sulphurets" worth 75 cents per pound.

LEVIATHAN.—For supplying Birdsall & Co. of Dayton with three hundred tons ore, a road survey will be made. It is said the ore will net \$50 per ton on the dump.

AIR PIPE has been put in the No. 3 tunnel of the M. & N. W. Co., and running along the casing commenced. Prospects are favorable.

BUTTE COUNTY.

WHITE ROCK.—*Oroville Record*, 17th: The wing dam of Nisson & Co., is paying well. On Sunday they took out 26 ounces. The have but a small claim dried, but their dirt is very rich.

CALAVERAS COUNTY.

GRAVEL MINING.—*Chronicle*, Sept. 17th: Paul & Co., near the Junction, have struck very rich gravel. A recent clean up, of five days' work, resulted in fifty ounces of dust. The Harkins mine near Central Hill, the richest in the county, continues to pay as well as formerly. Incline Tunnel is in three hundred and sixty feet and expects to reach the lead in a few days. In Chili Gulch the hydraulic claim owned by Mr. Shaw is the most notable. Operations are on an extended scale and the product of gold is large. Brackett & Co. are doing well. The gold is principally in cement, extremely hard, which has to be crushed before washing. A battery of five stamps is constantly running. At Sport Hill and Tunnel Ridge, Johnson, Wolters & Co., Blake & Co., Moser & Fields and others are employed with fair results. The Union Shaft boys continue to make the old diggings pay. Corral Flat isn't fairly prospected yet. Kelton's river claim, at Big Bar, shows \$100 per day average yield. In the Buckeye district, Markwood & Co., Smith & Co. and others are making good wages.

INYO COUNTY.
CERRO GORDO.—*Independent*, 12th: On the 7th, the new smelting works of V. Baudey, at Cerro Gordo, fired up. About five tons of lead ore to one of rich silver ore charged per 24 hours. The cupola will be ready when the castings arrive.

DEEP SPRING VALLEY.—The Co. are settling up their affairs preparatory to resuming business as soon as machinery belonging to Paul's process arrives. Judge Wayland is working ore by the patio process. S. P. Davis is working rich ore by nearly the same process, making use of Indians to tramp the pulp. Mr. Gilmore, of the Chrysopolis mines, has made extensive purchases of mining property from the Berger Bros.

KERN COUNTY.
JOE WALKER MINE.—*Los Angeles News*, 17th: A clean up, after twenty days' run of the mill, was made last week. The result was \$7,000 of retorted gold.

LASSEN COUNTY.
BIG VALLEY.—*Yreka Journal*, 14th: The claim of Ehlers, Haskin & Co. pays about \$250 per day. Dr. Moore saw them take out \$400 in one day, and as much as \$100 to \$175 in a single pan of dirt. Owing to the great scarcity of water, it is hard work to mine either with a rocker or any other apparatus, and as for prospecting, it is useless to try it except in winter.

NEVADA COUNTY.
STILES.—*Gazette*, 16th: W. C. Stiles will commence crushing rock from the ledge at his hoisting works next week. From this date he can take out twenty tons daily—enough to keep his mill running night and day.

MEADOW LAKE.—*Transcript*, 14th: The mining prospects are more encouraging than at any time since Summit City was in full blast. At Carlile, J. E. Squire is getting along well with the new works on the Grant mine. The foundations are laid for a fifteen stamp mill, which will be running in a month. Mr. Culverson has charge of the Reduction Works mill at Ossaville. He will begin in a week to work ore from the Excelsior lode, formerly called the Dutch Flat claims. The Excelsior mill is being hauled out to be stored at Alta. A considerable amount of prospecting is being done.

EUREKA MINE.—*Grass Valley Union*, 15th: The sixth level is 730 feet down, and running in splendid rock. The same drift to the east is also in greatly improved

rock. The clean up of the amalgamators, for twelve days ending Saturday, gave a trifle over \$28,000. This includes nothing from the sulphurets.

STRUCK IT AGAIN.—Same of 18th: About the first of March, Webster & Co., on Randolph Hill, struck a crevice of very rich gravel. The crevice proved small, and was soon exhausted. The Co. then commenced to drift for the regular channel. A tunnel was run on the bed rock 300 feet. The rock then began to dip, the tunnel keeping on. On Friday a shaft was sunk to the rock and a splendid prospect found.

PLACER COUNTY.

RICH.—*Herald*, 17th: Within a few days a Mr. Graves purchased an interest in the old Peterman claims, about a mile from here and went to work. On Wednesday Graves struck some quartz, which has rather waked up our town. A gentleman tells us that the ledge has been opened on the surface for fifty feet, and shows equally rich for the whole distance. Our informant says that with a hand-mortal he could take out big money at any point opened. Some of the quartz has been brought to town which would yield fully \$10 to the pound.

SHIPLEY LEDGE.—The Westchester mill is being moved to this ledge from Brnshy Cañon, near Forest Hill, where it has stood idle for some years. It will be run by water power. The ledge is opening finely. Half the mill is given by Mr. Sears, the owner, for half the mine.

SAN BERNARDINO COUNTY.

CLARKE AND YELLOW PINE.—*Guardian*, Sept. 10th: On Tuesday I. H. Levy, agent for mining companies in Clarke and Yellow Pine Districts, received forty one sacks of rich ore, and forwarded the same to San Francisco.

Messrs. Thompson & Short have brought in specimens of silver ore from a point some 75 miles from here, which looks richer even than that from Yellow Pine. They report large veins, and plenty of wood and water. They found also a large vein of anthracite coal.

SAN DIEGO COUNTY.

THE STONEWALL JACKSON.—*Union*, 15th: Capt. Frary is getting on with the mill, and it will be running in fifteen days. The Company have 100 tons of rock on top of the ground that will pay \$30 to the ton.

BULLION.—A. Pauly & Sons have received one hundred and fifty-five ounces of gold bullion from the mills of Julian District during the week.

SHASTA COUNTY.

SALE OF THE CHICAGO.—*Courier*, 17th: We learn that a company of new comers have purchased the Chicago mine near Piety Hill, and gone to work upon it in earnest. Undoubtedly the developments will induce a general resumption of work on the ledges of South Fork.

SIERRA COUNTY.

SIERRA CITY.—*Messenger*, 17th: The Phoenix Mill is running. The rock is thickly streaked with gold, yielding \$30 per ton. It costs two dollars per ton to haul the ore, and four for crushing. This is a fair stamp mill.

Parties prospecting on the South Fork, above the city have struck good pay gravel. They have a tunnel one hundred feet into blue cement. In a shaft about a mile away, 90 feet deep, 30 feet is in similar cement.

ITEMS.—Part of the Alaska Mine at Pike City has changed hands, and a mill will probably be erected. H. Taher at Gibeonville has completed his air shaft, and the prospects are good. The Bald Mountain tunnel, at Forest City makes twenty feet a week, in hard rock. Mr. Hibbard and others have struck a rich quartz ledge two miles up the East Fork. They brought to town some fine specimens. J. White & Co. at Goodyear's Bar, took out \$1,500 last week.

INDIAN HILL.—Cor. of same: Our gold product has been more than usually good. Jones & Co. made two runs, and are now cleaning up the ravine. The grin that Bill wears shows that his pockets are not empty. Charlton's old Co. have very rich gravel in the centre of their claims. Andrews & Peterson made a successful season; the two taking out \$40 per day on an average. Bliss & Co., have two strata of paying gravel.

TRINITY COUNTY.

THE TRIAL SHAFT.—*Journal*, 17th: The shaft to prospect the bottom, is down twenty-five feet in granite containing boulders.

NORTH FORK.—The quartz prospecting has resulted in the discovery of a number of ledges. The ridge near Rich Gulch is said to contain a series of gold and silver veins. Some of the quartz will be brought to town for shipment below. The vein Mr.

Engel has been working has developed into a large ledge. B. C. Wattles last week discovered a ledge back of McGillivray's ten feet wide, containing native silver, and free gold.

INDIAN CREEK.—We visited the quartz ledge Wednesday. Silcox & Smith were down forty-one feet, the vein baving a width of between five and six feet. The quartz will pay to work. The question is, whether there is much of it.

Jessop & Ralph are doing well in Trinity at the foot of the island below the mouth of Grass Valley Creek. We are informed that their diggings pay half an ounce per day to the man.

Nevada.

COPE DISTRICT.

BALD MOUNTAIN.—*Elko Independent*, 17th: Dr. Bailey reports new and rich discoveries. He brought choice samples of copper-silver glance from the Blue Bell ledge. The Bailey mine shows well in sulphuret and chloride ore, and the Hartford in antimonial ores. Among the older locations attracting attention is the Mountain King.

ESMERALDA.

MONO.—*Cor. Inyo Independent*, 12th: The great Dunderberg mine at Castle Peak will soon astonish the country. The vein is said to be giving out vast quantities of rich decomposed ore, and there appears to be an inexhaustible supply in sight. Dagne's mill is being pushed to completion with energy.

AURORA.—Cor. of same: At Pine Grove the Wheeler Co.'s prospects are said to be good. Wilson has at last struck an abundant supply of water for his mill and has rich ore in sight. The Kean mine at Rockland has been opened for nearly a thousand feet, and every foot shows good ore. Kean's mill will soon commence crushing. The mines of Silver Peak hold their reputation for richness. Columbus is rapidly becoming a centre of attraction. Wetherill's camp in the White Mountains is very rich, the ore assaying \$300 to \$5,000 per ton. Four or five tons at Reno averaged \$500 per ton. The Wide West mill is in full blast. At Bodie, Walker, Lockburg & Co. cleaned up 130 tons rock in an ar at which paid \$33 per ton.

HUMBOLDT.

RAILROAD DISTRICT.—*Elko Independent*, 14th: Firestone from Pancake is coming for the Bullion City furnace. The Grant Co. burn coal. Col. Buel arrived from the East yesterday, and will take hold of the mines here in earnest.

ITEMS.—*Silver State*, 16th: The Original and South Arizona mines are taking out 70 tons per day. A large portion is shipped to San Francisco, and yields \$200 to \$400 to the ton. The mills are all running and the mines never looked better. We hear of activity in outside districts, especially Alpha, Oreana Central and Battle Mountain. The Harris mine, eight miles east of Oreana, was sold on Monday to Eneas Smith, agent of the old Rochester Mining Co. of Batavia, N. Y. We learn that some of the Hard Cash ore tested at Reno went over \$800 the ton.

REESE RIVER.

SILVER BEND ORE.—*Renaville*, 12th: At the Manhattan mill last week 6½ tons from the Arizona mine, Silver Bend, gave \$636 of silver to the ton.

BULLION.—Yesterday the Manhattan Co. shipped nine bars of bullion, weighing 865 pounds and valued at \$14,636.

LANDER HILL ORE.—Same of 17th: Five tons gave \$1,100 at Manhattan this week. We were told of another lot of about a ton which produced \$1,600. This last was chloride ore.

WHITE PINE.

REVIEW.—*News*, Sept. 18th: The mills are working steadily, and most of the leading mines are turning out ores of fair quality.

Gov. Matteson is pushing his smelting works toward completion. One furnace has been in blast for a week, and is working admirably. The result of the week's run is about 30 tons of bullion, assaying \$180 per ton in silver. For the last two days the work has been gradually increased toward full capacity. The result of the last twenty four hours' run was 170 bars of bullion, weighing about 8 tons—giving an average assay of \$186 per ton. The second furnace will be ready to receive ore by Wednesday, and a third the last of the week.

SOUTH AURORA never looked better. There are 80 men employed. 50 tons of ore are shipped daily. The last 3,000 tons had an average assay value of \$46 per ton.

WARD BEECHER is still looking well; 15 to 20 tons of ore are daily sent to the mill at Swansea. The pulp assays as high as \$50 per ton, giving an average of \$35.

O. H. TREASURE.—Is still a 'sealed book' to the outside world—all sort of rumors about rich strikes being heard on the street.

SILVER WAVE.—This continues to improve. Fifty tons ore from Shaft No. 4, was milled during the week, giving an assay value of \$72 per ton.

AURORA CONSOLIDATED.—Is closed for the present. The English Co., owning this and the Eberhardt mine have broken at Eberhardt City for the foundation 60-stamp mill.

BULLION SHIPMENTS FOR SIX MONTHS.—From Wells, Fargo & Co.'s office in this city: 789 bars, valued at \$1,006,755.26, of which \$519,495.47 went West, and \$487,259.80 went East. And this is exclusive of base bullion.

POCHE.—Cor. of same: Ely & Raymond's mill is turning out plenty of bullion. The new mill is pushed on as fast as possible. This machinery is on the ground. The grading and masonry are complete.

So far, the leading mines, the Ely & Raymond, Meadow Valley and Rutherford & Co.'s are all turning out good ore in large quantities.

A Hamilton telegram of 19th says: Eighteen bars of bullion, valued at \$19,142, arrived to-day from the Meadow Valley mine.

REVELLE DISTRICT.—The 10-stamp mill will be started in ten days upon ore from the Spy, Sweepstakes, Mediterranean, Atlantic, and other mines of the Co., of which there is on the dump—at least 250 tons of milling rock which will work near \$100 a ton. H. B. Hawkins, the managing agent, had just arrived.

EUREKA.—*Sentinel*, 17th: The new furnace of the Consolidated Co. will be running next week. The Bevan & Wallace furnace is lined with fire-proof stone, and will soon start. Col. Robbins' is closed for the present. The McCoy is nearly ready. The Geowey & Hurlburt is waiting for the collection of ore before commencing. The Jackson Co.'s new furnace will be running next week. The Co. now ships 20 tons per week worth \$340 per ton. McNevin & Dunne's reduction works are progressing. The Roslin is nearly ready. In 12 months this will be the richest and largest camp in the State. Virgin & Hines have sold the White Star mine for \$1,000. Mr. Music has struck it rich in a location south of the Patje & Corwin. Dimond & Co., west of the Empire, have a 10-foot ledge of \$120-ore. Last week the sum of \$45,000 in gold was paid for certain claims at Mineral Hill.

WASHOE.

SAVAGE.—*Gold Hill News*, Sept. 17th: The drift north at D street level, cut the good streak of ore in the Gould of Curry. Next week 30 to 50 tons per day will probably be extracted from this, milling from \$30 to \$50 per ton.

The yield from the eighth level nearly pays the expense of running the mine. August receipts, \$32,300.

IMPERIAL-EMPIRE.—The shaft is now 1,300 feet deep—the deepest perpendicular shaft in the State. The old upper Imperial mine continues to yield 40 tons of low grade ore daily.

VIRGINIA CONSOLIDATED.—A few tons of good ore daily from the old upper mine. Drift west from the 500-foot station of the new shaft energetically driven ahead.

OVERMAN.—Daily yield, 50 tons, average assays \$47. The body of ore recently developed at the 400-foot level has improved beyond expectation. Several tons of high grade ore have been taken from it, some of which yielded at Dall's mill, \$630 per ton.

GOULD & CURRY.—The body recently developed near the Savage line, is yielding several tons per day of rich sack ore, which is shipped to Reno. The daily yield of the mine is 100 tons.

YELLOW JACKET.—Daily yield 200 tons, from the section between the 800 and 900-foot levels, which shows an improvement.

HALE & NOBECROSS.—Daily yield 170 tons, principally from the seventh level. The 300-foot level yields 26 tons and a few tons come from the 175-foot.

BELCHER.—The raise from the 200-foot level shows good indications, and at the 152-foot level a body of fine grade ore, five feet wide, yields 12 or 15 tons daily.

SACRAMENTO & MEREDITH.—Some improvement in the upper workings. The new mill operates well.

CROWN POINT.—Incline down 50 feet below the 1,100-foot level; bottom still hard. Daily yield of the mine 40 tons of fair ore from the upper levels. August receipts, \$16,473.

CHOLLAR-POTOSI.—Daily yields 280 tons, in quality.

principally from the Belvidere section, which shows better and better.

SIEIRA NEVADA.—The mill runs steadily, with good results. Receipts for August reported at \$28,000.

ORISK.—The streak in the upper workings still yields a few tons of excellent ore daily.

HOPE.—Yielding 45 tons per day of ore that mills \$23 on the average.

COLE.—Considerable good milling ore, rich in gold, is being taken from the old upper tunnel.

REMOVAL.—The Rigby mill, at American Flat, has been removed to a point near the Six-mile House, where it is being set up. It will contain twenty stamps and will be used in crushing ore from three leads owned by General Williams and others. These leads are gold-bearing.

SHUT DOWN.—The Summit Mill has been shut down for want of rock to crush.

Arizona.

A Los Angeles telegram of 18th says:—News from Prescott to September 10th is received. Local excitement rages over rich discoveries in Bradshaw mountain, and astampede has taken place. Two prospectors brought in \$1,000.

Colorado.

BULLION FOR AUGUST.—*Central City Register*, 14th: Total coin value of gold, \$125,000; of silver, \$129,300.

GRAND ISLAND.—It is thought that the Cariboo mine will change owners before the time expires (18th) for which it was bonded to Cutler & Co., for \$125,000. The product during the past three months has been fifteen tons per week, which has been sold at \$25 per ton. The Idaho shaft is sunk scarcely 15 feet below the top of the crevice, nevertheless the value of the ore already raised exceeds \$5,000. The pay streak is three feet thick in the bottom. Should the present promise stand the test of development it will surpass any silver mine in Colorado.

SUMMIT COUNTY.—*Herald* 14th: Mann, Lovell & Co., Galena Gulch, have 800 feet of flume, work ten men, and take out 65 ounces of gold (\$1200) per week. The last week of August \$1620 was obtained. In Gold Run, Peahody is working 1200 feet, with 12 men, an average production of 50 ounces per week; Mumford is taking out \$300 with 7 men from a 600 foot claim. French Gulch probably exceeds all others at this time in its yield. Carter & Page, have struck the regular old "Humburg" streak. Georgia Gulch is mined by several companies. Young & Co. recently took out a nugget weighing over nine ounces. They are putting a flume into the "Swan," where they have a claim of 7,000 feet. John Sanlerson, Supt of the Boston Co., in Mayo Gulch, is working one of the best claims in the county, (2,100 feet). Two weeks ago he took out 30 ounces of gold from a round sluiced down, without shovelling. This company employ eight men, and take out an ounce to the man per diem. The water used is collected in a reservoir, and discharged in large bodies, and with great force, on to the hillside—a method that the miners term "bumming." Wm. McFadden in Illinois Gulch, using a flume, gets an ounce daily to the man. In Soda Gulch, Marksby & Clark are working five men and obtaining \$6 to the man. They are on a rich pay streak unknown until this season. They have 27,000 feet of ground. Jamez McFadden is working one of the most valuable claims in the county. A "clean up" takes place once in two or three weeks, when from 50 to 65 ounces of gold are obtained.

GRONGETOWN.—*Miner*, 15th: The Monticello tunnel has advanced 134 feet.... The Marshall has reached 835 feet.... The German Reduction Works are running on Wm. B. Astor ore.... The Helmick tunnel has reached 350 feet.... We are informed that good ore has been struck in the Grant Lode, Dailey District.... Lot of ore from the Senator lode, cut by the Morris tunnel, gave \$552 coin value, per ton.... An assay of a select sample from the J. O. Stewart, Cascade District, gave \$18,896.... Collom & Co have commenced treating ore at their Reduction Works at Swansea.... Coulter and Do Lamar, have made a new discovery on Republican Mountain.... The shaft on the Ogden lode is in solid ore, at a depth of 150 feet.

McAFEE Silver Tunnel Co.—We have evidence that samples, of ore from the Amador vein, belonging to this Co., have yielded by fire assay, \$32,000 per ton, in silver.

Idaho.

NEW MINES.—*Statesman*, 13th: A new excitement among the Snake River miners threatens to carry them all off. We learn that it is in the direction of the Montana

road. Parties out there sent word to a few friends to come slyly, but they were discovered and followed.

ALTURAS COUNTY.—Rocky Bar Cor. of same: I visited the Idaho mine on Saturday. Never in my life have I seen as rich ore in so large pieces. Many chunks would weigh one hundred pounds each, bespangled with gold. The ore now being taken out will pay \$200 to \$1,000 per ton, and they have enough of the same in sight to keep them at work for a year at least. They are crushing in arrastras. The Red Warrior is attracting attention again. The Richmond is yielding ore that will work from \$75 to \$200. Judge Kelly owns it.

Montana.

ALDER CREEK.—Virginia City Cor. of *Gazette*, 12th: Griffith & Thompson have struck good pay. Hammar, Myer & Co. took out Saturday \$531.60. Davis, Armistage & Co. are taking out \$200 to \$500 per day. Fenner took out 17 ounces in two days. John Donnegan has got down with his bed-rock flume. The Cork Co. on Bummer Dan's Bar, are taking out large. D. J. Emmez, an old pioneer, is drifting with success. Noteware & Co., have a gang of Chinamen at work. Their diggings are good. The ground above Virginia City is being worked over for the second and third times. Parker & Williams' flume pays clear of expenses from \$1,000 to \$2,000 per hundred feet—old ground. John Reid & Co. are making money fast. Renshaw & Co.'s Pine Grove Flume is proving remunerative. Southmayde & Co. are working ground which pays \$4,000 to \$50,000 per year. Next is Rossiter, Shank, Duncan & Co. Last week 68 ounces were obtained in one day, two men shovelling in.

TROUT CREEK.—The Co. which has been operating here for some years, failed last season to drain their claim, at 60 feet depth, with the machinery then on hand. They have just erected a Cornish pump 22 inches in diameter, which drained the claim dry in fifteen minutes. They now expect to reach bed rock soon.

THE PARK DITCH.—The water is now running through one mile of the ditch. It will be ready for work by the opening of the spring season.

ARGENTA.—Wash. Stapleton cleaned up, from eleven days' run with the Tootle Co.'s furnace, two hundred and twenty pounds of silver.

PIKE'S PRAIRIE.—*New North West*, 9th: The following clean-ups were made yesterday: Catching, Kohrs, & Co., \$4,059; Blair & Co., \$2,200; Roe, Beery & Co., \$4,001. This latter opened into pay last week. The other claims run from \$800 to \$1,000 each.

MOOSE CREEK.—Day & Harvey lead is developed to a depth of 200 feet and shows 6 feet crevice. The ore is very rich. Mr. Stapleton, who has been hauling it to Argenta—60 miles—and smelting it, says it yields \$500 per ton. He has been paying \$100 per ton at the mine.

Mr. Day has erected a 4-stamp battery, and Chilian mill, and operations will be commenced at once.

CEDAR.—Mr. Edinger reports bed-rock struck on "80 below," Saturday, and pays big. That settles the question about the deep ground, and demonstrates Cedar a permanent camp. The Copely Bros., Richard Quinn and Ed. Kinney own 79 and 80, and after running a 400 foot drain, sunk a shaft, which has paid \$45 to every four feet since they struck gravel. Bed-rock prospects \$1 to \$1 50. The strike occasioned a big excitement about Kiyus bar. All the companies are doubling their force. \$500 was offered for an interest purchased the week before for \$50.

ITEMS.—*Deer Lodge Independent*, Sept. 10th:—Eight companies are at work in Uncle Ben's Gulch, and all doing well.... Price & Co., of McEllan Gulch are doing well.... Good clean-ups in nearly every claim in Washington Gulch....

GERMAN GULCH.—Cor. of same:—Celestians have purchased Thomas Ford & Co.'s ground, known as the Irish Boys' claim, for ten thousand dollars in clean gold dust. The Dutch Fluming Co. are taking out \$1,000 per week. The Eureka Co., from \$500 to \$600. Earhart & Taylor work two men on bed-rock and take out from \$800 to \$900 per week. The Union Co. take out from \$1,200 to \$1,600 per week, with seven men on bed-rock. Dr. Beal's claim pays from \$1,000 to \$1,500 per week. He employs twelve men.

New Mexico.

BURRO.—San Diego telegram, 20th: Reports from the Burro mines, September 11th, say that Frampton and La Marebi, while prospecting were murdered by a party of Mexicans. The Herpending Co. have called a miner's meeting for the 17th

with the object of removing the present Recorder and changing the mining laws.

A Ralston letter to the *Press and Telegraph*, dated Aug. 31st, says there is very little going on except to do the work necessary to hold the ground.

Utah.

THE EMMA MINE.—The Salt Lake Correspondent of the *Corinne Reporter*, 17th, says: Day before yesterday the Emma shipped twenty car-loads—two hundred tons, and all this ore returns a clear profit of \$125 to the ton. Some \$40,000 have been cleared from the mine. But it has "pinched out" once to a crevice but an inch wide, though they have got below to a good vein again.

REDUCTION WORKS AT OMAHA.—Mr. J. A. Nye, writing to the *Omaha Herald* on this subject, remarks as follows: Though I have never been very much a friend of Omaha mining interests in the hurst district, still there are reasons why proper works would have advantages at Omaha, that they could not have at any point east of that. As far as the question of fuel is concerned, if we, for the time, consider the coal of Wyoming and Utah a suitable fuel, works of this kind should be at the western verge of such supply. But that is not so much the question as a market for the lead and bullion. From high authority I am able to state that the consumption of lead in the west alone, has risen to 15,000 tons per annum, while the production of lead in all the Western States has fallen to 11,000 tons per annum. The consumption of lead in the United States during 1869, amounted to 50,000 tons, of which 37,500 tons were imported. One white-lead manufacturer of St. Louis recently imported 800 tons of lead, at a cost of \$7.25 per hundred pounds. I think it easy to convince you that there is in Nevada, Utah, and Colorado, lead enough to do away with the necessity of importing a single ton, and generally, it carries enough of silver and gold to pay to mine it, if the lead has to be thrown away. The present shipments of base bullion from Nevada are so large that you would likely be surprised—and also from Utah, but the earth is scarcely scratched to supply the hundreds of imperfect furnaces that are built near the mines to treat it. I presume to say that competent men to run works to smelt ores are seldom met with on this coast, and yet there are thousands pretending to such knowledge. The transportation to the sea board will always be a clean saving and advantage for you, as the lead will find a market in the west. In fact, if you can sell lead, why can you not manufacture it as well as to send it away for some one else to work on, and then send it back to you in the form of paint, lead pipe, etc. There is to-day a great strife, though friendly, going on by capitalists in San Francisco to control the ore and bullion shipments from Utah and Nevada, and they do now get the greater share. You also have advantages in getting such coal as you may require.

STOCKTON SHIP CANAL.—According to the *San Joaquin Republican*, the preliminary survey of the canal, by Engineer Hall, has been completed and is favorable to the project. The distance is a little short of 11 miles, the whole fall is 8 3-10 feet, and the ground is generally of a favorably character.

THE CALIFORNIA PACIFIC RAILROAD has made a settlement with the land-owners, whose property was taken for right of way, in Sutter and Yolo counties. The aggregate amount paid in Sutter county was \$5,748, which was given in coin, although the company are said to be legally liable only for greenbacks.

AN IMPORTANT DECISION.—The appeal suit, at Portland, Oregon, before the Board of Trade against the Oregon Steam Navigation Co., decided that freight must be delivered at Lawiston at the expense of the Company, and that failures on account of low water does not release them.

PATENT SUIT.—Nevada papers report that the suit of the Messrs. Craig against A. Nevins & Co., for infringement of patent right in the use of Watson's nozzle, has been settled by compromise. The defendants confess judgment in favor of Messrs. Craig, for the patent right, with a perpetual injunction against infringement of the right, and pay \$450 damage.

New Incorporations.

The following have filed certificates with the County Clerk, San Francisco:

ANNOVO VALLEY DAIRY CO. Alameda County.—Sept. 8. Capital Stock, \$146,000 in 730 shares. Trustees: J. F. Black, W. H. Patterson and H. Ludea.

BAMBER'S EXPRESS CO.—Sept. 9. Capital Stock, \$100,000 in 1,000 shares. Trustees: John Bamber, Joseph L. Bamber, B. L. Taylor, H. P. Meader and R. P. Cleimcut. **DUCHE MILL AND M. CO.** No. 2. Lincoln County.—Sept. 15. Capital Stock, \$30,000 in 6,000 shares. Trustees: J. M. Martin, J. B. Matiu, R. Apple and P. McCannoh.

FALSADE SMELTING AND M. CO. Elko, Nevada.—Sept. 20. Capital Stock, \$460,000 in 1,400 shares. Trustees: T. J. Henley, E. F. Baldwin and S. A. Morrison.

The following have been recorded in the Secretary of State's office, Sacramento:

ORLEANS CONSOLIDATED M. CO. Nevada County.—Sept. 6. Capital Stock, \$210,000 in 2,100 shares. Trustees: T. W. Sigourney, A. B. Brady, O. Mallinan, T. Metu and C. P. Arington.

FOUR FORT M. CO. Sierra County.—Capital Stock, \$100,000. Trustees: O. Scheiffer, F. P. Heath and H. Elbery.

ARIEL G. M. CO. Sierra County.—Sept. 15. Capital Stock, \$20,000 in 1,000 shares. Trustees: O. C. Wilder and H. King.

COLUSA BANK. Colusa.—Sept. 16. Capital Stock, \$200,000 in 2,000 shares. Trustees: T. T. Good (President), O. Hogan, J. Boggs, E. Mills and H. Miller. W. F. Carrington, Cashier.

CALIFORNIA BEET SUGAR CO. Alameda County.—Capital stock, \$250,000 in 2,500 shares. Trustees: B. Flint, C. J. Hutchinson, A. D. Bonetate, E. R. Carpenter, E. H. Dyer, J. N. Rison and T. O. Phelps.

Meetings, Elections, Etc.

SUGGON M. AND M. CO., Sept. 16.—Trustees: P. J. White, J. M. Douglas, E. J. Moore, F. J. Shattuck and L. Teese.

ORIENTAL O. AND S. M. CO., Sept. 19, Trustees: J. W. Moyle (President), Charles Paes (Vice President), Chas. Melnick, T. Bagge, and M. Rudsdale (Secretary).

COSALA M. CO., Sept. 19.—Trustees: J. Mora Moss (President), C. Baum (Secretary), J. Wright, W. W. Areyand C. Melnick.

JENNIE A. CONSOLIDATED.—Trustees: E. M. Smith, I. Mulford (Treasurer), J. E. Purdy (President), T. R. Horton and T. S. Fitch, J. M. Bulington Secretary.

ARGENTA S. M. CO.—Trustees: John E. Dixon (President), George W. Stewart, T. J. Reilly (Superintendent) William Willis (Secretary), George W. Cope and J. W. Oashwiler.

Mining Shareholders' Directory—Meetings, Assessments and Dividends.

[Compiled weekly from advertisements in the SCIENTIFIC PRESS and other San Francisco journals.]

ASSESSMENTS

NAME, LOCATION, AMOUNT AND DATE OF ASSESSMENT	DAY	DAY
Alphac Co., G. H., July 13, \$1.....	Aug. 22—Sept. 1	
Belcher, G. H., Sept. 6, \$2.....	Oct. 10—Oct. 20	
Bromide Tunnel, W. P., Aug. 9, 10c.....	Sept. 13—Oct. 3	
Brush Creek, Sierra co., Aug. 5, \$2.50.....	Sept. 9—Sept. 29	
Cherokee Flat, Butte co., Sept. 10, \$5.....	Oct. 14—Oct. 31	
Crown Point, G. H., \$3.....	Sept. 6—Sept. 27	
Cosala, July 30, \$1.....	Sept. 17—Sept. 27	
Dever, Vanita, Storey, July 6, \$1.....	Aug. 10—Sept. 3	
Eagle, Sta. Barbara co., July 27, \$20.....	Sept. 18—Sept. 26	
Empiro, O. H., Aug. 4, \$6.....	Sept. 8—Sept. 29	
Empress, G. H., Aug. 4, \$6.....	Sept. 8—Sept. 26	
Gold Hill, G. H., Sept. 8, \$10.....	Oct. 13—Oct. 31	
Gould & Curry, July 14, \$12.50.....	Aug. 18—Sept. 12	
Ida Elmore, Idaho Ter., Sept. 10, \$5.....	Oct. 15—Oct. 17	
Kentuck, G. H., Aug. 27, \$5.....	Sept. 20—Oct. 17	
Kincaid Flat, Tuol. co., July 20, \$25.00.....	Sept. 24—Sept. 14*	
Landwanna, W. P., Aug. 15, 15c.....	Sept. 14—Oct. 3*	
Lata Purchasers' Ass'n.....	Aug. 8.....	Aug. 30—Sept. 24
Meadow Valley Ex., Sept. 10, 50 c.....	Oct. 25—Nov. 21	
Mountain City, Elko co., July 14, 25c.....	Aug. 29—Sept. 26*	
Norway, W. P., July 20, 20c.....	Aug. 24—Sept. 30*	
Nevada & M. W. P., Aug. 11, 2c.....	Sept. 14—Oct. 10*	
North America Cons., July 16, 5c.....	Aug. 17—Sept. 17*	
Ophir, Virginia City, Sept. 9, \$3.....	Oct. 13—Nov. 2	
Hidden Treasure, W. P., Aug. 27, \$2.....	Sept. 30—Oct. 20	
Pinto, W. P., July 22, 10c.....	Aug. 25—Sept. 16*	
Silver Sprout, Inyo Co., Aug. 29, 25c.....	Oct. 18—Dec. 1	
Segregated Belcher, W. H., Aug. 25, \$1.50.....	Sept. 28—Oct. 18	
Silver Vault, T. & M. W. P., July 20, 5c.....	Aug. 25—Sept. 15*	
Tecumseh, Calaveras co., July 26, \$3.....	Sept. 20—Oct. 20	
Wheeler, Esmeralda co., Nev., Aug. 25, 50c.....	Sept. 20—Oct. 20	

MEETINGS TO BE HELD.

Chicago and Detroit Cons.....	Annual Meeting, Oct. 3
Eureka.....	Special Meeting, Oct. 20
Nevada Cons.....	Annual Meeting, Oct. 10
La Blanca.....	Annual Meeting, Oct. 10*
Manchester.....	Annual Meeting, Oct. 3
Meadow Valley Extension.....	Annual Meeting, Sept. 27
North Star.....	Annual Meeting, Sept. 26
San Felipe.....	First Meeting, Sept. 30
Segregated Belcher.....	Annual Meeting, Sept. 19
LATEST DIVIDENDS—(Within Three Months)	
Eureka, div., \$7.50.....	Payable August 1, 1870
Hale & Norcross, div., \$5.....	Payable Sept. 10, 1870
Sierra Nevada, div., 50c.....	Payable Sept. 16
Union, div., \$1.....	Payable Aug. 6, 1870

*Advertised in this journal

Our Agents.

OUR FRIENDS can do much in aid of our paper and the cause of practical knowledge and science, by assisting Agents in their labors of canvassing, by lending their influence and encouraging favors. We intend to send none but worthy men.

Traveling Agents.

WM. H. MURRAY—Montana, and Utah.
S. H. HERRING—California.
J. M. WOLF—Oregon.
L. P. MCCARTY—California.
L. MINER—Nevada, and Colorado.

LEFT UNEXPECTEDLY.—We have been told on good authority that Mr. Kelly, who announced himself as editor of a proposed new agricultural paper, at Sacramento, has left without issuing the first number. We presume the field did not promise well enough for him to go farther with his operations—a fortunate thing, probably, for others than himself, i. e., cash in advance subscribers and persons who were expected to furnish funds in these dry times.

CONTINENTAL Life Insurance Co., 302 Montgomery street, corner of Pine.

Farming and Gardening.

COMMUNICATIONS for this department are solicited from all parts of the Pacific States and Territories.

Improved Sheep for California.

We would call especial attention to a notice in another column, from the *Omaha Herald*, of a flock of Cotswold Sheep, recently brought to this State, via the C. P. Railroad. These sheep were on exhibition at the late Sacramento Fair, where a portion of the flock was sold, and the remainder taken to Stockton for exhibition at the Fair now in progress there. We understand that some eight or ten of our best stock growers made purchases at Sacramento, and we presume the most or all of the balance of the flock will be taken up at Stockton and San Jose.

More Coming Next Spring.

We learn from Col. Saxe, personally, that he has 250 of these Kentucky Cotswolds (lambs of last spring) which he will bring to this State next spring, before shearing, and will hold shearing parties in different parts of the State, and show our wool growers the beauty and profit of this brand of sheep.

We understand that the Colonel and his family propose next year to come and take up their permanent residence here, where he proposes to become an extensive breeder and producer of sheep and wool. He will also start moderate sheep folds in Colorado, near Denver; in Nevada, vicinity of Reno, and in Utah, south of Salt Lake City, with the view of proving the various localities, as to climate, grasses, etc. Col. Saxe is entirely and devotedly in earnest in his work, and has the material in head, heart and pocket to warrant success in his efforts.

Ever since the first introduction of Cotswold sheep into this State they have been coming more and more in favor with our sheep growers, both as wool-bearers and for mutton. The first cost of obtaining this improved breed is the only extra expense, as they will thrive on our native grasses even better than our common stock. They are better and coarser feeders, more prolific, and come as early to maturity as any other breed. Being more hardy than our common sheep, they require less skill and care, and are better fitted to endure the hardships of scanty feed and water, and exposures to the pelting and continuous winter rains of California, without shelter.

The fleece of the graded Cotswold is worth one third more than that of the common short-wool breeds, and is much sought after for its silkiness and excellent combing qualities; while the carcass is from 33 to 50 per cent. heavier and makes a better mutton. Stock raisers on this coast are now very generally realizing the necessity of improving the breeds of all classes of stock, and in nothing more than sheep; and in closing we would not fail to urge upon our California farmers, the importance and advantage of keeping, at least, a few sheep on every farm. They will thrive on what would be otherwise absolutely wasted; and while they give but little trouble and next to no expense, they furnish a very acceptable supply to the table. Moreover, 50, 100 or 200 fleeces of wool annually, will do much towards paying the annual cash expenses of a farmer's household. It requires but little capital to begin with, and if you start right, your increase in a few years will be enormous in the generous and eminently prolific climate of California.

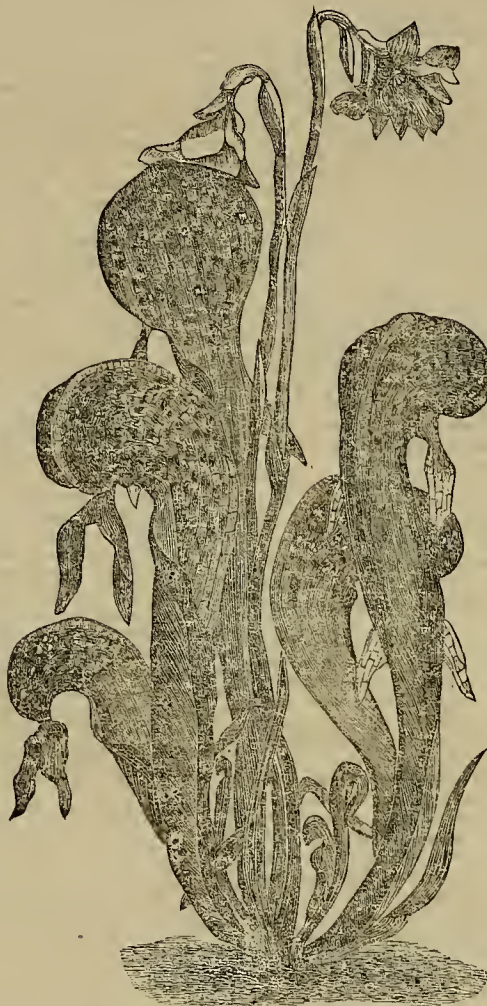
EARLY RAINS.—There are many indications that we are to have an early setting in of the rainy season, and it behoves farmers who have grain exposed to make early preparations to place it under cover. Large amounts are lost, every year, from neglect in this particular.

The California Pitcher Plant—*Darlingtonia Californica*.

Among the many new and interesting contributions to botanical science which have been furnished by the flora of California, we may mention the *Darlingtonia*, an accurate illustration of which has been prepared by our engraver, and herewith presented. It is more commonly known as the "California Pitcher Plant" or the "Fly-trap Plant." Our drawing has been reduced to a little less than one-half the natural size.

This plant inhabits low, marshy, wet places. It is a native of this State, and was first discovered at the foot of Mt. Shasta, by Mr. Brackenridge, assistant botanist of the Wilkes Exploring Expedition. Dr. Torrey first described and named it after the emi-

Torrey, via Panama, which were placed in the hands of several florists, none of whom succeeded in making them grow. Later in the season, however, its successful cultivation in England was announced. During the summer of 1869 Prof. Henry of the Smithsonian Institute and Dr. Torrey, not despairing in their efforts to succeed in the cultivation of this plant at the East, sent to the Agent of Wells, Fargo & Co. at Nevada for more specimens of the plant, which were immediately obtained at Moore's Flat, by Frank Henry, of Nevada, and forwarded to the Smithsonian Institute, via the Overland railroad. These plants arrived in fine condition, and it was one of them, if we mistake not, which showed the first bloom, on the Eastern side of the continent, much to the gratification of our New York florists, and which was



THE CALIFORNIA PITCHER PLANT.

nent, but now deceased American botanist, Dr. Darlington, of West Chester, Pa. It takes its popular name from its pitcher-shaped leaves, which are of a bright, mottled green color. The curious wattle-like appendages, which drop from its leaves are bright red, shaded with green. The flowers which appear in early spring are about two inches in diameter and of a pale purple color.

This plant flourishes and blooms freely in many parts of the State, and especially about Moore's Flat, in Nevada county. Dr. Torrey, who wrote the botanical reports of the Pacific Railroad Survey, says "it is one of the most remarkable of all vegetable productions and its acquisition would exceedingly gratify the botanists of this country and Europe."

Gen. Fremont furnished the Smithsonian Institute with some dried specimens of the plant many years ago, and some seven years since Prof. Brewer, then of the Cal. Geological Survey, sent an abundance of seeds to various parties at the East, only a few of which germinated; and the plants that did show themselves never attained any considerable size. Early in the spring of 1869, some living plants were sent to Dr.

duly noticed in the issue of the *SCIENTIFIC PRESS* of the 14th of June last. It was from this specimen that the *New York Agriculturist* obtained its drawing, which we herewith reproduce for the gratification of our California readers, together with the above brief history of the discovery and introduction of the plant into the Eastern States. The plant should be grown, in a close, damp atmosphere and kept in a moderate shade. It requires much water.

IMPROVED BREED OF SWINE.—Mr. Chas. E. Shillaber of Cornelia, Solano county, has recently received from Kanoville, Ill., a thorough bred Poland Spotted Chinese boar pig, three months old, and weighing 75 lbs. Quite too little attention has hitherto been paid in this State to the improvement of swine.

DISEASES IN ANIMALS, like diseases in the human body, are often rendered fatal by neglecting to notice the premonitory symptoms, and providing suitable and early remedies.

GRASSES as well as wheat may be cut too green, and may also be cut too ripe.

No man so well understands farming as he who has made poor land rich, and he will keep it rich. He is like one who has earned a thousand dollars.

"Cotswolds"—Thorough Bred!

The *Omaha Herald* of the 8th inst.—having interviewed the person in charge of the stock writes, as follows:—

"There arrived in this city, yesterday, the largest, finest lot of thorough-bred sheep ever seen in this western country. They are of the "Cotswold" breed, and consist of forty-four bucks and twenty-one ewes, the owner being Col. Peter Saxe, of Troy, New York. These sheep are now at the stock yards of the Union Central Railroad, and will be shipped for California at 6 o'clock this evening. They were bred by eleven different planters of Bourbon county, Ky., and were purchased by Col. Saxe of Hon. George M. Bedford, (and others) of Paris, Ky., an extensive breeder of horses, cattle, Cotswold sheep and Berkshire hogs, and who is conceded to be the greatest breeder of fine stock in the United States. A portion of these sheep were bred in England, one in Canada West, and the remainder in Kentucky. They all descended from sheep bred by English breeders, among whom are Lane, Langston, Gillet, Slater, and others. They are square shaped, and of great weight, having heavy fleeces of superior "combing" wool—an article now in great demand, both in England and America. The ewes are yearlings and two-year olds, and weigh from 190 to 270 lbs. each. The bucks are from one to two years old, weighing from 225 to 356 pounds each. They are all grass fed sheep, never having been grained at all. They shear from twelve to eighteen pounds to the head, the wool being 8 inches in length, at shearing time, of the finest texture.

This is the largest exportation of thorough-bred sheep over made from Kentucky, and includes the best and most valuable of the Cotswold stock in that State. Col. Saxe has written a guaranteed pedigree of each animal, giving all the weight, value, and the amount sheared from them. These documents are substantiated by the endorsement of the officers of the bank of Northern Kentucky, and there is no question regarding their accuracy and truthfulness.

The above is a condensed statement regarding the sheep now in this city, en route to the Pacific coast. Those who have visited the stock yards are enthusiastic over their beauty, and great astonishment is universally expressed by all who have seen them, the invariable opinion being that they are the most valuable animals that have ever crossed the Missouri river. They will be exhibited by Col. Saxe, at the coming California State Fair, and will, without doubt, command the highest premiums in the different grades for which they will compete. A sheep weighing nearly 400 pounds, and yielding as high as eighteen pounds of the best and finest wool, will certainly be looked upon as something remarkable in that State, and will be an invaluable acquisition to the stock of the Pacific coast. It is the intention of their owner to dispose of them to breeders there for the purpose of effecting a cross between the Cotswold breed and the Merino stock which prevails in that country. They will be shipped in two cars, which have been fitted up expressly for the purpose. Those of our citizens who desire to see the finest lot of sheep ever collected in this country, should avail themselves of the opportunity now offered. Col. Saxe will remain for a day or two in our city, previous to his departure for the land of gold.

GRAFTING THE TOMATO ON THE POTATO.—A correspondent of the *Horticulturist* states that he succeeded, perfectly in grafting a scion of the tomato upon the potato vine. He cut about one-third of the tomato shoot off, just below the leaf, taking care not to injure the buds at the base. The scion, being shielded from the sun, was every day sprinkled with a little water, and it took readily. In the fall the tomato was loaded with ripe and unripe fruit, and had grown to a large size.

A TEST OF VITALITY IN SEED.—While in conversation with a most excellent, lifelong, successful farmer, L. D. Votaw, he assured us that by plying almost any of the larger seeds on a hot pan or griddle where the vitality of the grain was perfect the grain would pop, or crack with more or less noise.

Where the vitality is defective or lost it lies immovable in the vessel. This is a very simple test and will be of much value if authenticated by extensive experiments. We have used the hot water and the acid tests for germination, but never the "trial by fire." Let us all try it.—*Colman's Rural World*.

A California Dairy Ranch.

Judge S. B. Noyce, one of the late agricultural party from the East, was invited while here, in company with Mr. X. A. Willard, the Dairy Editor of the *Rural New Yorker*, to visit the celebrated Dairy Ranch of Mr. Chas. W. Howard, in Marin county. We give below his interesting description of this extensive property:—

The ranch or farm of Mr. Howard which we are now to visit, is a tract of seventy thousand acres, having a line of fifty miles of Pacific Ocean coast.

Twenty-one dairy farms are already organized and stocked, averaging one hundred and fifty cows each. There is capacity for one thousand and five hundred more cows. The buildings on the several farms cost on the average of \$4,000. Look on Bancroft's map of California and find it bounded on the west by Drake's Bay, Point Reyes and the Pacific Ocean, on the east by Tomales Bay.

After lunch we go on again, and coming to the dairy farm we go through it. Mr. X. A. Willard, here makes careful inquiry. Here were one hundred and sixty-five cows. They are milked twice daily and are turned out at night as by day to feed. The milk is poured all into one can, and then set in pans on racks in a room of even temperature. The cream of each milking is put together in a large square wooden churn which is turned by horse power, the skimmed milk and the buttermilk are fed to hogs. The butter is worked by Capt. O. Allen's butter worker, and is moulded into two pound lumps, each covered by white cotton cloth, stamped and packed in boxes and sent fresh to San Francisco by small schooners. The work is done by men entirely. The milk is set from thirty-six hours to forty-eight hours, skimmed before it sours; the cream is allowed to become a little acid before churning. About one ounce of salt to a pound of butter is used.—Liverpool salt, which costs from \$30 to \$55 per ton.

The Home Ranch Dairy.

About 3 o'clock P. M., we arrived at the Home Ranch of our princely host, distant ten miles from Olema west. This comprises three thousand acres; four hundred and thirteen cows; one hundred and fifty horses for work, saddle, lasso horses, and a thorough bred English stallion. On this farm were pasturing, two hundred head of beef cattle and four hundred heifers to make cows. The cattle are sold at three years and upwards to San Francisco—bring from \$40 to \$60 per head.

The two year old heifers yield an average of three-fourths of a pound of butter per diem; old cows from one pound to one pound and one-fourth per day for the season, which brings thirty cents (gold) in the market. From twelve to sixteen men are employed here for six months in the year at \$30 and board per month. The only fodder cut is green oats, about one hundred tons yearly on about fifty acres. We were shown a herd of heifers, one hundred and fifty-two head—which have one thousand and two hundred acres to feed on—fifty of these were three years old; one hundred and two, two years old; one hundred and twenty-three "came in" last spring, which made a pound of butter daily this season; at four and five years they will make one fourth pound per day, and two hundred pounds per annum each.

Some of the butter is packed in barrels in brine. Each farm churns daily about fifty-six pounds. The pastures are covered with the "Bunch" grass which grows all the season when there is moisture enough and is fair feed when dry.

We dined at the Home Farm, and the dinner, provided by the two Chinamen, who had the whole care of the home under the direction of Mr. R. W. Nichols, superintendent, was a grateful repast.

I slept soundly, and was awakened just before sunrise by the song of the martins, whose box was close under the eaves near my window.

At six o'clock, A. M., on the morning of August 2d inst., we had breakfasted, and with a fresh team, two mules on the pole, and two bold yet steady going horses on the lead, we left the home farm for a further examination. There were upwards of one hundred and fifty miles of fence on the tract, all made from wood picked up by wreckers on the Pacific coast. The lumber booms from Oregon break up and the timber drifts on the coast. It is split into slabs or staves four or five inches in width, which are driven into the ground about one inch apart, making a fence, pig tight, about six feet high and fastened along the top by slabs. This fence never rots, and

is not started by the post, for there is none; its costs about \$400 a mile.

Mr. Howard started these dairy farms, of which we visited seven, with common American stock. He then imported two five Short-horns from Vermont at an expense of \$1500. The same year imported a herd of sixteen Devons. This was a failure. They were not of the right class. They didn't shew well over the pail, and he discarded them. He is now breeding Shorthorns—half breed and thoroughbred Shorthorns. He now uses nothing but thoroughbred Shorthorns which deteriorate in size—which Mr. Howard said substantiated the theory of Dr. Loring on this point.

Mr. Howard lets the cows to the tenants of the farms at from \$25 to \$30 a cow per annum, and furnishes all the buildings; allows about ten acres to a cow. Tenants furnish everything except land, buildings and cows. One-fifth of the stock they raise for him. The hogs they sell for from six cents to eight cents per pound on foot.

The oats are cut just before they are ripe and fed to the stock, commencing about the middle of July and fed till the rains commence about Nov. 1st. He ploughs for oats in November and puts in the seed in December, sowing about one hundred and fifty pounds to the acre. Stock are fed only when it is very hot or windy. In mild days when the stock can get about, do not feed. Some seasons cows do not require feed at all. Thermometer in winter averages about sixty degrees Fahrenheit. Stock runs out all winter. Cows come in, in December and till March; want them all in by April.

What I Know of Farming—No. 36.

Stones on a Farm.

This earth, geologists say, was once an immense expanse of heated vapor, which gradually cooling at its surface, as it whirled through space, contracted and formed a crust, which we know as rock or stone. This crust has since been broken through, and tilted up into ranges of mountains and hills, by the action of internal fires, by the transmutation of solid bodies into more expansive gases, and the fragments torn away from the sharper edges of upheaved masses of granite, quartz, or sandstone, having been frozen into icebergs floating, or soon to be so, have been carried all over the surface of our planet, and dropped upon the greater part, as those icebergs were ultimately resolved, by a milder temperature, into flowing water. When the seas were afterward reduced nearly or quite to their present limits, and the icebergs restricted to the frigid zones and their vicinity, streams had to make their way down the sides of the mountains and hills to the subjacent valleys and plains, sweeping along not merely sand and gravel, but boulders also, of every size and form, and sometimes great rocks as well, by the force of their impetuous currents. And, as a very large, if not the larger, portion of our earth's surface, bears testimony to the existence and powerful action through ages, of larger and smaller water-courses, a wide and general diffusion of stones, not in places, but more or less triturated, smoothed and rounded by the action of water, was among the inevitable results.

These Stones are sometimes a Facility,

But often an impediment, to efficiency in agriculture. When heated by fervid sunshine throughout the day, they retain a portion of that heat through a part of the succeeding night, thereby raising the temperature of the soil, and increasing the deposit of dew on the plants there growing. When generally broken so finely as to offer no impediment to cultivation, they not merely absorb heat by day, to be given off by night, but by rendering the soil open and porous, secure a much more extensive diffusion of air through it than would otherwise be possible. Thus do slaty soils achieve and maintain a warmth unique in their respective latitudes, so as to ripen grapes further North, and at higher elevations than would otherwise be possible.

The great prairies of the West, with a considerable portion of the valleys and plains of the Atlantic slope, expose no rock at their surfaces, and little beneath them, until the soil has been traversed, and the vicinity of the underlying rock, in place, fairly attained. To farmers inured to the perpetual stone-picking of New England, and other hilly regions, this is a most welcome change; but when the pioneer comes to look about him for stone to wall his cellar and his well, to underpin his barn, and form the foundations of his dwelling, he realizes that the boulders he had exulted in leaving behind him were not wholly and absolutely a nuisance; glad as he was to be

rid of them forever, he would like now to call some of them back again.

Yet, the Eastern farmer to-day has fewer uses for stone than his grandfather had. He does not want his farm cut up into two or three-acre patches, by broad-based, unsightly walls, which frost is apt to heave into greater deformity and less efficiency; nor does he care longer to use them in draining, since he must excavate and replace thrice as much earth in making a stone as in making a tile drain; while the former affords shelter and impunity to rats, mice, and other mischievous, predatory animals, whose burrowing therein tends constantly to stimulate its natural tendency to become choked with sand and earth. Of the stone drains constructed through parts of my farm by foremen whose wills proved stronger than my own, but two remain in partial operation, and I shall rejoice when these shall have filled themselves up and been counted out evermore. Happily they were sunk so low that the subsoil plow will never disturb them.

Stony Ground for Timber Growing.

Still, my confidence that nothing was made in vain is scarcely shaken by the prevalence and abundance of stone on some of our Eastern farms. We may not have present use for them all; but our grandsons will be wiser than we, and have uses for them which we hardly suspect. I insist that land which is very stony was mainly created with an eye to timber-growing, and that millions of acres of such growth forthwith to be planted with Hickory, White Oak, Locust, Chestnut, White Pine, and other valuable forest-trees. Every acre of thoroughly dry land, lying near a railroad, in the Eastern or Middle States, may be made to pay a good interest on from \$50 up to \$100, provided there be soil enough above its rocks to afford a decent foothold for trees; and how little will answer for this purpose none can imagine who have not seen the experiment tried. Sow thickly, that you may begin to cut out poles six to ten feet long within three or four years, and keep cutting out (but never cutting off) thenceforward, until time shall be no more, and your rocky crests, steep hillsides and ravines, will take rank with the most productive portions of your farm.

In the edges of these woods, you may deposit the surplus stones of the adjacent cultivated fields, in full assurance that moth and rust will not corrupt nor thieves break through and steal, but that you and your sons and grandsons will find them there whenever they shall be needed, as well as those you found there when you came into possession of the farm.

Uses for Stone.

I am further confident that we shall build more and more with rough, unshapen stone, as we grow older and wiser. In our harsh, capricious climate, walls of stone-concrete affords the cheapest and best protection alike against heat and frost, for our animals certainly, and, I think, also for ourselves. Let the farmer begin his barn by making of stone, laid in thin mortar, a substantial basement story, let into a hillside, for his manure and his root-cellar; let him build upon this a second story of like materials for the stalls of his cattle; and now he may add a third story and roof of wood for his hay and grain, if he sees fit. His son or grandson will, probably, take this off, and replace it with concrete walls and a slate roof; or this may be postponed till the original wooden structure has rotted off; but I feel sure that ultimately, the dwellings as well as the barns of thrifty farmers, in stony districts, will mainly be built of rough stone, thrown into a box and firmly cemented by a mortar composed of much sand and little lime, and that thus at least ten thousand tons of stone to each farm will be disposed of. It may be somewhat later still before our barnyards, fowl enclosures, gardens, pig-pens, &c., will be shut in by cemented walls; but the other sort affords such ample and perpetual lurking-places for rats, minks, weasels, and all manner of destructive vermin, that they are certain to go out of fashion before the close of the next century.

As to hasting on stone, too large or too firmly fixed to be otherwise handled, I would solve the problem by asking, "Do you mean to keep this lot in cultivation?" If you do, clear it of stone from the surface upward, and for at least two feet downward, though they be as large as haycocks, and as fixed as the everlasting hills. Clear your field of every stone bigger than a goose-egg, that the plow or the mower may strike in doing its work, or give it up to timber, plant it thoroughly, and leave its stones unmolested until you or your descendants shall have a paying use for them.

How to get rid of Large Boulders.

A friend deeply engaged in lumbering

gives me a hint which I think some owners of stony farms will find useful. He is obliged to run his logs down shallow, stony creeks, from the bottom of which large rocks often protrude, arresting the downward progress of his lumber. When the beds of these creeks are nearly dry in Summer, he goes in, with two or three stout, strong assistants, armed with crowbars and levers, and rolls the stone to this side and that, so as to leave a clear passage for his logs. Occasionally, he is confronted by a big fellow, which dodges his utmost force; when, instead of drilling and blasting, he gathers dead tree-tops, and other dry wood of no value, from the banks, and builds a hot fire on the top of each giant boulder. When the fire has burned out, and the rock has cooled, he finds it softened, and, as it were, rotten, on the top, often split, and every way so demoralized that he can deal with it as though it were chalk or cheese. He estimates his saving by this process, as compared with drilling and blasting, as much more than fifty per cent. I trust farmers with whom wood is abundant, and big stones superabundant, will give this simple experiment a trial.—*Horace Greeley.*

VALUABLE REPORTS.—Both President Wilder and the party of pomologists which accompanied him, and the large Agricultural party which followed soon after, are making wide and extensive mention of what they saw and learned, while here, of the pomological and agricultural resources of California. These reports emanating from so high a source, will be received with the utmost confidence by parties at the East and elsewhere abroad. We shall take an early opportunity to make free extracts from these reports—one interesting item from which will be found in our issue to-day from the Massachusetts *Ploverman*.

DEEP CULTURE.—Mr. Dalton, of England, claims that he has, by careful examination, shown that where there is mellow soil for three feet below any crop, it can defy the severest drought, and come to maturity, without a drop of rain, after it has got a fair start. This shows that tillage may be made successful on our most arid plains, where there is fertile soil, by deep culture alone.

A GOOD IDEA.—The *Antioch Ledger* says the farmers in that section are busily engaged in plowing their land for the coming year. The object is to loosen the surface of the ground so that it will retain all the rain that may fall. This, in a measure, answers summer fallowing. Earnest and thorough work, only, is needed to secure good crops in this State in our driest seasons.

A NUMBER of valuable cows are said to have recently been poisoned in Fresno county by eating the buckeye plant.

San Francisco Market Rates.

Wholesale Prices.	
THURSDAY EVENING Sept. 22d, 1870.	
Flour, Extra, per bbl.	5 35
Do, Superfine, do.	4 62 1/2
Do, Corn Meal, per 100 lbs.	2 25
Wheat, per 100 lbs.	1 50
Oats, per 100 lbs.	1 15
Barley, per 100 lbs.	1 10
Beans, per 100 lbs.	1 75
Potatoes, per 100 lbs.	1 25
Hay, per ton.	8 00
Live Oak Wood, per cord.	10 00
Beef, extra, dressed, per lb.	7 10
Good, per foot.	2 00
Hogs, per foot.	6 00
Hogs, dressed, per lb.	7 1/2
GROCERIES, ETC.	
Sugar, crushed, per lb.	14 1/2
Do, Hawaiian, do.	11 1/2
Coffee, Costa Rica, per lb.	20 00
Do, Rio, do.	20 00
Tea, Japan, per lb.	60 00
Do, Green, do.	60 00
Hawaiian Rice, per lb.	7 1/2
China Rice, per lb.	7 1/2
Coal Oil, per gallon.	41 1/2
Candles, per lb.	14 1/2
Overland Butter, per lb.	20 00
San Francisco Butter, per lb.	35 00
Butter, per lb.	12 1/2
Cheese, California, per lb.	12 1/2
Eggs, per dozen.	12 1/2
Lard, per lb.	15 00
Ham and Bacon, per lb.	15 00
Shoulders, per lb.	9 00
Retail Prices.	
Butter, California, fresh, per lb.	50 00
Do, packed, per lb.	40 00
Do, Oregon, per lb.	20 00
Cheese, per lb.	20 00
Oats, per lb.	25 00
Honey, per lb.	50 00
Lard, per lb.	18 00
Ham and Bacon, per lb.	22 00
Frankfurters, per lb.	1 00
Potatoes, per lb.	2 00
Tomatoes, per lb.	2 00
Apples, No. 1, per lb.	4 00
Pears, Table, per lb.	10 00
Plums, dried, per lb.	10 00
Figs, dried, per lb.	10 00
Oranges, per dozen.	1 00
Lemons, per dozen.	75 00
Chickens, split, per lb.	10 00
Turkeys, per lb.	25 00
Sm. Pale and C. do.	10 00
Safe, Castile, per lb.	12 1/2

Scientific Press.

W. B. EVER..... SENIOR EDITOR.

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San Francisco:

Saturday Morning, Sept. 24, 1870

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Our Printed Mail List.

Subscribers will notice that their names are printed on colored paper and pasted upon each copy of the PRESS. This is done by machinery, to expedite the issue of our paper, the regular edition of which has become too large to be convenient to send out by the old method of writing the names. The figures found on the right of the pasted slips represent the date to which the subscriber has paid. For instance, 21st 70 shows that our patron has paid his subscription up to the 21st of September, 1870; 4jy71, to the 4th of January, 1871; 4j10, to the 4th of July, 1870. The inverted letters occasionally used are marks of reference, simply for the convenience of the publishers.

In setting up the list the compositor made some few errors which have been rectified by a careful revision and comparison with the mail book. If errors in the accounts of subscribers occur at any time an early notice will secure their immediate correction.

We believe this to be the first introduction of this system of mailing in California, and we consider it a valuable improvement.

The San Joaquin Agricultural Fair.

The pavilion in which the articles on exhibition are placed is a commodious wooden structure, newly erected for the purpose, in a central part of the town. The decorations are very scanty, but quite cheerful, and the display of pictures, drawings, paintings, ornamental pieces of various kinds, and fabricated goods, etc., are so arranged as to aid very materially in the effect of finish.

A beautiful pyramid of green house plants in the center of a round table, laid out with cut flowers elegantly arranged, is quite a feature in the center of the pavilion. Above and upon the posts around are evergreen trimmings and festoons which add much to the effect. The display of fruit is better than anything shown at San Francisco, Marysville, or Sacramento. The showing is not so large; but it is exceedingly fine. The size and beauty of the apples, pears, and grapes are superior to anything shown elsewhere. A more detailed description must be deferred till our next; as space will not allow more mention this week.

SAN DIEGO.—The postal authorities have changed the post office designations of New and Old San Diego. The former is to be called hereafter San Diego; the latter, North San Diego.

Notes on the State Fair.

In our mention here of articles on exhibition, we shall only note such articles as we were able to examine and obtain information upon, during our brief visit.

One of the best signs observed at the fair, is the introduction of some entirely new industrial products of this State—for instance, we observed some nicely polished wagon hubs, 12 inches in diameter, made of black locust by E. Soule, of Sacramento. The wood we understand, is very sound, tough and desirable, and was grown in Sacramento, since the year 1854. It shows we can raise superior hardwood timber, and very rapidly too.

Among the plows exhibited, our special attention was called to a gang, exhibited by Matteson & Williamson, of Stockton, invented by Mr. Murray, constructed mostly of iron. It is not in the least complicated, but appears complete, both in principle and construction.

E. W. Walton's patent horse hoe, is a novel looking instrument for cutting weeds just below the surface. It is a labor saving thing, likely to come into general use when its advantages for the cultivation of our peculiar soil are better understood. He also exhibits a new, cheap and neat operating gang plow, a goodly number of which have been manufactured for sale by Knapp & Grant, of San Francisco.

Stockton's patent rock drilling machine makes good progress in hard stone. The drill is raised by a cam and tappet against an adjustable spring, which sends the drill down with the regulated force desired. It is revolved by a screw, and the whole device is strong and complete. It is worthy of a test in our stone quarries, and a more thorough trial than it has yet had in the mines.

MESSRS. TREADWELL & Co., of San Francisco, exhibit, besides their general display of agricultural implements, one of Hoadley's farm engines styled the "Cinderella." Its lightness and completeness are claimed to specially recommend it for farm use.

W. H. Keep exhibited three sizes of his patent suction and force pump, invented and manufactured at the Globe foundry in Stockton. They worked well and easily. The air chamber on one size has an instantly adjustable vent, or air escape, by which the pump is made to throw a steady stream and obviate the objection raised to the ordinary force pump when employed for house use.

M. & A. Wilcox, of Sacramento, whose direct acting water lifters have been illustrated in the PRESS, display a moveable lifter, showing the manner in which the apparatus may be suspended by chain and pulley in a mine, or shaft, and the water taken up through a flexible tube or hose.

John A. Ball, of Grass Valley, has a new water elevating apparatus for common wells. Roughly constructed, yet it operated favorably. He employs two endless chains passing over two chain wheels set a foot or so apart on the same shaft. Between the chains are hung two buckets, so arranged that while one descends on one side of the shaft, the other bucket arises on the opposite side. A self-operating valve placed in the bottom of the bucket allows the water to escape through a spout beneath the bucket, by which it is directed into a pail or other receptacle at the side of the well. The valve is operated in a simple manner just previous to the turning of the bucket over the chain wheels. Mr. Ball's elevator for ditching and embanking purposes, erected on the fair grounds, was too rude an affair to demonstrate the efficiency of his patented device for which he claims extraordinary merits.

Of Marvin's harvester, operated on the fair ground, we expect to speak hereafter. Ten machines have already been constructed, by Mateson & Williamson, of Stockton.

D. L. Perkins, of Sherman Island, shows a variety of choice seeds. The demand for California raised seeds in the East is increasing, and when the advantages of purchasing our seeds in the East is better and more generally known, the demand will increase immensely. Mr. P. has sold some tons of sugar beet seed to the Alvarado beet sugar company, at 60c per lb. If he had preserved a larger amount, he could sell it equally well. To dispel the erroneous idea that excellent grapes could not be raised on the reclaimed tule lands of Sbermen Island, Mr. Perkins brought a fine display of that fruit, showing a fine growth, and sweet and pleasant flavor.

Wilkie Darling, of San Francisco, who makes the sale of steam lubricators, self oilers, and other like apparatus a specialty, displayed a good variety of improved machinery in his line. Further items next week.

"CAN'T AFFORD IT" is the reason given by many subscribers for stopping their paper. Before acting on such an assumption let any subscriber of the PRESS ask himself, with a little reflection if he has not already, during the year, gathered information from our columns whereby he has or might have saved or gained more than the cost of subscription. It is our aim to place before our readers valuable and profitable information. We aim to make the PRESS a journal which intelligent, thinking readers cannot afford to dispense with. We know the times are hard and money is scarce, and the few who do discontinue their subscriptions to this paper do it with much reluctance, and often with many apologies and encouraging remarks; we would ask such if they cannot find other and less useful points of curtailment in the necessary reduction of expenses. A word to the wise, etc.

MECHANICAL TYPE SETTER.—We have received from Orren L. Brown, 30 and 40 Hanover street, Boston, a description of his Type Setter and Distributer. According to the description, the Setter has set, with inexperienced hands, as much as twelve hundred ems of solid brevier, or the like amount of long primer, in an hour. This Setter was perfected some five years ago, but the necessity of a Distributer proved a bar to its extended usefulness. Mr. Brown has now invented a Distributer, which, he avers, is successful and satisfactory both in its principle and operation, and renders his device complete. As one half of the cost of books and periodicals consists in the labor of setting type, Mr. Brown's machine, if equal to the requirements of simplicity and rapidity, ought to meet with most extended use; and the price (\$300 for the Setter with case for 60 letters, and \$700 for the Distributer with 30 receiving channels) cannot be called any too high.

MONITOR REDIVIVUS.—We understand that the Monitor, known also as the "Haunted" mine, El Dorado county, stands an excellent chance of waking up to activity after its various vicissitudes of fortune. Mr. Furman R. Wilson, he of the steam stamp mill, has been experimenting on the ore, and thinks of taking it in hand. That he may be successful is the wish of the PRESS and of all interested in the mining developments of our country. The old mine doesn't appear to be played out yet.

POLYTECHNIC LECTURES.—Prof. Ezra S. Carr, Professor of Agriculture of the State University, will deliver a Lecture at the Mechanics' Institute Hall, 27 Post street, in this city, on this (Saturday) evening, at 7½ o'clock. Subject—"Industrial Education." The professor is one of the best lecturers on popular subjects on this coast, and this one cannot fail to be of general interest. We understand that the series of lectures by Prof. Carr will be continued, though experiments in the least dangerous will be omitted in the future.

Mechanics' Institute—Quarterly Meeting.

The regular quarterly meeting of the Mechanics' Institute was held on Saturday evening of last week.

President Hallidie presented his quarterly report, embracing the reports of officers and committees. During the past year \$5,000 has been expended for new books, \$2,000 for repairs to the building, and \$10,000 on the mortgage. The amount now due on the mortgage is \$40,000. The rate of interest had been decreased, saving thereby \$66 60 per month. The number of members is constantly increasing. The plan of organizing clubs of members for special purposes was referred to approvingly. In that way clubs for the study of engineering, ship-building, discussion or music might be rendered effective, and at the same time strengthen the Institute.

The Library committee reported 601 books added by purchase and 14 by donation. Since the 1st of June, 84 members had joined the Institute.

The Treasurer reported the receipts of the past quarter to be \$3,517 14; disbursements, \$3,288 99.

The Horticultural Exhibition yielded \$7,382 80; disbursements, \$6,000.

The consent of the Supervisors had been obtained to the retention of the Pavilion on Union Square, until November 1st, 1871. The next Fair would have to be held earlier than usual in the season, in order to insure the removal by that date. In the opinion of the President of the Institute, a lot should be purchased at some favorable locality, and, as soon as practicable after the next Fair, a new building erected at a cost of \$150,000. Legal measures not yet decided, had been taken to compel the removal of the present Pavilion at once. Counsel had been engaged to defend the interests of the Institute.

At the conclusion of the report of the President, the Institute adopted a resolution to hold a Fair in 1871, and giving the Board of Managers the authority to arrange all details.

The chair announced that Charles A. Hoff had been selected by the Board to fill the vacancy caused by the resignation of Mr. Hammond.

Mr. Ward inquired if ladies were entitled to the privileges of the reading-room the same as men, and the chair answered in the affirmative. Adjourned.

A NEW PAPER. The junior editor of the PRESS, who knew not previously that his fame had reached so far, acknowledges the receipt of the Petaluma Daily Crescent. After a careful perusal of that paper, he feels disposed to say that the Crescent "will do," and that, if it continue as ably edited as are these numbers, and as wide awake to the varied interests of Petaluma, it must succeed. We see that it is alive to the benefits conferred by a railroad.

INDIAN WAR IN ARIZONA.—Letters from Tucson give items of nine persons, besides an unknown number of Mexicans, killed, and trains and stages destroyed by the Indians in Arizona during August. Tucson is in a state of siege except for strong parties. Gov. Safford has called for volunteers and the citizens are to take active measures to compel the cessation of these warlike acts. May they succeed.

MONTANA TERRITORY.—The population of Montana, according to the census returns is, 20,580. The Indians are estimated at 18,000. The Chinese constitute one-tenth of the population. Helena has 3,713 inhabitants.

At the coming fair of the Colorado Territorial Agricultural Society, four Gold Medals, eighteen Silver Medals and twenty-four Diplomas are offered for exhibits of ores of various kinds.

Our Home Industries.

Manufacturing and Preserving Building Stone.

Many of our readers have doubtless noticed, in walking about the city, that the stone of many buildings is gradually decaying or becoming discolored, which is the first step towards decay. This is a matter which has attracted attention in large cities from time immemorial and is of the greatest importance wherever there is any chance for architectural ornamentation. Numerous inventions have been made from time to time of processes for the preservation of building material, and we have a list of patents of such, which are of the most varied description. The use of soluble silicates has been tried in various ways, and has long promised well. But the only really, practically successful process of which we know, is that of Mr. Frederick Ransome, formerly of Ipswich, England, but now of London, who for twenty-six years has been at work manufacturing stone and has, in this time, improved and perfected his method until he has achieved a grand success.

The Pacific Stone Manufacturing Co.

Some two years ago, a company was organized in this city and bought Mr. Ransome's patents (for they are many in number) for California. They erected works on the corner of Turk and Larkin streets, and tried to manufacture stone according to this method. Although they received quite a number of orders, yet they were not wholly satisfied with their efforts and never allowed a stone to go from their works. Finally the Secretary, Dr. Wm. B. May, went to England, and succeeded in inducing Mr. Ernest Leslie Ransome, who has been interested for years in the manufacture and has himself made a number of improvements, to come to California for a year, in order to superintend the manufacture. We had the pleasure of a call from Mr. Ransome a short time since, and made a return call at the factory this week.

The Ransome process, our readers will remember from articles which have previously appeared in the Press, consists briefly in firmly cementing particles of sand by an insoluble silicate of lime, this insoluble silicate being formed by the action on one another of two soluble bodies,—silicate of soda and chloride of calcium,—which form silicate of lime (insoluble) and chloride of sodium (soluble). We now propose to show at length

How the Process is here Conducted.

The first thing is to make the soluble silicate of soda. Pieces of quartz are placed in an iron boiler, into which is introduced a solution of caustic soda. This is heated by steam pipes passing through the boiler, and when the soda has dissolved sufficient quartz, the formed silicate of soda is blown out into a reservoir and a fresh charge of caustic soda introduced; and this is continued until all the quartz is dissolved. The solution of soda silicate is allowed to settle in the reservoir, until free from any sediment, and is then carried over to another tank, where it is evaporated until it has a specific gravity of about 1.70 and has acquired a consistency as of treacle.

The next step necessary is to mix this substance with the proper materials for making a good building stone. As the hardest and most durable stone is that which contains the most silica, sand is taken for a basis, and for mechanical purposes, to fill up the interstices between the sand particles, a fine, powdery article is required. Finely pulverized sand, chalk and various other substances will answer the purpose. Here in California we have an excellent material provided by nature, the infusorial earth, an aggregation of minute particles of silica. That used in this instance comes from Calaveras county. The sand, which has been dried in a revolving cylinder over a fire, infusorial earth and silicate of soda are now thoroughly mixed in a pug-mill (something like a Chili mill), and then put in moulds of any form desired, and compacted by encreuf hand or machine pressure.

The third step consists in treating the blocks with a saturated solution of chloride of calcium. They are placed on a frame which is sunk in a tank of the solution until the blocks thereon are immersed in the liquid. Then a pipe (connecting with an exhaust pump) is inserted in a hole in the block (when this is allowable), or a funnel shaped nozzle fitted with a perforated plate, or some similar device, is placed

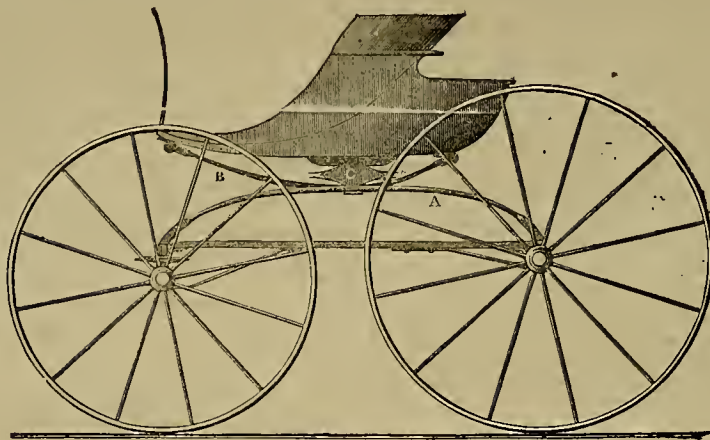
close against the block, and by exhausting the air, the liquid is forced to enter and pass through the pores of the stone. This completely saturates it with chloride of calcium, and the reactions above described take place. The blocks are now boiled in a solution of chloride of calcium, as this causes the stone to be much more durable and much harder, giving, it is affirmed, a more crystalline structure.

Finally the stone is placed under a sprinkler and water is showered upon it, or, by appropriate apparatus, water is forced or sucked through it, thus removing all soluble matter and leaving a rock composed almost entirely of silica and silicate of lime.

In making grindstones, the process is similar but the apparatus is different. Flint or other extremely hard matter may be taken for a basis, and the saturation takes place in peculiar moulds, which have a small reservoir for the chloride of calcium solution above and a false, perforated bottom, and exhaust pipe below. There are several other points not necessary to mention here.

Strength and Durability of the Stone.

In point of strength the stone thus formed is surpassed but by few, if any, natural rocks. Prof. Ansted, in tests made, found that a bar of this stone, 4x4 inches, resting on supports 16 in. apart, sustained a weight of 2,122 lbs. suspended in the centre, while a like bar of Portland stone (one of the best natural stones of England) broke at 759½ lbs. A four-inch cube of



HILLER AND ELLIOT'S IMPROVED CARRIAGE CONSTRUCTION.

this stone was found to sustain a weight of 30 tons before being crushed. Of the great strength of the stone there can be no question.

As regards its durability the same can also be said. Dr. E. Frankland made a series of experiments with reference to this point. We have not space to give the details thereof. But Dr. F. says, in giving the results, "I am induced to believe that Mr. Ransome has invented a material which, with the exception of the primary rocks, is better capable of giving permanency to external architectural decorations than any other stone hitherto used. There is nothing in the composition of the stone which would lead me to anticipate that it would suffer from exposure in the saline influences of the atmosphere upon the sea coast; on the contrary I should think it peculiarly fitted to withstand such influences."

Tested by exposure to the extreme atmospheric influences in Russia, the stone has given extremely good results. In India, where the building stone used has given especial trouble by its speedy decay, the British Government has bought the patent right and erected two establishments—at Bombay and Madras—so well convinced are they of the merits of the process. And long experience in England has given continued proofs in its favor. Manufactories for the production of this stone exist also in Australia, Belgium, Denmark and Sweden.

Preserving Stone—Ornamental Work.

On these points we could speak at length, had we space. Suffice it to say that the patents cover methods of coating stone or other material, or impregnating wood, etc., so as to preserve them from decay. Buildings much decayed have thus been restored with ease. Patents cover also the manufacture of colored ornaments, etc., etc.

The Pacific Stone Company is now fairly at work. They will take orders for stone for building or other purposes, for preserving natural stone from decay, and for rendering stone or brick walls impervious to

dampness. Their scale of prices is not wholly fixed as yet. But it is certain that they can furnish highly ornamental work, as mural decorations, fountains, monuments, etc., etc., at exceedingly low prices, and of many varied designs. The officers of the company are Alvinza Hayward, President; Dr. Wm. B. May, Secretary; Maj. O. C. Miller, Treasurer. The other principal stockholders are Gen. J. F. Miller, J. D. Farwell and W. H. Farwell. The office is at this factory, corner Turk and Larkin streets.

Improved Carriage Spring.

We have often spoken of the importance of improvements in the construction of vehicles, with respect both to the comfort of the person carried and to the ease of the draught animal. We have now another illustration of the kind, which is well worth the notice of those who are accustomed to ride considerably in carriages.

This consists in a certain arrangement of the springs and their connections, whereby all the motion imparted in traveling is given directly from the center of the body and combining suitably enclosed rubber springs with wooden ones, so that the carriage rides very easily and noiselessly. A glance at the drawing will show how this is effected.

which hold blocks of rubber which rest on the bolts. This is more especially necessary in the spring, B, as when the carriage body rocks forward and backward it causes considerable end motion, which the elasticity of the spring, G, would not be sufficient for.

The inventor having made strong claims for the excellence of his device, a representative of the Press was sent to test it. After a satisfactory experiment, he reports that for ease and comfort, he knows of no superior, if of an equal.

A patent for this improvement was granted Aug. 11th, 1870, through the Scientific Press Patent Agency, to John R. Hiller and Clark Elliott of Woodland, Yolo county, Cal., who may be addressed for any further information.

A Full List of Patents Issued to Pacific Coast Inventors.

(FROM OFFICIAL REPORTS TO DEWEY & CO., U. S. AND FOREIGN PATENT AGENTS, AND PUBLISHERS OF THE SCIENTIFIC PRESS.)

FOR THE WEEK ENDING SEPTEMBER 13TH.

GALLEY-REST.—Henry H. Gale, Eugene City, Oregon.

PERMUTATION LOCK.—Martial Heineque, San Francisco, Cal., assignor to himself and Alexander Stieger, same place.

SIDING FOR BUILDINGS.—Clerk Avery, San Francisco, Cal.

DEVICE FOR SECURING COVERS UPON SEWING-MACHINES.—John H. Mooney, San Francisco, Cal.

MOTIVE POWER FOR SEWING AND OTHER MACHINES.—Jacob Zuckermann, San Francisco, Cal.—Patent No. 87,020, dated February, 16, 1869.

NOTE.—Copies of U. S. and Foreign Patents furnished by Dewey & Co., in the shortest time possible (by telegraph or otherwise), at the lowest rates. All patent business for Pacific coast inventors transacted with greater security and in much less time than by any other agency.

Notices of Recent Patents.

Among the patents recently obtained through Dewey & Co.'s Scientific Press American and Foreign Patent Agency, the following are worthy of mention:

GANG PLOW.—Abram Ellison, Marysville. There are three points in this invention which are noticeable:—the device for raising the plow-frame, and therefore the plows, without the use of the ordinary crank axle, and with the greatest ease; the manner of adjusting the pole, so as to cause the plows to take more or less land, according to the necessities of the case; and the construction of the standard which connects the plows with the carriage. A description without a drawing would hardly be of use here. For the first purpose there is a peculiarly bent arm, bolted to a timber at one end and to a sweep at the other, in combination with a short axle, the sweep being of a peculiar construction; the pole is adjusted by means of a screw rod and nuts; and the standard has its lower end divided and separated, so as to be secured at two points to the landside.

IMPROVED LAMP. Emil Boesch. S. F. Our City Fathers have been making of late some few improvements with regard to the street lamps. There are still two prominent changes, which, if effected, would be of service. The quality of the gas used might be improved, and the light might be better utilized. Mr. Boesch's invention is in the latter direction. It consists in the application of improved reflectors, arranged so as to adjust them nearer or farther from the light and thus give it greater or less range as desired; in providing for a better draft, so as to increase the efficiency of the light; and in an improved method of retaining in place the glass slides, so that they can be removed or replaced readily. By this construction, moreover, the lighting and extinguishing is more easily accomplished than it is now, for the cock for turning on the gas is below and outside of the lamp, and by simply placing a flame inside the perforated reflector, the gas is lighted. The provisions for ventilation prevent any part from being unduly heated, or the flame from wavering or burning badly from want of the proper supply of air.

Reading for the Hour.

Tobacco Persecutions.

Modern lovers of the pipe know little, and think less, of the worthies to whom they are indebted for its free enjoyment; and of those who delight in nasal aliment, how few ever call to mind the Diocletian persecutions their predecessors passed through for adhering to their faith in, and transferring to their descendants the virtues of tobacco! Europe frowned and Asia threatened. Pagan, Mohammedan, and Christian monarchs combined to crush them. James I., foaming with rage, sent forth his "Counter-blast," the half-savage ruler of the Muscovites followed suit; the King of Persia, Amurath IV., of Turkey, the Emperor Jehan-Geer, and others joined the crusade. They denounced death to all found inhaling the fumes of the plant through a tube, or caught with a pellet of it under their tongues. Those who used it as a sternutative only were to be deprived of nostrils and nose. To perfect the miseries of the delinquents, Maffeo Barberini, elected Pope in 1623, went in state to the Vatican, where, trembling with holy anger, he shook his garments, to intimate that the blood of the offenders would be on their heads, and then thundered excommunication on every soul who took the accursed thing in any shape into a church. Loss of life for lighting a pipe! Mutilation for taking a pinch! Tortures here, and endless torments hereafter, for a whiff or quid of tobacco! One wonders how the sufferers managed to pass through the fire unscathed, or even to escape annihilation; yet most of them did escape, and they did more—they converted the Nehuchadnezzars who sought to consume them.

The measures adopted to exterminate the plant increased the demand for it, till it was sought for with an avidity that no penal enactments could suppress. Ladies joined their lords in smoking after meals, boys carried pipes in their satchels to school, and at a certain hour pedagogues and pupils whiffed together (not a bad subject for a painter). Mothers in the sixteenth century filled their sons' pipes early in the morning to serve them instead of breakfast. People went to bed with cigars or pipes in their mouths, and rose in the night to light them. All classes became customers; even priests were not excepted, provided they refrained till after mass. To accommodate travelers—poor and transient persons—"Tahagies," or smoking-houses, were licensed on the Continent in every marine and inland town, where sailors and itinerants could, on moderate terms, be made happy, either by inhaling the vapor of the popular stimulant or tickling their nasal membranes with it. The ambitious sought fame by associating themselves with the introduction of the plant and its cultivation; hence we find it named after cardinals, legates, and ambassadors, while, in compliment to Catherine de Medici, it was called the "Queen's herb." Kings now rushed into the tobacco trade; those of Spain took the lead, and became the largest manufacturers of snuff and cigars in Christendom. The royal workshops in Seville are still the most extensive in Europe. Other governments monopolized the business and reaped enormous profits from the plant, as all do at this day.

In taking leave of the pipe, respect for it might be claimed in behalf of science, since it was the earliest gaslight retort; and one of the authors of the steam engine received his first inspiration from it, and made his initial experiment with it.

Brazilian Indians were the "fathers" of snuff and its best fabricators. The simplicity of their milling and sniffing apparatus has never been surpassed. A leaf of the plant was folded up, laid on a small slab of rose-wood, and ground to powder by rubbing it to and fro with a stick of the same wood, the heat involved by the friction eliciting a delightful aroma from the wood. The sniffing device consisted of two leg-bones of a young crane or heron tied together, and mounted at one end with small wooden hubs. Soon as the triturating process is ended, the hubs are applied to the nostrils, and the other ends to the warm, scented dust, when a smart inhalation diffuses it, in a trice, over the olfactory palate. In Europe, snuff was named after the people from whom it was derived:

"Take out your box of right Brazil." (Pope.)

It was not until the Spanish article arose into favor that the original designation began to decline:

"Yourself for goose reject crow quill.
And for plain Spanish quit Brazil." (Ibid.)

—Amer. Artisan.

An Extensive Appetite.

The following is said to have appeared in *Nature*, which announcement will allow our readers to make as many puns on the subject as they may think fit. It is concerning a French soldier. His first exploit was to eat a basket of apples, at a friend's expense. On various occasions he swallowed a series of corks and other indigestible materials, which produced such violent colic that he was obliged to attend the Hotel Dieu, and, whilst being examined, almost managed to swallow the watch-chain and seals of the surgeon in attendance, M. Girard. Dssault, on the occasion of one of the attacks of colic, tried to frighten him out of his gross habits, by declaring that it would be necessary to open his stomach, and arranged the instruments. He ran away and relieved himself by copious draughts of warm water. Soon after, he found that his appetite had really increased to an excessive amount, probably owing to the continued irritation produced by these absurd tricks. At 17 years of age, when only weighing 100 lbs., he could eat 24 pounds of beef in as many hours. He now entered the army, and, being recognized by the Surgeon-Major, M. Courville, of the 9th Regiment of Hussars, he was detained for curiosity. From the day of his admission he was ordered quadruple rations, with pickings and waste meat; but often slipped into the dispensary to finish off a poultice or two. One day he was observed to seize a large eat; and, after sucking its blood, left in a very short time only cleanly picked bones, the hair being rejected in the course of about half an hour, like other carnivora. He was fond of serpents and eels, swallowing them whole. On another occasion he consumed, in a few minutes, a repast spread out for fifteen German work-people, of milk, etc., after which he was blown out like a balloon. In presence of some officers, he swallowed, at one sitting, thirty pounds of livers and lights. His insatiable appetite was, for once in his life made useful by his being selected to convey a correspondence between General Beauharnais and a French Colonel, which was inserted in a box and swallowed; but he was caught and soundly thrashed. He fell under suspicion of having eaten a child fourteen months old. It is stated that he was of mild and gentle manners and aspect. After death, his stomach was found in a very diseased condition.

Political Changes in France.

The New York *World* summarizes the political changes in France for the last eighty years as follows:

"In 1792 the great French Revolution was inaugurated, Louis XVI. was deposed and all the monarchies of Europe declared war against the young republic. France was without finances, without troops.

"In 1795 the republic had been triumphant everywhere against the monarchical government and had established internal order.

"In 1799 Bonaparte was chosen First Consul.

"1804—Bonaparte Emperor.

"1815—Waterloo and St. Helena, and the restoration of the Bourbons in the person of Louis XVIII.

"1830—The revolution and expulsion of Charles X. for general disregard of constitutional government, and in particular for Polignac decrees against the press. Louis Philippe ascends the throne.

"1848—Louis Philippe abdicates; popular dissatisfaction at peace policy abroad; tampering with elections at home and limiting the powers of the press; and Louis Napoleon elected President.

"1851—Louis Napoleon President for ten years by 7,839,216 votes.

"1852—The Second Empire by a vote of 7,824,129 citizens."

LOSING MUSKETS.—In General Decaen's army, as everywhere, says a French paper, there are, of course, cowards and shirkers. They have made the following little calculation: The loss of a musket in time of war costs a year or two in prison; but the risk of one's life is even more serious. General Decaen has issued the following proclamation: Every soldier who loses his musket will be sent to the advance posts, without arms. He will get a new one only when he has captured the complete accoutrements of one of the enemy's soldiers. When I left Saint Avoird there were three or four fellows of this kind in the advance posts; but not a man in the division has lost his musket since the proclamation.

American Toadies

It is deplorable, but true, that many Americans, who in the United States are rampant republicans and laugh to scorn the divine-right theory, when they get to Europe become sickening toadies to the nobility there, and to all things noble. This has become more and more noticeable of late years, and Mr. F. M. Pixley, writing to the *Alla* from Paris, thus alludes to the matter:

It is a curious fact that of all the apologists for Napoleon—of all the upholders of his dynasty—of all the sycophantic dirt-eaters who crowd Paris and do homage to this bloody humbug, the Americans are the worst. I was conversing to-day with an American banker, and he said, this sentiment of Napoleonism was so common with his clients, the Americans, that he dared not talk politics with them. These idle, rich, loafing Americans, who come to Paris to swell and spend money, seem to think it their duty constantly to apologise for everything American—to laud and excuse every outrage growing out of Imperialism. I am determined to see the game played out even if I am put on half rations. It is a great pleasure to be able to eold on paper, for you may be assured I keep a very close tongue in my head, and dare not even look pleased when I hear of a Prussian victory.

EVERY SATURDAY.—This illustrated journal of choice reading has come to us more prized than ever. The number of September 10th. is unusually full of illustrations,—of stirring war scenes in Europe, of beautiful art pictures and charming portraits. Its able editorials, interesting stories, summary of home and foreign news and miscellaneous articles are particularly happy. The publishers, Messrs. Fields, Osgood & Co., are among the most enterprising and popular in our country, and one may be sure that they will let nothing unworthy of their reputation issue from their house. For a family paper, we know of no journal more to be recommended than *Every Saturday*.

CURIOUS PETRIFICATIONS.—The *Territorial Enterprise* of the 10th has been shown a lot of curious petrifications found in various places between Pyramid Lake and Black Rock. Besides the usual specimens of pine wood containing wood opal, or petrified pitch, as the prospectors call it, there are several things a little out of the ordinary line of such collections. One is a perfect pine hurr, or cone, perfectly white on one side, and of a dark, glossy brown on the other side. At the large end of the cone are fixed some bright iron pyrites. Another is the head of a large bird of the pelican species. Only a portion of the bill remains, but otherwise it is quite perfect. In a stone among the collection—a kind of agate—is to be seen the picture of a small animal, resembling a wolf or fox; several fine moss agates, and a number of geodes containing crystals of various kinds. In the neighborhood where these things were found were seen portions of large trees perfectly petrified and lying upon the surface of the earth, often upon the tops of hills of considerable height. This may appear strange, yet the petrified trees found in this section of the State in 1859-60 were nearly always discovered lying upon the surface of the earth. One tree nearly two feet in diameter and thirty or forty feet long, was found on the side of a high hill southeast of American Flat, and in Spring Valley sections of cedar trees of considerable size were found. The most curious thing in the collection mentioned above is the picture of the wolf in the rock, crystal or agate, which is quite perfect except that the hind legs and tail are merged in one mass.

THE CROWN PRINCE OF PRUSSIA.—It may not be generally known that the Crown Prince of Prussia is a Yale man as to his English education. Professor Thacher, of Yale, so widely known as professor in Latin and so closely identified with all that is Yale, while studying in Germany, was the English tutor of the Crown Prince, and taught him what he knows of the English language. May he ever be worthy of his worthy instructor.—*College Courier*.

BOTTLES. The value of the bottles annually manufactured in the United States amounts probably to nearly thirteen millions of dollars.

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23v20-3m

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(25v20) HENRY G. HANKS.

Notice to Miners and Others.

Letters Patent No. 53,194, granted March 13th, 1896, secured to me the amalgamation of Metallic Ores in a closed vessel by the action of Mercury, Mercurial fumes, steam and agitation, the heat being applied externally. All persons using, making or selling any Amalgamator in violation of my rights, are hereby requested to settle for the past and arrange for the future, as legal proceedings will be instituted to enforce my rights in the premises.
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2v16



REMOVAL.
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Has removed from Tucker's Building to
No. 109 Montgomery street, three doors
north, opposite the Occidental.
2v20-3m

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16v19-qv

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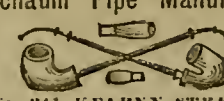
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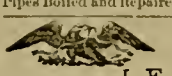
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16v20-3m **JOHN F. LOHSE, Secretary.**

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been reasonably complied with, will be rejected from the
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P. H. CANAVAN, Chairman,
JOS. G. EASTLAND,
CHAS. E. McLANE,
City Hall Commissioners.
26v20-4m


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SCIENTIFIC PRESS.—This ably conducted journal comes
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forth a complete history of California, its discovery and
development, with a notice of each of its varied re-
sources of agricultural and industrial revenue.—*Lower*
Lake Bulletin.

Railroads and Steamers.
Central Pacific Railroad.
Time Schedule, September 2, 1870.

EASTWARD.		Express Train Daily.	Passenger Sunday excepted	Mixed.*
San Francisco	Leave	8:00 A.M.	4:10 P.M.	7:40 P.M.
Oakland	"	8:45 A.M.	4:50 P.M.	"
San Jose	"	9:15 A.M.	5:20 P.M.	"
Stockton	"	10:00 A.M.	6:00 P.M.	"
Sacramento	Arrive	1:50 P.M.	9:30 P.M.	7:40 A.M.
Sacramento	Leave	2:10 P.M.	"	9:10 A.M.
Marysville	Arrive	3:10 P.M.	"	10:10 A.M.
Chico	"	6:45 P.M.	"	5:20 P.M.
Colfax	Leave	5:00 P.M.	"	4:00 P.M.
Reino	"	5:15 A.M.	"	3:45 A.M.
Winnemucca	"	9:10 A.M.	"	6:15 P.M.
Butte Mountain	"	12:00 M.	"	3:50 A.M.
Carlin	"	3:10 P.M.	"	10:40 A.M.
Eiko	"	4:40 P.M.	"	12:30 P.M.
Kelton	"	1:30 A.M.	"	7:45 A.M.
Golden	Arrive	6:00 A.M.	"	5:00 A.M.

WESTWARD.		Express Train Daily.	Passenger Sunday excepted	Mixed.*
Ogden	Leave	6:00 P.M.	"	5:00 P.M.
Kelton	"	10:12 P.M.	"	1:30 A.M.
Eiko	"	8:45 A.M.	"	7:15 P.M.
Carlin	"	10:15 A.M.	"	9:45 P.M.
Butte Mountain	"	1:25 P.M.	"	3:45 A.M.
Winnemucca	"	4:05 P.M.	"	9:00 A.M.
Reino	"	1:00 A.M.	"	1:30 A.M.
Colfax	"	8:45 A.M.	"	12:50 A.M.
Chico	"	6:30 A.M.	"	8:30 A.M.
Marysville	"	9:10 A.M.	"	2:30 P.M.
Sacramento	Arrive	11:55 A.M.	"	6:00 P.M.
Sacramento	Leave	11:45 A.M.	7:00 A.M.	7:30 P.M.
Stockton	"	1:40 P.M.	"	8:35 A.M.
San Jose	Arrive	2:35 P.M.	"	12:01 P.M.
Oakland	"	5:30 P.M.	"	2:10 P.M.
San Francisco	"	6:00 P.M.	"	9:30 A.M.

LOCAL TRAINS.		A. M.	P. M.
3:00	9:00 leave.....	SAN FRANCISCO.....	arrive 10:40
3:30	9:20 ".....	OAKLAND.....	arrive 10:12
4:00	11:00 ".....	SAN JOSE.....	arrive 9:40
5:35	12:00 ".....	SAN JOSE.....	leave 7:45

From		Oakland		From	
SAN FRANCISCO.		OAKLAND.		SAN JOSE.	
B 6:50 A. M.	B 6:50 A. M.	B 8:30 A. M.	B 8:30 A. M.	B 8:30 A. M.	B 8:30 A. M.
D 8:00 "	D 8:00 "	B 6:45 "	B 6:45 "	B 6:45 "	B 6:45 "
D 9:00 "	D 9:00 "	" 7:50 "	" 7:50 "	" 7:50 "	" 7:50 "
D 10:00 "	D 10:00 "	" 9:00 "	" 9:00 "	" 9:00 "	" 9:00 "
D 11:00 "	D 11:00 "	" 11:40 "	" 11:40 "	" 11:40 "	" 11:40 "
D 12:00 M.	D 12:00 M.	" 11:40 "	" 11:40 "	" 11:40 "	" 11:40 "
D 3:00 P. M.	D 3:00 P. M.	" 12:00 M.	" 12:00 M.	" 12:00 M.	" 12:00 M.
D 4:00 "	D 4:00 "	" 2:50 P. M.	" 2:50 P. M.	" 2:50 P. M.	" 2:50 P. M.
D 4:15 "	D 4:15 "	" 3:00 "	" 3:00 "	" 3:00 "	" 3:00 "
D 4:45 "	D 4:45 "	" 5:10 "	" 5:10 "	" 5:10 "	" 5:10 "
D 6:15 "	D 6:15 "	" 6:45 "	" 6:45 "	" 6:45 "	" 6:45 "
B 11:30 "	B 11:30 "	" 6:55 "	" 6:55 "	" 6:55 "	" 6:55 "

From		Alameda		From	
SAN FRANCISCO.		ALAMEDA.		HAYWARD.	
B 7:20 A. M.	B 7:20 A. M.	B 8:25 A. M.	B 8:25 A. M.	B 4:30 A. M.	B 4:30 A. M.
E 9:00 "	E 9:00 "	B 7:35 "	B 7:35 "	B 7:00 "	B 7:00 "
B 9:30 "	B 9:30 "	E 9:05 "	E 9:05 "	K 8:30 "	K 8:30 "
EC 11:20 "	EC 11:20 "	B 7:50 "	B 7:50 "	K 9:10 "	K 9:10 "
" 1:30 P. M.	" 1:30 P. M.	E 11:35 "	E 11:35 "	" 11:00 "	" 11:00 "
" 4:30 "	" 4:30 "	" 1:35 P. M.	" 1:35 P. M.	" 3:45 P. M.	" 3:45 P. M.
" 9:00 "	" 9:00 "	E 6:05 "	E 6:05 "	" 3:45 P. M.	" 3:45 P. M.

*Sundays excepted. E Sundays only.
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T. H. GOODMAN, Gen'l Pass'gr Agent, Sacramento.

SHORT ROUTE.

VALLEJO
The following time will take effect
Sunday.....April 24, 1870.

GOING NORTH—DAILY (SUNDAYS EXCEPTED).			
New World	Trains	Trains	Trains
Leaves	Arrive at	Arrive at	Arrive at
San Francisco	Calistoga	Sacramento	Marysville.
7:30 A. M.	11:15 A. M.	11:20 A. M.	1:30 P. M.
4:30 P. M.	7:15 P. M.	8:20 P. M.	9:40 P. M.

ON SUNDAYS.			
San Francisco	Calistoga	Sacramento	Marysville.
8:30 A. M.	1:20 P. M.	12:45 P. M.	5:00 P. M.

GOING SOUTH—DAILY (SUNDAYS EXCEPTED).			
Train	Trains	Trains	New World
Leave	Calistoga	Sacramento	Arrive at
Marysville.	San Francisco	S. Francisco	San Francisco
5:00 A. M.	6:45 A. M.	6:15 A. M.	10:30 A. M.
1:15 P. M.	2:15 P. M.	3:15 P. M.	7:40 P. M.

ON SUNDAYS.			
Train	Trains	Trains	New World
Leave	Calistoga	Sacramento	Arrive at
Marysville.	San Francisco	S. Francisco	San Francisco
10:15 A. M.	3:40 P. M.	2:30 P. M.	6:45 P. M.

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Vallejo April 24, 1870 13c2v1y


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Origin of Gold Nuggets and Gold Dust.

BY ANDREW MURRAY, F.L.S.

The origin of gold dust is not so simple or clear as at first sight it appears to be. The natural explanation of the production of the gold dust is that it is the golden portion of the debris of rocks which have originally had gold disseminated through them. As the wear and tear of ages has crumbled into dust mountains so composed, part of the dust becomes sand or quartz, or whatever else the basis of the rock may be, and the other part is the liberated gold from from which the quartz has been rubbed away; and if we accept this as the explanation of the production of gold dust, the same hypothesis should explain that of gold nuggets which are found associated with it.

But there are various circumstances which it is difficult to reconcile with this theory. One of these is the occurrence in the drift of nuggets of a larger size and less intermixed with foreign substances than have yet been discovered in any quartz reef; as most people are aware, the gold in reefs is usually disseminated in particles and strings through the quartz veins of rock, instead of lying in pockets or masses. Another still more remarkable fact, applicable both to gold dust and nuggets, is that alluvial gold is generally of a higher standard than that obtained from the reefs. It is needless to say that if it is merely the gold washed or crumbled out of these reefs, it ought to be of identically the same standard and quality. Another objection to the dust being merely the degraded particles released from the rock is the size of the particles—not nuggets, but particles of dust. Gold being so much softer than quartz, its particles after being subjected to the same degree of attrition ought to be vastly smaller; although of greater toughness than quartz, and possessed of ductility and tenacity which quartz wholly wants, it is very soft, and, under the influence of the attrition from running water and its accompaniments, ought to be pounded and torn into the minutest fragments; but this is not so. There is, moreover, a marked difference in the appearance of the gold dust in different drifts in different countries. In some it is like dust or sand, in others it is like scales. If subjected to the same influences in all, there seems no reason why the same shape should not obtain in all.

These peculiarities would suggest that some other influence than mere degradation of gold charged rocks has been the agent in producing gold dust; but in any and every view we think it cannot be disputed that degradation must have had some share in the work. It is plain that if a gold charged rock is reduced to gravel, sand, or powder, particles of gold of some size or other, or gold in some shape or other, must form part of the debris. These gold remnants should be found in greater quantity and in greater size the nearer they lie to the source from which they were drawn; and this we believe to be also the case. The general similarity between gold-producing districts, by which a California miner could detect a likely spot for gold in Australia or Kildonan, probably depends rather on the character of the mountains out of which the gold has come than on the mode of production of the manufactured dust, if we may call it so. We imagine that the truth will be found to be that the result is referable to two causes, only one of which may in some cases have been present, in others both; the first, the ordinary process of degradation and grinding the rock to fragments; the other, as suggested by Mr. Selwyn, the Government geologist of Victoria, that gold has also been taken up in solution by the water permeating the gold bearing-rocks, and that in passing through the drift, in which minute particles of gold lay, it has from some cause become decomposed, and the gold held in solution being precipitated and deposited around the most congenial nuclei presented to it, which would undoubtedly generally be the particles or pieces of reef gold, or any other metallic substances for which it had an affinity.

We find an interesting paper on this subject in the "Transactions of the Royal Society of Victoria" (1867), by Mr. C. Wilkinson, in which he mentions some facts bearing on the subject. It appears that Mr. Daintree, formerly of the Geological Survey of Victoria, had on one occasion prepared for photographic uses a solution of chloride of gold, leaving in it a small piece of metallic gold undissolved. Accidentally, some extraneous substance, supposed to be a piece of cork, had fallen into the solution, decomposing it, and causing

the gold to precipitate, which made a deposit in the metallic state, as in the electroplating process, around the small piece of undissolved gold, increasing it in size to two or three times its original dimensions. Considering this accidental experiment of Mr. Daintree's as in some measure supporting Mr. Selwyn's theory, Mr. Wilkinson followed it up by a few simple experiments in the same direction, which he details in his paper. In his experiments a small chip of wood was generally used as the decomposing agent. In one instance he used a bit of leather. All through the wood and leather, gold was disseminated in fine particles, and when cut through, the characteristic metallic lustre was highly reflected. From various experiments it would appear that organic matter is the necessary chemical agent for decomposing a solution of the chloride of gold in order to precipitate the gold as a coherent coating around a nucleus; and that, so far as Mr. Wilkinson had yet tried, iron, copper, and arsenical pyrites, galena, antimony, molybdenite, blende, wolfram, and metallic gold constitute essentially favorable nuclei to determine this chemical reaction. It is to be observed, too, that organic substances, such as fragments of wood, roots of trees, etc., occur abundantly in the gold drifts of Australia. If water holding gold in solution circulates through the rocks and drifts, all the conditions necessary for the production of gold dust and nuggets by deposit are present. Does the water so circulating now hold gold in solution? One would think it would not be difficult for a chemist in Australia or California to determine the fact by direct experiment, but it does not appear that it has ever been tried. Mr. C. Wilkinson, however, quotes facts which lend probability to the view that when the trial is made, the question will be solved in the affirmative. In testing a solid mass of iron pyrites, Mr. Daintree found gold throughout. This mass retained the structure of a tree-stem, in which the organic structure was replaced by pyrites. It had been taken from the Ballarat drift, and the same experiment was repeated by Mr. Newbury, the Geological Survey analyst, on another stem taken from the same drift, with a like result. Gold in such deposits assumes a mammillary form, which appears analogous to that presented by the surface of nuggets—a point of some importance for, in the first place, it is a question whether a mammillary surface is the kind of surface that would be produced by abrasion and attrition; and, in the next place, abrasion or attrition can certainly have nothing to do with its appearance in these golden petrifications. We cannot avoid attaching the greatest importance in relation to the question, to the presence of gold in pyrites that has been formed in wood imbedded in auriferous drifts. The gold must have been in solution when so deposited, and everything will then depend on the age of the so petrified wood. If contemporaneous with the drift, the question is answered. Another fact to the same effect is, that sometimes gold encloses a nucleus of brown iron, etc. This is obviously quite inconsistent with such pieces of gold having been absorbed, as they are out of crumbling rocks; such uncolored pieces of gold are never found in reefs. It is the old puzzle of a reel in a bottle.

In relation to this we may remark that we believe that nuggets have never been found in the gold-fields of Brazil. We have the authority of Mr. Harding (a gentleman well known for his great practical knowledge of gold mines and mining in that country) that he never met with nor heard of a nugget properly so called in all his many years' experience in the gold district of Brazil; but, on the other hand, it is there almost invariably found in veins in connection with, or in the vicinity of, some other metal—generally iron. In what is probably the most prolific mine of gold that has ever been known in the whole world, that of San Juan del Rey (the value of which was not very long since so seriously depreciated by the accidental destruction by fire of the wooden ladders, supports, and machinery), the gold is found in a matrix of porous iron or agglutinated iron sand called Jacotinga, which consists of a bed or vein, not a foot in width, but so incredibly rich that on one occasion, when our informant was on a visit to the manager, there was brought in on an assiette, as a sort of dessert for the eyes after dinner, a lump of gold ore that had been extracted that day from the mine. It was about the size of a large fowl, not so big as a turkey, but bigger than a duck. It was a mass of Jacotinga-iron with gold all mingled and streaked through it. The gold when afterwards extracted was found to amount to 30 lbs. weight. On the previous day the amount of gold obtained from

the Jacotinga had been 67 lbs., and on the day following 130 lbs., equal in value to about £8,000. We only mention it as a corroborative instance of the concurrent presence of gold and iron. Lastly, as pointed out by Mr. Wilkinson, it must be admitted that the fact that gold may be greatly purified by dissolving and reprecipitating it, is very suggestive of the generally higher standard of alluvial over reef gold being due to a similar cause.—*Scientific Opinion.*

The New Patent Act.

AN ACT TO REVISE, CONSOLIDATE AND AMEND THE STATUTES RELATING TO PATENTS AND COPYRIGHTS.

APPROVED, JULY 8, 1870.

[CONTINUED FROM PAGE 139.]

Sec. 52. And be it further enacted, That whenever a patent on application is refused, for any reason whatever, either by the Commissioner or by the Supreme Court of the District of Columbia upon the appeal from the Commissioner, the applicant may have remedy by bill in equity; and the court having cognizance thereof, on notice to adverse parties and other due proceedings had, may adjudge that such applicant is entitled, according to law, to receive a patent for his invention, as specified in his claim, or for any part thereof, as the facts in the case may appear. And such adjudication, if it be in favor of the right of the applicant, shall authorize the Commissioner to issue such patent, on the applicant filing in the Patent Office a copy of the adjudication, and otherwise complying with the requirements of law. And in all cases where there is no opposing party a copy of the bill shall be served on the Commissioner, and all the expenses of the proceeding shall be paid by the applicant, whether the final decision is in his favor or not.

Sec. 53. And be it further enacted, That whenever any patent is inoperative or invalid, by reason of a defective or insufficient specification, or by reason of the patentee claiming as his own invention or discovery more than he had a right to claim as new, if the error has arisen by inadvertence, accident, or mistake, and without any fraudulent or deceptive intention, the Commissioner shall, on the surrender of such patent, and payment of the duty required by law, cause a new patent for the same invention and in accordance with the corrected specifications, to be issued to the patentee, or, in the case of his death or assignment of the whole or any undivided part of the original patent, to his executor, administrators, or assigns, for the unexpired part of the term of the original patent the surrender of which shall take effect upon the issue of the amended patent; and the Commissioner may, in his discretion, cause several patents to be issued for distinct and separate parts of the thing patented, upon demand of the applicant, and upon payment of the required fee for a re-issue for each of such reissued letters patent. And the specification and claim in every such case shall be subject to revision and restriction, in the same manner as the original applications are. And the patent so reissued, together with corrected specification, shall have the effect and operation in law, on the trial of all actions for or against thereafter arising, as though the same had been originally filed in such corrected form; but no new matter shall be introduced into the specification, nor in case of a machine patent shall the model or drawings, be amended except each by the other, but when there is neither model nor drawing, amendments may be made upon proof satisfactory to the Commissioner that such new matter or amendment was a part of the original invention, and was omitted from the specification by inadvertence, accident, or mistake, as aforesaid.

Sec. 54. And be it further enacted, That whenever, through inadvertence, accident, or mistake, and without any fraudulent or deceptive intention a patentee has claimed more than that of which he was the original or first inventor or discoverer, his patent shall be valid for all that part which is truly and justly his own, provided the same is a material and substantial part of the thing patented; and any such patentee, his heirs or assigns, whether of the whole or any sectional interest therein, may, on payment of the duty required by law, make disclaimer of such parts of the thing patented as he shall not choose to claim or to hold by virtue of the patent or assignment, stating therein the extent of his interest in such patent; said disclaimer shall be in writing, attested by one or more witnesses, and recorded in the Patent Office, and it shall hereafter be considered as part of the original specification to the extent of the interest possessed by the claimant and by those claiming under him after the record thereof. But no such disclaimer shall affect any action pending at the time of its being filed, except so far as may relate to the question of unreasonable neglect or delay in filing it.

[To be continued.]

A. F. BURR, Sen., an enterprising miner 55 years of age, died at Sutter Creek, Sept. 12th.

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Mining and Company Advt's.

Eagle Quicksilver Mining Co.—Location of Mine: Eagle Mining District; Santa Barbara County, California.

Notice.—There are delinquent, upon the shares of the following named persons on account of Assessment levied on the twenty-seventh day of July 1870, the several amounts set against the names of the respective Shareholders as follows:

Names.	No. Certificates.	No. Shares.	Amount.
Barkley, A. S.	unissued	1	20 00
Benton, H. A.	do	1	20 00
Bush, A. T.	do	1	20 00
Brodie, James.	do	1	20 00
Colburn, T. W.	do	1	20 00
Collins, S. W.	do	1	20 00
Darling, A. E.	do	1	20 00
Kays, J. E.	do	1	20 00
Kays, J.	do	1	20 00
Kays, Thomas.	do	1	20 00
Lloyd, R. H.	do	2	40 00
Richardson, Thomas.	do	2	40 00
Rodda, Wm. Henry.	do	1	20 00
Townsend, Jas. B.	do	2	40 00
Wilkes, Edward.	do	4	80 00
William, S.	do	1	20 00

And in accordance with law, and the Articles of agreement of said Mining Company, and an order of the Board of Trustees thereof, made on the 29th day of July 1870, the whole or such undivided part of each of such delinquent shares in said Mines as may be necessary to pay said assessment upon each, will be sold to the highest bidder at public auction, for cash in United States gold and silver coin, at the office of the Company, Room 5, No. 302 Montgomery Street, San Francisco California, on Monday the 26th day of September 1870, at the hour of 2 o'clock P. M., of said day, to pay said delinquent assessment thereon, together with costs of advertising, and expenses of sale.

WM. H. WATSON, Secretary,
Office, Room 5, Building No. 302 Montgomery Street, San Francisco, Cal.

Latawana Mining Company.—Near Hamilton City, White Pine County, State of Nevada.

Notice.—There are delinquent upon the following described stock, on account of assessment levied on the fifteenth day of August, 1870, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. of Certif.	No. of Shares.	Pd. on Amount.	Acct. Due.
D. M. Hosmer.	6	20		3 00
D. M. Hosmer.	7	20		3 00
D. M. Hosmer.	9	20		3 00
D. M. Hosmer.	10	20		3 00
D. M. Hosmer.	12	10		1 00
D. M. Hosmer, Trustee.	150	1000	150 00	
D. M. Hosmer, Trustee.	151	10		1 00
D. M. Hosmer, Trustee.	152	10		1 00
D. M. Hosmer, Trustee.	153	104		15 00
Richard Savage.	20	50	2 50	6 50
Richard Savage.	164	300		45 00
Richard Savage.	165	100		15 00
S. A. Post.	30	10		1 50
P. Conklin.	104	400		60 00
S. E. Holcombe.	127	10		1 00
M. M. Baldwin.	114	10	50	1 00
M. M. Baldwin.	149	490	24 50	49 00
Richard H. Savage.	115	10		1 50
John H. White.	126	700		115 00
B. Caulfield.	128	40		6 00
D. Walker, M. D.	129	20		3 00
A. P. Everett.	134	100		15 00
A. P. Everett.	166	50		7 50
William Krug.	137	50		7 50
William Krug.	138	50		7 50
William Krug, Trustee.	167	100		15 00
William Krug, Trustee.	168	227		34 050
William Krug, Trustee.	198	400		60 000
John Clement.	141	98		13 500
A. Martinon, Trustee.	188	4248		637 240
Quorum of Trustees.	145	2875		431 25
Chas. O. Bowman.	155	500		75 00
L. D. Simpson.	157	20		3 00
R. Cohn.	179	100		15 00
C. H. Burton.	180	328		49 20
Botts & Wise.	175	800		120 00
C. F. McDermot.	176	100		15 00
S. Haydenfeldt.	181	300	15 00	30 00
Chas. Wellington, Trustee.	182	672		100 80
Chas. Wellington, Trustee.	183	300		45 00
Chas. Wellington, Trustee.	184	100		15 00
Chas. Wellington, Trustee.	189	100		15 00
Chas. Wellington, Trustee.	191	100		15 00
John G. Ayres.	193	200	10 00	20 00
T. Aroud Charreard.	195	100		15 00
R. E. Dorin.	200	200		30 00
Geo. W. Forsyth, Trustee.	203	600		90 00

And in accordance with law and an order of the Board of Trustees, made on the fifteenth day of August, 1870, so many shares of each parcel of said stock as may be necessary will be sold at the office of the Company, 614 Merchant street, Room 26, San Francisco, California, on Monday, the third day of October, 1870, at the hour of 2 o'clock P. M., of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

A. MARTINON, Secretary,
Office, 614 Merchant street, Room 26, San Francisco, sept-17

La Blanca Gold and Silver Mining Company.—Location of Works: District of Ures, State of Sonora, Mexico.

Notice. is hereby given that the annual meeting of the Stockholders of the above named company will be held on Monday the tenth day of October 1870, at the office of the Company, No. 312 Front Street, San Francisco California, for the purpose of electing Trustees for the ensuing year, and for the transaction of such other business as shall properly come before the meeting.

By order of the President,
JOS. GOLDMAN, Secretary.

Pinto Silver Mining Company.—Location of Works: Silverado, Pinto District, White Pine County, Nevada.

The adjourned annual Meeting of the Pinto Mining Company will be held at the office of their Secretary, 429 Montgomery Street, San Francisco, California, on Wednesday evening, September 28th, 1870, at 7 1/2 o'clock P. M.

By order,
D. R. ARROWSMITH, Secretary.

Mountain City Mining Company.—Location of Mine: Cope District, Elko County, State of Nevada.

Notice.—There are delinquent upon the following described stock, on account of assessment levied on the fourteenth day of July, 1870, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. of Certif.	No. Shares.	Amount.
Best, John T.	34	400	\$100 00
Edwight, John T.	bal 42	250	62 50
Greek, H. P.	bal 42	100	25 00
Melzer, Moses A.	bal 45	25 00	625 25
Otis, Stephen.	bal 32	50	12 50
Rogers, F. A.	bal 11	500	125 00
Rogers, F. A.	bal 12	200	50 00
Rogers, F. A.	bal 13	100	25 00
Rogers, F. A.	bal 14	100	25 00
Rogers, F. A.	bal 15	50	12 50
Rogers, F. A.	bal 16	50	12 50
Rogers, F. A.	bal 17	50	12 50
Rogers, F. A.	bal 18	10	2 50
Rogers, F. A.	bal 19	10	2 50
Rogers, F. A.	bal 20	10	2 50
Read, Francis.	33	400	100 00
Sweeney, A. P.	45	250	62 50
Sharp, Wm H.	31	900	225 00

And in accordance with law and an order of the Board of Trustees, made on the fourteenth day of July, 1870, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the salesroom of Maurice Doro & Co., No. 327 Montgomery St., San Francisco, on the twenty-sixth day of Sept. 1870, at the hour of 11 o'clock A. M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

T. B. WINGARD, Secretary,
Office, 408 California street, San Francisco.
Advertising charges \$2.00 per certificate.

Silver Sprout Mining Company.—Location of Works and Mines: Kearsarge District, Inyo County, California.

Notice. is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 29th day of August, 1870, an assessment of twenty-five (25) cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary, at the office of the Company, No. 408 California street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on the eighteenth day of October, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Thursday, the first (1st) day of December, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees,

T. B. WINGARD, Secretary,
Office, 408 California street, San Francisco, Cal.

OCCIDENTAL Insurance Company OF SAN FRANCISCO.

Cash Capital, \$300,000

GOLD COIN
OFFICE, 436 CALIFORNIA STREET.

Fire and Marine Insurance.
All Losses paid in U. S. Gold Coin.
A. G. STILES, President.
B. ROTHSCHILD, Secretary.

W. H. J. BROOKS,
Searcher of Records, and examiner of Titles,

IN ALL THE COUNTIES OF CALIFORNIA.

Abstract of Titles, examined and reported on.

HAVING DEVOTED HIS ATTENTION TO THIS BUSINESS exclusively during the past twelve years, he is familiar with the land and Conveyancing Laws of California, the Spanish, Mexican and American Records, and the Titles to Real Estate in San Francisco and all the Counties of California.

Persons contemplating the purchase of Real Estate in any portion of California can have the Titles thereto examined and reported on with accuracy and dispatch on reasonable terms.

Office, 316 California Street, SAN FRANCISCO.

REFERS to the California Immigrant Union, the Real Estate Dealers, the Federal and State Judges and Legal Profession generally in California. 10v21-3m

BRIGHAM & HAWES,
Foot of Third Street, San Francisco.

DEALERS IN
Fine Granite, Building and Street Paving Stone.
The trade supplied at WHOLESALE or RETAIL.
ALSO CONTRACTORS.
Work done to order at short notice. 7v21-3m

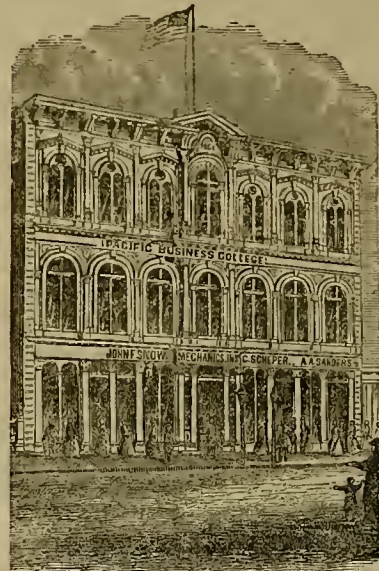
PATENTS
Bought and Sold
ON COMMISSION.

The Latest and Most Valuable Inventions can always be found at the office of

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Patent Brokers,
314 Bush Street, San Francisco.

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DESIGNING AND ENGRAVING on wood and for electrotype cuts of every description, done by superior artists at the office of the SCIENTIFIC PRESS. Fine Cuts made for Book and Newspaper Illustrations, and for Fancy Labels for printing in various colors; Monograms, Seals, &c., etc. Prompt execution and reasonable prices.
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No. 414 Clay street, S. F.

PACIFIC BUSINESS COLLEGE, Mechanics' Institute, 27 Post Street, BET. MONTGOMERY AND KEARNY, SAN FRANCISCO.



THE PIONEER AND ONLY BUSINESS COLLEGE
On the Pacific Coast where BOOK-KEEPING is taught as practiced in the Counting-room.
PENMANSHIP.

In this useful and very important branch we challenge competition.
PROF. SERENI
Has obtained First Premiums at all the Fairs on this coast where his Penmanship was exhibited, and was awarded the MEDAL at the Seventh Industrial Exhibition of the Mechanics' Institute in 1869 over all competitors. His success as a Teacher is unequalled.

TELEGRAPHING.
The only place in the city where Telegraphing is taught by an experienced Operator. We cordially invite the public to call and examine the merits of the College. Our Institute is patronized by the youth of fifteen and the man of fifty, where they receive instruction in Single and Double Entry Book-Keeping, Commercial Arithmetic, Commission Jobbing, Business and Ornamental Penmanship, Commercial Correspondence, Actual Business, Merchandising, Banking, Importing, Railroad, Steamboating, Mining, Real Estate, Brokerage and Exchange, Mechanical and Architectural Drawing, Telegraphy, Orthography, French, Spanish, Italian, German and English Grammar. No CLASS SYSTEM. Each student receives individual instruction. No Vacations.
Sessions Day and Evening.
VINSONHALER, JULIAN & CO.

A NEW REMEDY.

As this Preparation of these plants, lately made public (Patented June 23, 1870), but long proven in Siskiyou county, Cal., owes its efficiency entirely to its remarkable power of INCREASING THE INSENSIBLE PERSPIRATION, or, in other words, the VAPOR EXHALATIONS from the millions of minute pores of the EXTERNAL SKIN, from the crown of the head to the sole of the foot, it is all important that the direction to pass a sponge, or towel, dampened with saleratus water, under the clothing, twice a week, or oftener, be attended to.

Also, that when taken by LADIES, for IMPROVING THE COMPLEXION, for which it is very successful, that it should be in half doses, often repeated; and that one of the Pills of Citrate of Iron and Gum Myrrh, which strengthen the bottom label of each bottle, be taken at night, much aiding in restoring Color in the Cheeks and Lips. To CHILDREN also, give it "a little and often." It is agreeable to them in any way, but especially if sweetened a bit; and it is admirably suited to their Diseases, which generally are those of the MUCOUS MEMBRANES.

FOR the irritated throats of PUBLIC SPEAKERS, Lawyers, Ministers, Teachers, and
FOR driving off threatened CONSUMPTION and Asthma, all Colds and Coughs;
FOR irritated Stomachs, from Bad Liquor, Alkali Water, Strong Coffee, Saleratus Bread;
FOR humors on the Skin, or MUDDY COMPLEXIONS, or, in a single sentence,
FOR all Diseases of the MUCOUS MEMBRANES, the Surest, and by far the MOST PLEASANT MEDICINE yet found, in its TASTE and EFFECT, is

DR. FURBER'S CORDIAL
OF MOUNTAIN BALM
—AND—
OREGON GRAPE,
Two Plants, abounding on the base of, and on the Mountains surrounding
MOUNT SHASTA, CALIFORNIA,

For all of the purposes of the various PREPARATIONS OF SARSAPARILLA, richer in quality and more efficient as a RESTORER OF GOOD BLOOD, and acting equally as surely,

ECCLESIASTICUS. CHAPTER XXXVIII.
—Verse Fourth—
The Lord hath created medicines out of the Earth
And he that is wise, will not abhor them.

TRADE MARK.

and as well on the LUNGS as on the STOMACH, is superior to other COUGH MEDICINES, by bringing BOTH to bear with the stimulated action of the WHOLE SKIN in throwing off Disease of either.

FOR SALE AT SAN FRANCISCO BY R. H. McDONALD & CO., Druggists.
INVALIDS of any of the classes named above will find this worthy of TRIAL. Its virtues, as above asserted, not being visionary, but improved from the SHASTA INDIANS' knowledge and use of these PLANTS for centuries back, made known by them to us.

Such an invalid, residing at a distance, wishing to try it, had better procure a package of one-fourth of a dozen, which can be done by sending in letter to the above a \$5 greenback, and directing that the package should be sent by WELLS, Fargo & Co's EXPRESS to that office which is nearest to the invalid's residence, and that person will be sure to get it. 3v21-12twr

San Francisco Metal Market.

PRICES FOR INVOICES

Jobbing prices rule from ten to fifteen per cent. higher than the following quotations.

THURSDAY, Sept. 22, 1870.

IRON.—Duty: Pig, \$9 per ton; Railroad, 60c @ 100 lbs.; Bar, 1@1½c @ lb; Sheet, polished, 3c @ lb; common, 1½@1¾c @ lb; Plate, 1½c @ lb; Pipe, 1½c @ lb; Galvanized, 2½c @ lb.	
Scotch and Eng. Pig Iron, @ ton	29 @ \$30 00
White Pig, @ ton	28 00 @ 28 00
Refined Bar, bad assortment, @ lb.	03 @ —
Refined Bar, good assortment, @ lb.	04 @ —
Boiler, No. 1 to 4	04½ @ —
Plate, No. 5 to 9	04½ @ —
Sheet, No. 10 to 13	04½ @ —
Sheet, No. 14 to 20	05 @ —
Sheet, No. 24 to 27	05 @ —
COPPER.—Duty: Sheathing, 3½c @ lb; Pig and Bar, 2½c @ lb.	
Sheathing, @ lb.	26 @ —
Sheathing, Yellow	20 @ —
Sheathing, Old Yellow	10 @ —
Composition Nails	21 @ —
Composition Bolts	21 @ —
TIN PLATES.—Duty: 25 ¢ cent. ad valorem.	
Plates, Charcoal, 1X, @ box	12 00 @ —
Plates, 1 O Charcoal	10 00 @ 10 50
Roofing Plates	10 00 @ 10 50
Banca Tin, Slabs, @ lb.	42 @ —
STEEL.—English Cast Steel, @ lb.	15 @ —
QUICKSILVER.—@ lb.	70 @ —
LEAD.—Pig, @ lb.	7½ @ —
Sheet	10 @ —
Pipe	11 @ —
BAR.—@ lb.	9 @ —
ZINC.—Sheets, @ lb.	10½ @ —
BORAX	35 @ —

Machinists and Foundries.

FULTON

Foundry and Iron Works.

HINCKLEY & CO.,

MANUFACTURERS OF

STEAM ENGINES,

Quartz, Flour and Saw Mills,

Hayes' Improved Steam Pump, Brodie's Improved Crusher, Mining Pumps, Amalgamators, and all kinds of Machinery.

N. E. corner of Tehama and Fremont streets, above How; and street, San Francisco. 5-47

THE RISDON

Iron and Locomotive Works.

INCORPORATED.....APRIL 30, 1868.
CAPITAL.....\$1,000,000.

Corner of Beale and Howard Streets,
SAN FRANCISCO.

Steam Engine Builders, Boiler Makers, Machinists, Foundrymen, and Manufacturers of Car Wheels equal to the best imported, and guaranteed equal to Eastern Wheels.

Directors:
S. F. Butterworth, Lloyd Tevis, Wm. Alvord,
Wm. Norris, Joseph Moore, Chas. E. McLane,
John N. Risdon, John A. Risdon.

JOHN N. RISDON.....President.
JOSEPH MOORE.....Vice President and Superintendent.
LEWIS R. MEAD.....Secretary.

UNION IRON WORKS,
Sacramento.

WILLIAMS, ROOT & NEILSON,

MANUFACTURERS OF

STEAM ENGINES, BOILERS,

CROSS' PATENT BOILER FEEDER AND SEDIMENT COLLECTOR.

WILCOX'S PATENT WATER LIFTERS.

Dunbar's Patent Self-Adjusting Steam Piston PACKING, for new and old Cylinders.

And all kinds of Mining Machinery.

Front Street, between N and O streets,
14-1
SACRAMENTO CITY.

CALIFORNIA BRASS FOUNDRY,

No. 125 First street, opposite Minna,
SAN FRANCISCO.

ALL KINDS OF Brass, Composition, Zinc, and Babbitt Metal Castings, Brass Ship Work of all kinds, Spikes, Sheathing Nails, Rudder Braces, Hinges, Ship and Steamboat Bolts and Gears of superior tone. All kinds of Cocks and Valves, Hydraulic Pipes and Nozzles, and Hose Couplings and Connections of all sizes and patterns, furnished with dispatch.

PRICES MODERATE.

P. GALLAGHER. J. H. WEED. V. KINGWELL

WM. W. CANTY, JNO. BUSH, F. PRETORIOUS, JNO. CONNER.
MINERS' CO-OPERATIVE BOILER SHOP.

228 FREMONT STREET.

Between Howard and Folsom, San Francisco.

—ALL KINDS OF—
High and Low Pressure Boilers Built.
Sheet Iron Work, Etc., Etc.

Repairing promptly attended to.

WM. W. CANTY, Manager.

California File Manuf'g Co.

437 BRANNAN STREET, bet. Third and Fourth.

W. WUSTHOFF, L. KRAMER, M. HARRIS, J. BURKE.
REAPER AND MOWER SECTIONS, BARS
AND KNIVES COMPLETE.

At a saving of 50 per cent. New Files of every description on hand and made to order. Old Files re-cut, and warranted equal to new. Orders from the country promptly attended to.

ROOT'S PATENT FORCE BLAST ROTARY BLOWER.

MANUFACTURED BY KEEP & BARGION,

At the Globe Iron Works, Stockton, California.

Patented Nov. 1st, 1864; July
24, 1866; and Oct. 9, 1866.

Awarded the First Premium at
the Paris Exposition.

ADAPTED

FOR

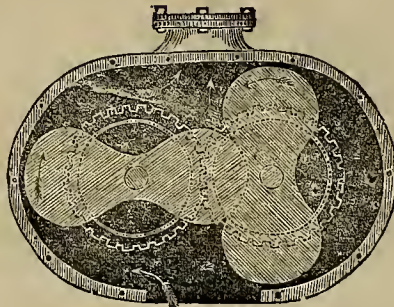
Smelting,

Foundry,

Mining

and

Steamships.



REQUIRES

Fifty Per Cent.

LESS POWER

Than any Blower

Now in use.

One of these Blowers may be seen on exhibition at W. T. Garratt's Brass Foundry, corner of Mission and Fremont street. They are also in use at the Almaden Quicksilver Mine; Gridley's Foundry, Gold Hill, Nevada; Atina Iron Works, San Francisco, and many other places.

CAUTION.—Purchasers will find it to their advantage to apply direct to the Stockton Agency, as certain parties, not authorized to manufacture the Blower, have put in the market machines of inferior construction, which do not answer all the requirement of the genuine article.

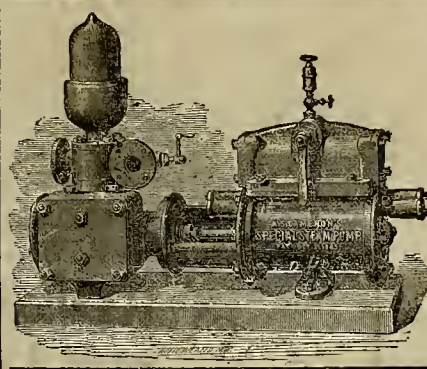
Quartz, Saw and Grist Mill Irons, Steam Engines, Horse Powers, High and Low Pressure Steam Engines, Steamboats and Propellers, made at short notice.

For circulars and further information address

4v16-3m

KEEP & BARGION,

Globe Iron Works, Stockton, Cal.

CAMERON'S
STEAM PUMPS.PICKERING'S
Engine Regulators.GIFFARD'S
INJECTORS.BARTOL'S
STEAM TRAP.SURFACE
CONDENSERS.

DAVID STODDART,

114 BEALE STREET.

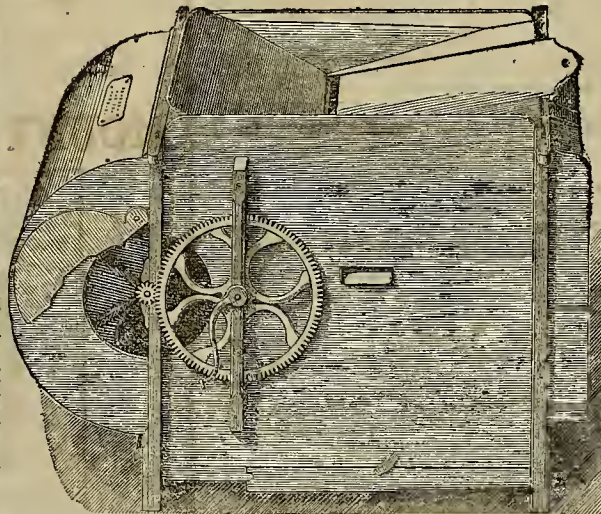


NOVELTY MILL AND GRAIN SEPEARATOR.

THE undersigned having purchased of the Patents, WIRTS & SWIFT, of Hudson, Michigan, their right to this mill, Patented June 22d, 1869, for California, Oregon, Washington Territory, Montana, Utah, New Mexico and Arizona, wishes to call the attention of FARMERS, MILLERS AND GRAIN DEALERS to one of THE GREATEST IMPROVEMENTS OF THE AGE for cleaning and separating grain. While it combines all the essential qualities of a first-class FANNING MILL, it also far exceeds anything that has ever been invented for the separation of grain. It has been thoroughly tested on all the different kinds of mixed grain, separating all the different seeds in almost a magical manner, placing them in their different compartments in the mill arranged for their reception, at the same time taking out all the Mustard, Grass Seed, Barley and Oats, and making two distinct qualities of wheat if desired, thereby selecting superior, large plump and perfect kernels for SEED WHEAT, and all the small and cut kernels, such as merchantable wheat, is deposited in another compartment. By the use of this Mill a great quantity of wheat usually sown that has been cleaned in the common mills will be saved to the farmer, as the cut or shrunken kernels will never germinate.

The above mentioned Novelty Mill is the only mill known to possess all these superior qualifications, and was exhibited and tested at the last Michigan State Fair held at Jackson, Michigan, September 21, 22, and 23, 1869, and bore away the palm over some thirty other different mills from all parts of the United States, including the famous Dickey Mill of Racine, Wisconsin. All who have witnessed here the operations of the NOVELTY MILL, declare it perfection, and the most beneficial invention to the Farmers, Millers, and Grain Dealers ever introduced on the Pacific Coast. The farmers in Santa Clara County, are loud in its praise, and also in other parts of the State where it is being introduced. No. 1 Mill, complete, is capable of cleaning 25 tons of grain per day; No. 2 Mill, 15 tons; No. 3, 10 tons. A large number of recommendations and certificates of the practical working of the mill will be furnished. Circulars containing references sent free by mail. N. B. Town, County, or State Rights for sale on favorable terms. For further particulars apply to

R. B. STONE, 422 Battery Street, San Francisco.



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—AT—

GREATLY REDUCED RATES.

Miners' Foundry & Machine Works,
235 TO 245 FIRST STREET,
SAN FRANCISCO.

This Establishment is now working upon the
CO-OPERATIVE PLAN,
And are thereby enabled to manufacture
MACHINERY, CASTINGS & BOILERS
AT FASTER PRICES,
And better adapted to the wants of the Pacific States
Ascertain our prices before purchasing. 8v20g

ESTABLISHED 1851.

PACIFIC IRON WORKS,

First and Fremont streets,

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IRA P. RANHIN, A. P. BRAYTON,
GEO. W. FOGG, Superintendent.

Steam Engines and Boilers,

MARINE AND STATIONARY,

IRON AND BRASS CASTINGS,

Mining Machinery of Every Description,

And all other classes of work generally done at first-class establishments, manufactured by us at the lowest prices, and of the best quality.

Particular attention paid to Jobbing Work and Repairs.

N. B.—Sole Agents for sale of HUNTOON'S CELEBRATED PATENT GOVERNOR.

18v20-3m ODDARD & CO.

McAFEE, SPIERS & CO.,

BOILER MAKERS

AND GENERAL MACHINISTS,

Howard st, between Fremont and Beale, San Francisco.

Flue or Tubular Boilers, with plain circular or spiral courses. Upright Flue or Tubular Boilers, Locomotive and Marine Boilers, and Wrought Iron Tanks of every description.

Hydraulic Pipe supplied at reasonable rates. In ordering, give the quantity of water to be supplied, height of the fall, and total length of pipe, so as to enable the firm to determine the diameter of the pipe and thickness of iron to be used.

Repairs.—Boilers, Smoke Stacks, Pipes, etc., put in repair with promptness.

To Boiler Makers and Machinists in the Interior.—The firm is prepared to furnish estimates of Boilers, supply new heads, drilled and punched, and attend to the selection and forwarding of Iron for Boilers, Pipes and other purposes.

Plans, Drawings and Specifications.—The firm is prepared to make out Plans and Specifications, receive estimates, and superintend the Erection of any Machinery that may be entrusted to their care.

To Inventors.—The firm is prepared to assist in developing the plans of those who have the ideas but not the practical experience necessary to put the same in form, by making Drawings of their Inventions, giving them the benefit of their practical knowledge in the construction of Machinery, and attending to the manufacture and introduction of their Inventions.

18v18

To Those Using Steam Power.

The Gardner Automatic Stop Governor will give you perfect regularity of speed and positive insurance against all accidents, resulting from Slipping or Breaking of the Governor or driving belts. Cost less than any other FIRST-CLASS GOVERNOR.

The Dreyfus Cylinder Lubricator

Will save 80 per cent. of Tallow, is automatic in its action and will give the Cylinder a steady supply of Tallow or Oil whenever the Engine is in motion. No wiper or leakage. Cost from \$5 to \$40, according to size.

The Nathan & Dreyfuss Patent Oil Cups

Will save 90 per cent. of Oil. They are easily applied to all Shafting and all other bearings. For further information apply to

WILKIE DARLING, General Agent.
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GEO. T. PRACY'S
MACHINE WORKS,

109 and 111 MISION STREET,
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MANUFACTURER OF

PRACY'S IMPROVED
PATENT STEAM ENGINE

GOVERNOR.



These Governors are the most sensitive built, running at a high velocity and maintaining a uniform speed.

SOLE AGENT FOR

L. W. POND'S CELEBRATED TOOLS,

—SUCH AS—

Lathes, Planers, Drills, Boring Mills, Milling Machines, Etc.,

Which I will offer at very low rates. Also,
MORSE'S TWIST DRILLS,
AND CHUCKS OF ALL KINDS.

MANUFACTURER OF

Steam Engines, and Mill Work Generally.

Sole Agent for TAYLOR'S PATENT SHEARS AND PUNCHES. 3v21

New York Metal Market.

[CORRECTED WEEKLY FROM THE AMERICAN ARTISAN.]

NEW YORK CITY, Saturday, Sept. 10, 1870.

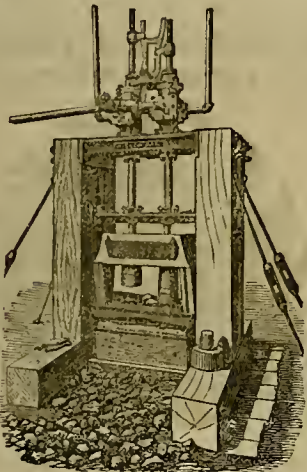
IRON.		
Pig, Scotch, No 1 (cash), per ton.	\$43 00	@ \$36 50
Pig, American, No. 1 (cash).	33 00	@ 34 00
Pig, American, No. 2	29 00	@ 31 00
Swedish, ordinary sizes.	110 00	@ 125 00
Common.	75 00	@ 80 00
Refined.	77 50	@ 95 00
Boiler.	85 00	@ 130 00
Horse-shoe.	95 00	@ —
Hoop.	105 00	@ 150 00
Roll.	97 50	@ 125 00
Nail-rod, per lb.	— 7	@ — 7 1/2
Spring.	— 7 1/2	@ —
Tire.	— 8 1/2	@ —

STEEL.

Bars, best cast, warranted, per lb.	— 17	@ — 18
Sheet, best cast.	— 18	@ —
Sheet, second quality.	— 16	@ —
Sheet, third quality.	— 11	@ —
Saw-plates, circular.	— 27	@ —
Double-shear, warranted.	— 23	@ —
Single-shear.	— 19	@ —
Montague & Co. (cast bars).	— 18	@ —
Machinery, round.	— 11	@ —
German, best.	— 11	@ —
German, eagle.	— 9	@ —
Blister, warranted.	— 16	@ —
Blister, common.	— 15	@ —
Jessop & Sons, common.	— 17	@ —
Double-refined.	— 26 1/2	@ —
Stone-as shapes.	— 26 1/2	@ —

Machinery.

THE WILSON
Patent Steam Stamp Mill.



This extraordinary Mill, now so justly popular in the East, is now offered to the miners of the Pacific Coast. Having been in operation now for about two and a half years, the Company feel confident that the

WILSON STEAM STAMP MILL,
For Durability, Efficiency,
AND ECONOMY OF WORKING,
HAS NO EQUAL.

The Wilson Steam Stamp Mill is the only Steam Mill that has had the severe ordeal of practical working, and proved itself eminently successful. It is now in operation in several of the Eastern States and Territories, and gaining an enormous popularity. The whole machine is so simple as to be readily understood by the most ordinary minds. In fact, its simplicity is its durability. The expense of crushing rock or cement with this Mill is less than one-half the expense of any other Stamp Mill, and less than one-half the cost. For further particulars inquire of

FURMAN R. WILSON,
San Francisco.

Or of THE WILSON STEAM STAMP MILL CO., 326 Walnut street, Philadelphia, Pa.

NOTICE.—All persons are hereby warned not to manufacture or use any Steam Stamp Mills that are an infringement on the Wilson Patents, as they will be prosecuted to the utmost rigor of the law.

F. R. WILSON,

20v19-1f Supt. W. P. S. S. M. Co., Philadelphia.

VARNEY'S
PATENT AMALGAMATOR!

These Machines Stand Unrivaled.

For rapidly pulverizing and amalgamating ores, they have no equal. No effort has been, or will be, spared to have them constructed in the most perfect manner, and of the great number now in operation, not one has ever required repairs. The constant and increasing demand for them is sufficient evidence of their merits.

They are constructed so as to apply steam directly into the pulp, or with steam bottoms, as desired.

This Amalgamator Operates as Follows:

The pan being filled, the motion of the miller forces the pulp to the center, where it is drawn down through the aperture and between the grinding surfaces. Thence it is thrown to the periphery into the quicksilver. The curved plates again draw it to the center, where it passes down, passing in and between the grinding surfaces. Thence it is constantly passing in a regular flow between the grinding surfaces and into the quicksilver, until the ore is reduced to an impalpable powder, and the metal amalgamated.

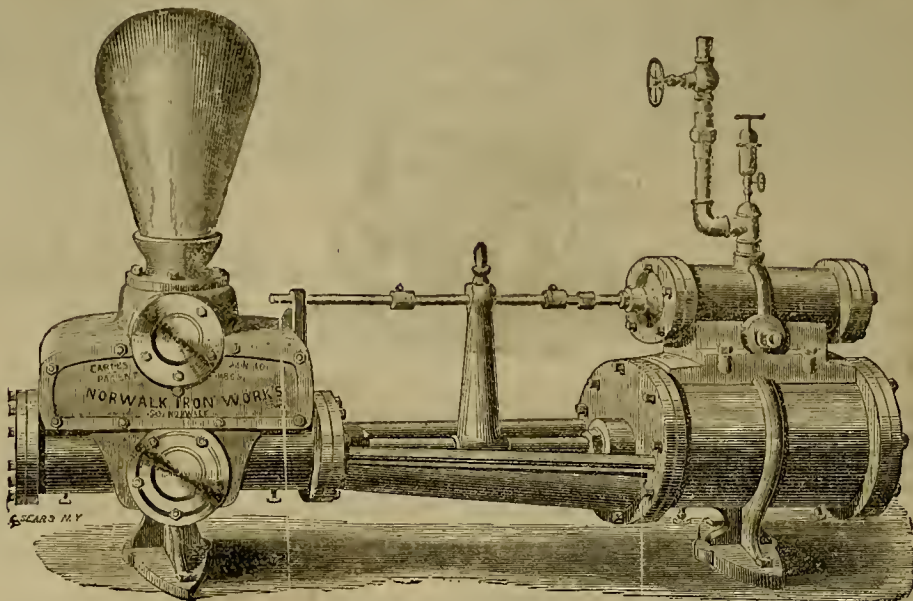
Sellers made on the same principle excel all others.—They bring the pulp so constantly and perfectly in contact with quicksilver, that the particles are rapidly and completely absorbed.

Sellers are invited to examine these pans and sellers for themselves, at the office, 229 Fremont street, San Francisco.

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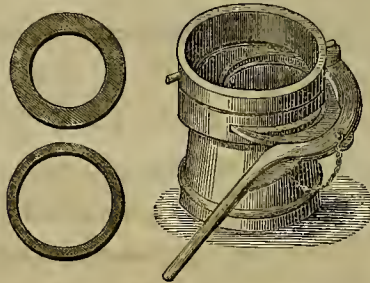
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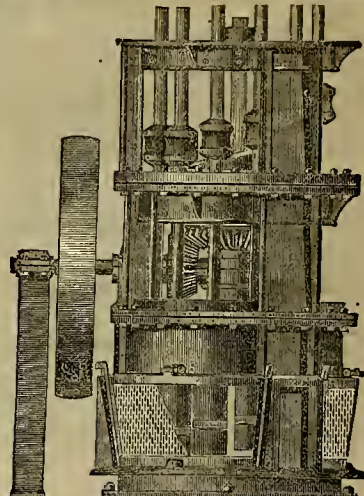
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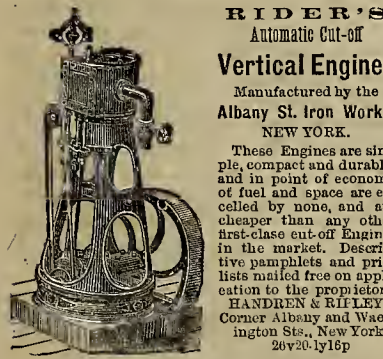
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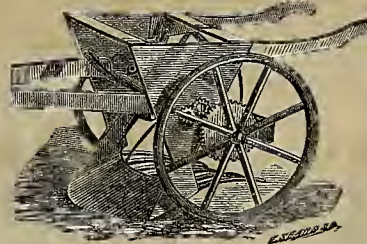
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eration. The tub, or box in which the clothes are cleansed is provided with an adjustable corrugated rubbing
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and gentle, not breaking the buttons and wearing tearing the garments. It would be difficult to enumerate in a
brief advertisement all the superior merits of this novel invention. It can be built by any ordinary mechanic, at a
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San Francisco, Saturday, October 1, 1870.

VOLUME XXI.
Number 14.

Illustrated Reading.

A New Turn-Table.

Among recent inventions, the one here illustrated seems to us to be deserving of notice. It is an improvement in turn-tables which possesses some important advantages over any others of which we know.

This improvement consists in uniting into a continuous trans-beam, independently of the central supporting box, the two sections with each other and also with the

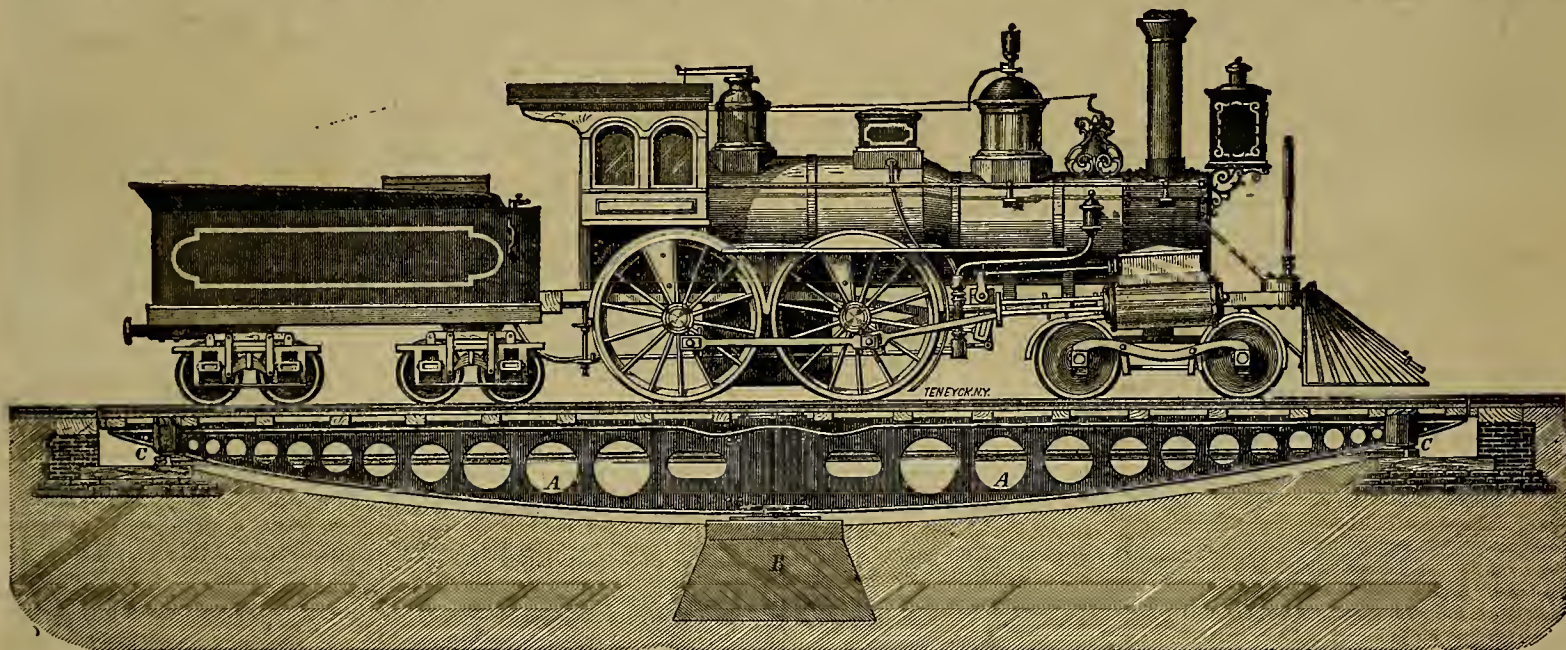
so as to allow the table to tip or vibrate. Above the cap-plate is a friction-box, consisting of two circular plates (one fastened to the cap-plate and the other to a socket plate) between which conical steel rollers run in corresponding grooves in the circular plates, to facilitate the rotation of the table.

The outer ends of the beams are connected by cross bars provided with rollers (C, Fig. 1) which swing over a track without touching it, except when the table is tipped out of the horizontal plane.

as the last, turns with a weight of only 1½ lbs. attached by a cord running over a pulley to one of the arms. It is certain that the device has been highly praised by superintendents of a number of important railroads where it is used. Personally, we are inclined to consider it a most excellent affair.

Tables of sizes varying from 9 to 60 feet in diameter are manufactured at the Greenleaf Machine Works, of Indianapolis, Ind., where resides the patentee, Mr. Clements A. Greenleaf.

ions devices: chucks for holding wheels and centering them from the outside, for holding and centering jewels, in fact, any part of the watch; devices for turning pivots or cutting the teeth of wheels or rectifying these where they have been incorrectly made, as too large or too small; etc., &c. In all the operations the use of cement is dispensed with, and when a wheel, jewel or other article is once fixed in position for centering, it can be turned over without losing its center. These are a few of the many points. The device is the invention



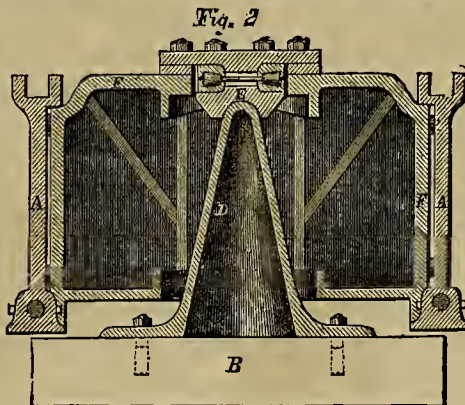
GREENLEAF'S PATENT IMPROVED TURN-TABLE.

box, so that they are most firmly secured to, and suspended on this.

The two sections, A, A, Figs. 1 and 2, are of the form shown, and are metallic plates, with holes therein, for the purpose of reducing their weight, and with a flange around the edges except at the two ends to be united. These two ends fit exactly to one another and are fastened at the top by broad-headed tie-straps and keys, and at the bottom by a cross-tie bar, with keys or wedges which serve to secure this cross-tie and also to draw together the faces of the joints. Thus is formed one continuous beam of great strength.

Two such beams are bolted centrally against or upon the ends of a hollow rectangular box (F, Fig. 2), whose ends fit closely under the inner edges of the beam-edges (by which they are overlapped), and support the beams. Projecting strips, cast on the inner faces of the beams, also bear against the sides of the box. To fasten the beams to the box, there is a system of key wedges, projecting through apertures in the beam and fitted with nuts. The beams are also thereby leveled and adjusted with reference to the axis of the pintle and the surface of the cap-box in the central box.

Fig. 2 shows a section of this box. The pintle, D, is bolted to the central pier, B, and on it bears the cap-plate, E. The upper end of the pintle is rounded as usual,



By this construction, the strain comes wholly on the truss-beams and the central box is relieved therefrom. The system of supports relieves the bolts in a great measure from strains resulting from jars or pressure. Displacement of the connections of the beams by violent shocks is obviated. The table may be taken apart and put together with the greatest ease. Moreover the friction is reduced to a minimum. The inventor, indeed, states that a table weighing 25,000 lbs. may be turned with the point of a lead pencil without breaking the point. Another statement is that a table, 50 feet in diameter, weighing the same

UNIVERSAL LATHE FOR WATCHMAKERS.—A most ingenious device was exhibited at the State Fair, which was remarkable as a piece of mechanical ingenuity. This is a machine for all sorts of work necessary in making a watch. It is of very convenient size and shape and can be handled easily by one acquainted with watch-makers work. It consists of a lathe, with a number of tools which can replace one another, as it is desired to work on different parts of a watch. It is the handiest, neatest and most correct thing of the kind which we have seen, although we do not pretend to be authority in watch making. There are many ingen-

of Mr. Erick Lunedquist, formerly of La Porte and now of Grass Valley, a watchmaker of considerable skill and reputation, who in leisure hours during the last nine years, has carefully and intelligently perfected his machine, which was awarded a diploma and a sum of money at the Fair.

FAIRS.—The Montana Territorial Fair opened on the 26th at Helena. There was a procession, a military salute, and an address by Gov. Potts. There were 200 entries, and a large attendance, over 1,800 tickets being sold, on the opening day. Visitors are continually arriving.

The Colorado Territorial Fair, opened on the 27th. The prospects of a fine exhibition are good. Two exhibits are particularly noted. Georgetown has contributed a silver button weighing eleven hundred and forty-one pounds, claimed to be the largest silver button or brick ever taken out in the United States. It was cupelled from 133 tons of ore from Brown & Co.'s mines, averaging \$545 currency per ton. The first National Bank of Denver has on exhibition a bar of gold 12½ inches in length by 6½ in width, and 4½ inches high. It weighs 2,318 ounces, and is valued at \$50,000. It will be exhibited afterward at St. Louis. It will be then sent to the Fourth National Bank of New York.

Communications.

IN THIS DEPARTMENT we invite the FREE DISCUSSION of all proper subjects—correspondents alone being responsible for the ideas they advance.

The Stetefeldt Furnace.

EDITORS PRESS:—In your issue of the 3d instant, while noticing Arey's furnace, you saw fit to remark of the Stetefeldt furnace that, while it was successful, the high rate asked for the right to use it was a bar to its general introduction; nor words to that effect.

You will admit that high and low are relative terms. The charge for the right to use the Stetefeldt furnace is a royalty of \$2 per ton; while the exclusive right to a mining district is assessed and charged according to the extent and known value of such district. For instance, in this district of Reese River, the Manhattan Company paid \$25,000 for the exclusive right; and their present imperfect experience of the efficiency and economy of the furnace, has shown them that double that sum would be a moderate consideration for so rich a monopoly.

The Furnace Company has two reasons for asking such apparently large sums for the exclusive right to a mining district: 1st, because of the value of the territory; and 2d, because it wishes to discourage rather than to promote monopolies in mining regions.

The royalty of \$2 per ton will not appear high or unreasonable when it is known that that sum is not 20 per cent. of the direct saving by the Stetefeldt process. Demonstrated results, both at Reno and at Austin, show that that furnace saves, as compared with the reverberatory, from \$10 to \$12 per ton, to make no mention of other positive advantages on the score of economy. With this fact admitted, is the royalty of \$2 per ton too high, or even high? On the contrary, I feel satisfied that you will agree with me that the rate is reasonable.

For the benefit of persons seeking information respecting the Stetefeldt furnace—the cost of construction and the charge for the right—I have to request that you will insert the enclosed card in your paper.

Very respectfully

B. J. BURNS.

For Stetefeldt Furnace Company.

Austin, Sept. 21, 1870.

Notes of Travel in Nevada County.

[WRITTEN FOR THE SCIENTIFIC PRESS.]

Hydraulic Devices at Little York.

The Empire Hill claims are owned and worked by the Little York Water & M. Co., Geo. H. Atkins, Superintendent. They are now running two sets of Craig's Monitors, but in winter, when water is plenty, they run six. Sufficient fall is obtained without tunneling, a ravine on either side, (on the West, Empire, on the East, Scott's) forming a natural outlet. On one portion of these claims, 500 inches of water are put through a 4 in. nozzle with 320 feet pressure—hardly believable if not seen. Eighteen months ago Monitors were unknown; in that short space of time hydraulic mining has been revolutionized, and still greater improvements are anticipated.

The system of *Under-Currents*, which are used extensively upon these claims, and also at Gold Run and Dutch Flat, are well worth the attention of the hydraulic miner who has not already put it in practical use. It consists of a set of side flumes, arranged close along side of the main flume, which is broken, at intervals, where a sufficient fall can be had; and close to the mouth of the same, open riffles, made of heavy iron bars, are placed, through which descend the fine gravel and and flour gold, and over which pass the large rocks. The under-current has a side connection underneath, and is so arranged as to be wider for the first few feet, to cause the water to spread and run slower, and then the under-current, being heavily charged with quicksilver and completely riffled, naturally catches the gold. In some claims, a succession of these under-currents, 100 in number, exists for from ¼ to one mile, and the very last often pays from \$100 to \$300 per year, for cleaning up. Extensive cañons, like those here at Little York, are only cleaned up once a year the under-currents once a month, and the main flume once a week.

An ingenious iron strap is used in these claims for connecting hydraulic pipe, and for mending the same when accidentally broken. It consists of a strap of sheet-iron, from 8 inches to 2 feet wide, with from one to three buckles, so arranged as to form, (when around the pipe) a sloping keyhole fastened by a key to fit the same. This is certainly the handiest and simplest device for connecting pipe in the country. A pipe, one-half mile in length, as some are, expands and contracts several feet, and naturally twists and throws itself

out of shape and often breaks. By the introduction of this strap every 50 or 100 feet, this is obviated. The two pieces of pipe to be connected are placed from 4 to 8 inches apart, then carefully enveloped with a piece of heavy duck, lapped once and a half around, then around that is placed this iron strap, which reaches about once and a half times around, and keys as mentioned above. Then, when the pipe expands, it closes into the iron strap, and when it contracts it lets out without leaking a drop.

Correction.

"BIG YIELD.—About forty tons of rock from the Greenhorn mine, Osborne Hill, has just been put through the mill. The result is, in round numbers, \$11,000."

The above item was published in the Press under the head of Mining Summary from Nevada, Sept. 3d, 1870, and is an error. It does not do justice to the mine, nor to the mill that crushed it—the Gold Hill Mill of Grass Valley. Wm. J. Crase is Superintendent of this mill, and under his management no one has ever complained, or had reason to complain. As some dozen papers have copied it, and given you credit, please to correct it. It should read thus:

The fourth crushing from the Greenhorn mine, Osborne Hill, of 46 loads of rock, yielded \$75 ozs. of gold, or \$13,926.25—about \$302 74 per load.

Lowell Hill and Vicinity.

Lowell Hill is situated 8 miles east from Little York, and although quite a stirring little place, has no Post Office, but depends upon Little York for their mails. Quite a number of claims here are doing extraordinarily well. The nature of the pay is blue gravel, slightly cemented, deep channel diggings. The pay dirt is obtained by tunneling and drifting, and then washing in the usual way. The Swamp Angel Co., Messrs. Nutting & Cooper, and the Frick Bros., commenced work in 1867. Tunnel in 900 ft. The principal pay is on the bed rock, although the entire deposit pays something from the top down, and some day will be cleared away by hydraulic process. This claim has averaged \$5 per day to the man since they began, and lately it has paid from \$15 to \$20 per day to the man. Some six weeks since they took out one piece weighing 23 ozs. Success to them; they are industrious and deserve it. The Golden Ball Claim, next adjoining the Swamp Angel, is owned by Murphy & Hill. They have their tunnel in 450 feet, and have been at work about 4 years. The character of the pay is the same as at the Swamp Angel, paying well and not for sale. I was shown some beautiful specimens taken from this claim worth from \$40 to \$100. Mr. M. F. Skeahan owns and works a similar claim at Lowell Hill, and averages about the same.

Remington Hill, 2 miles north of this, is made lively (during the season of plenty of water) by H. Knight and comrades. Just now but little is doing. Hydraulic is the process of mining here, and from the indications it must be the same or a branch lead of the Little York diggings.

Aaron Klipstine, the only agriculturist who has dared to pitch his tent in these parts, has made beautiful about 20 acres of a neat little valley one mile from Remington Hill, and is making it pay. In one corner of his ranch is situated a beautiful moss agate ledge, which he allows his visitors free access to.

Bearing west down this ridge, some 7 miles, is Chalk Bluff, which has visible evidences of having seen better days; at present but little or nothing doing.

You Bet and Vicinity.

One mile farther west the famous town from which we take our never-to-be-forgotten by-word of You Bet. Williams, Brown, and Necco & West own the principal claims, all of which are paying well, and are not for sale. As an evidence of this, they each have beautiful residences fitted up close by, equal to that of a retired merchant of your city, which look as if they intended to live and die there. The nature of the pay here is the same as at Little York. Hydraulic is the process of obtaining it.

Red Dog, a once flourishing little camp close by, is now only known by name. But one solitary individual holds a residence here. The different Secret Orders once had Halls here, and these were well filled on nights of meetings. Some have broken up, surrendering their charters. Among the others, the Odd Fellows have moved their building and archives bodily to You Bet, where they are again in a flourishing condition.

I neglected to state above in referring to Little York that the mines and water privileges of the Little York Water & Mining Co. were about to be sold to an English Co. the figures fixed upon the same as its price, I believe, are \$203,000. W. W. Cozens is the trustee of the same.

Three miles a little north west of You Bet is Hunts Hill, a flourishing little camp (of 100 inhabitants) situated on the west of Greenhorn Creek; nothing like the size it was ten years ago, but all are alive here and kicking. Goodspeed,

Tucker & Carney own the principal claim here. They have two bed-rock tunnels, one, 1200 feet long on a sluice grade; the other is in 700 feet on a water grade for work and drainage. The character of the pay is blue cement gravel, that has first to be crushed to obtain the pay. For this purpose they have an 8-stamp mill upon their claims and with it crush 25 tons per day, working in the day time only. They are drifting off only about six feet from bed rock, with the intention of hydraulicizing the balance. They work 16 men. This claim pays very regularly and satisfies its proprietors. In my next, I will give you some notes from Nevada City, the metropolis (or County Seat) of this County, and extend the same up into what the miners call "Gods Country."

L. P. Mc.

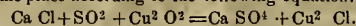
A Roasting Furnace.

[WRITTEN FOR THE SCIENTIFIC PRESS.]

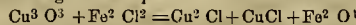
EDITORS PRESS:—In view of the high price which, I understand, is asked for the right to use the Stetefeldt furnace, the following description of a very similar one in use in Europe, extracted from the Chemical News (Am. Rep., August 1867) may be of interest to our inventors. It is used for copper, but might be adapted to silver.

"The calcination of the ore takes place in what is called a water furnace. This consists of a fire tower, about 20 feet high, 3 feet in diameter at the top, and 4 feet at the base, built of brick, with double walls, and having a large water tank at the bottom. Around the upper portion are four fire boxes, opening into the tower, which is closed, and connected with a large fan-blower. By these means, besides the supply of air heated by passing between the two walls of the tower, air and fuel, in the state of dust, are carried down into the furnace.

The heating effects obtained are very surprising. In the calcination of sulphuretted ores, only a moderate temperature and a large supply of oxygen are required. The fire tower of the water furnace being heated to redness, the ore, with or without pulverised fuel, is driven by a small fan down the tower. The sulphur and base metals are rapidly oxidized, and the calcined ore falls into the watertank below, the current of air being carried through successive chambers open to the tank beneath. In the case of sulphuretted ores of copper, the watertank is filled with a solution of the chlorides of sodium and calcium, by which, with the aid of a spray wheel at the end where the current has exit, the sulphurous acid is absorbed, and the oxide of copper converted into the dichloride. Mr. T. Starry Hunt finds the reaction to take place according to the following equation:



The dichloride of copper is held in solution by the chloride of sodium. A small portion of protochloride of iron generally occurs in the solution, which is separated by addition of oxide of copper, according to this equation:



The addition of milk of lime precipitates the whole of the copper as hydrated oxide; simultaneously the bath is regenerated."

It will be seen that the chief difference between this furnace and the Stetefeldt, is, that the current of air passes downward, instead of upward, through the shaft. Now why cannot silver ores, and auriferous sulphurets be treated in such a furnace, with or without the watertank beneath?

C. H. A.

In The White Mountains.—No. 2.

BY ALMARIN D. PAUL.

Deep Spring Valley Mines and Processes.

Deep Spring Valley Mining District is some 15 miles in length, and about 20 in breadth, reaching, as it does, from the summit of the range, to the Nevada line. The ores contain gold and silver associated with lead, antimony and arsenic mainly; in some localities copper predominates with a small sprinkling of other metals. The ledges vary from 2 inches to fourteen feet, the general width ranges from 6 to 3 feet. Some ore is exceedingly rich, and assays can be had to make any figures from \$500 to \$5,000 per ton; but taking a common sense view of the ore, it is safe to say that the district will furnish thousands of tons that will run from \$20 to \$100 per ton.

Perhaps those who may be interested in the district, will say I am doing injustice by not reporting big assays, instead of taking about \$20 ore; but I would say, in answer to this, that all humbugging work is of no avail in the face of facts; that no district proves such blandishment true. White Pine, for about 6 months, (to take similar accounts) assayed from \$1,000 to \$10,000 per ton; but, after practical operations have been entered upon, what are the facts? White Piners can answer. All mining statistics show that the average of any district does not reach \$35 per ton, and that there are 20 tons of ore worked that do not reach \$25, to one ten that goes above this amount; and further, that \$20 ore will make fortunes for its owners, providing fire has not to be used. With such facts staring us in the face all the time, what is the use of using such unreal figures? heating up brains that have got to be cooled by sad disappointments. This is one of the follies which have given such a damper to the mining interest. But I am off my subject.

As a mining district, I will say there are more leads to every square mile than in any other district my feet have trod upon. In fact I will say further, that in this belt of mountains from Columbus District to Cerro Gordo, and below, a dis-

tinued of some 200 miles, the extent of the mining interest is unlimited and inviting. The only works in Deep Spring Valley District are located on Wyman Creek. There are two Mexican Basas, which amount really to nothing, as they are run only semi-occasionally, and one arastra, which works a few hundred pounds per day and does something for its owner. The only important work is the mill of the Deep Spring Valley M. Co., now under the superintendence of Mr. George Langridge. This consists of a 5-stamp battery, has good water-power and commodious buildings, and really is a better institution than one would expect to find in so now a locality. The mill is now working the Paul Process. As the ore contains a percentage of lead, it was impossible previously to bring the bullion above 20 cents per ounce, and this otherwise complicated the working. Since the Paul Process has been introduced, not only are better returns made, but the bullion goes not less than \$1 25 per ounce. This process works ores dry,—dry crushing—dry amalgamating and precipitating metals, by electricity. As this has been previously explained in the Press, it is unnecessary to say more.

Before ever the mining interests get righted in California and Nevada, we have got to save a higher percentage of metals than we do, by saving the fine gold and silver. This we have got to do by working the ores dry; if not dry amalgamating, as by my process, yet it must be reduced dry anyhow. This putting a stream of water to carry the finer metals off down stream, or to be kept under extreme agitation must be stopped before we can make money. The loss to California and Nevada is too enormous to think of. Miners shut their eyes to facts, pocket what they can, foot up profit and loss account, and too often find loss ahead, and quit. We want care and perfectness in working, by whatever mode it is done. In Nevada they rush it "because it is low grade ore," without thinking that by rushing it, it always will be "low grade."

Among the mines of note in this district, I will notice the Tennant, Miller, Eastern Slope, Cinderella, Victoria, Blue Bird, San Juan and Burgans. But this letter is long enough.

The White Pine Smelters and the Mining Interest.

[CONTINUED FROM PAGE 213.]

The prices offered are so far below the intrinsic value of these ores, to say nothing of the cost of extracting them from the mines, and transporting them to the furnaces, that no man can live by his labor in the Base Range. A man with a family dependent upon him for support, loaded a wagon with a couple of tons of ore, of a quality that had previously commanded from 20 to 30 dollars per ton, and took it to Hamilton expecting that the new company would pay something near its value, when offered to them. What was the poor man's astonishment when told that he could have \$8 a ton for his ore! He shoveled out his load and took his departure, with a vow that this company should have no more at any price.

Now these carbonates have yielded in silver an amount all the way from \$10 up to \$200 per ton of ore, and from 20 to 70 per cent of lead, besides a large percentage of copper. To expect the miners to deliver this ore at their own cost, for such a trifling proportion of its real value, is preposterous. When appealed to on the subject, the miners were told that the company would pay more when compelled to do so. It thus appears that the company mean to take advantage of the necessities of the miners, so long as such necessities exist; and when ores have become scarce through the effects of their system, they will offer higher prices. A significant illustration of human selfishness this!

From the above facts, it is easy to deduce the fate of this mining district. In the Base Range proper, there are not twenty-five men at work in their claims at this date. On the spur of Treasure Hill, there is a still less number. On White Pine Mountain, about twenty men are at work. Even these, having ascertained that they must transport their ore a distance of eight miles to Hamilton, and "trust to luck" and the generosity of the smelting company for a proper remuneration, will soon cease to work.

An effort is being made by the officers of the White Pine Smelting Co., to organize a new company in New York to run their works. It will be remembered that this company has recently failed, and settled its obligations at from 30 to 50 cents on the dollar. This, in addition to its failure to encourage mining in this district, and its efforts to reduce the compensation of miners to a minimum, should be not a very good recommendation for the Company.

The Alsop Co., before ceasing operations, to its credit be it said, paid every debt to operatives and miners, and at the highest prices.

The Rathburn Bros. stopped work with their furnace, sent nearly all their bullion away, and then followed themselves, leaving the worn out furnace to settle all demands against them.

Several other furnace operators have done the same thing, only with less loss to the mining community.

It is not that "the bottom has fallen out of White Pine," as some have asserted, nor even out of the furnaces; but that the pseudo-capitalists who have tried smelting here as a business, have had neither bottom nor integrity. This is the true reason for the long contained depression of our mining interest. Now that there seems a prospect of works of some pretension and capacity, with abundant capital to run them, soon being completed, it is a pity that the managers should not understand their own interests better than to discourage mining altogether by a parsimonious policy, which can have no other result than to drive every minor out of the district.

MINER.

Mechanical Progress.

"METALINE" DEFINED.—The patent specification of this anti-friction composition has been published. The invention consists in intimately mixing together two substances, each in a state of minute division, the substances being of such a character, relative to each other, that the particles will not unite; thus, by destroying or nullifying the natural coherence of the particles of each, making them more or less free to move upon each other; the mixture, however, being subjected to such a pressure that it will have sufficient solidity to serve as the material for, say, a journal box. The number of different combinations which may be made is almost infinite. The claim covers all such combinations, upon this principle, of any materials whatever, as will answer the purpose required, viz., the lessening of friction and of heat to such a degree that no oil or other lubricant is needed. We give one of the fifteen "examples" of the mode of preparation which are included in, or incorporated with, the specification:—"Take of iron fifty parts in such a state of division that it will pass through a sieve with at least ten thousand holes to the inch. It is well to protect the surface of the particles of the powdered iron from oxidation before it is compounded with the tin by covering them with any oily substance. Half of one per cent. of paraffine intimately mixed with the iron dust in a heated mill will prevent oxidation of the particles for months. Then take of tin fifty parts, which it is preferred to have as finely divided as the iron, but its high pulverisation is not so necessary as that of the iron for obvious reasons. These metals are then intimately mixed by grinding or otherwise, and the mixture subjected (in steel or other suitable moulds) to pressure to give it the required solidity, say about sixty tons per superficial inch. The required consolidation will be determined by the use to which the resultant "metalline" is to be applied. The proportions given will be found to be those most generally serviceable, but they may be varied to meet the various conditions under which the metalline is to be used."

A NEW CONDENSER.—*The Engineer* of Sept. 2d, gives an illustrated paper by Mr. Henderson in description of his conical surface condenser, and remarks that it opens up an important question. We quote from the paper enough to indicate the principle upon which the new condenser is constructed:—"I consider this condenser to be simpler in construction and more effective than the one in present use, by reason of its shape, as the whole jet of exhaust steam is brought to impinge instantaneously upon a large and unbroken surface, which causes immediate condensation; whereas, with the tubular surface a very small portion of it is brought into immediate contact until the steam has passed down through the tubes, thus prolonging the process; hence the great quantity of surface required to cool the escaping steam to the necessary temperature. I have had this condenser constructed along with a tubular one—the cone representing 3ft. surface, and the tubular 15ft.—and have compared their respective efficiency, every other condition being kept alike for those models. After six different trials had been made, and an average of the results struck, I found that 1ft. of surface in the cone condenser was equal to 3½ft. of the tubular one. * * With a condenser on this principle a great saving of original cost is effected, and it is much more easily overhauled, as by taking off the door at any time the whole condenser can be examined in two hours; whereas at present when the tubular condenser requires to be cleaned it takes from three to four days, and in many cases a fortnight. Again, the risk of leakage is greatly lessened from the very few joints in the cone condenser, these being only seven in number; whereas the tubular condenser contains many hundreds."

FOUR HUNDRED SEWING MACHINES A DAY.—*The Iron Age* of Sept. 15th has the following:—"The Howe Sewing Machine Company, of Bridgeport, are completing a new building three hundred feet long and three stories high. During the six days ending August 20th, the records in their office show a production of 2020 sewing machines, and during the six days ending August 27th, a total production for the week of 2429. This is an average of a few over 400 machines per day."

HOMOGENEOUS IRON IN LARGE MASSES.

A new arrangement was described in a paper read before the Cleveland Institute of Engineers. Briefly stated in the *U.S. Railroad Register* it is this:—A welding furnace stands between two powerful horizontally-mounted cylinders; one carrying an anvil-headed piston rod, driven by a hydraulic valve box; and the other carrying a hammer-headed piston rod driven, in the ordinary way, by steam. Two side doors, opposite to each other, in the walls of the welding furnace, permit the entrance of the anvil on the one side and the hammer on the other. A man works the hammer, and a boy the anvil. "Ball after ball of the charge of No. 1 puddling furnace is introduced as rapidly as possible into the welding hearth. The whole time of transfer need not exceed five minutes. The whole charge being in, the attendant introduces a hook through the hole in front and draws a ball in line with the anvil. The steam ram gives it a few light taps. The iron soft, the furnace hot, the flame playing round the ball, no oxidation taking place, and the surfaces to be welded vertical, the cinder flows out as water from a sponge. Another ball is drawn into contact with the first, and the hammer brought into play. The anvil is then withdrawn a little to find room for the next ball, which is added to the first two, and finally we have the contents of the two puddling furnaces welded into a single bloom, weighing some seven hundred weight, and of the same consistency throughout."

NEW PIPE-JOINT.—A recent French invention is thus described:—"Serrations are formed around the ends of the pipes for a length of 3 or 4 inches. The ends are then inserted in a hollow cast-iron collar, being made to butt against each other. On the inside of the hollow collar projections are cast which nearly correspond with the serrations on the ends of the pipes. An annular space is thus formed around the butt-joint, which is filled in through a hole in the collar with cement in which sulphur is the leading ingredient. This is poured in whilst in a liquid condition and quickly sets without shrinkage, forming a hard compact mass which, filling the spaces between the serrations, prevents the pipes being withdrawn. To open a joint the application of heat is all that is necessary, when the collars can be slipped backwards."

DUST FUEL.—*London Engineering* describes Crampton's furnace at Woolwich, and his arrangements for burning dust coal, now for the first time a complete practical success. We quote and condense: "The powdered fuel is fed from a hopper by a pair of smooth feeding rollers, and falling, is distributed to a series of pipes, through which it is injected into the furnace by means of jets of air supplied by a fan. The jets enter the combustion chamber horizontally, opposite the bridge, and by a simple arrangement it is insured that the mixture of air and coal dust shall be perfectly equable throughout the entire width. The chamber is simply formed by placing a firebrick bottom where the firegrate is ordinarily situated, provision being made for tapping at intervals the slag which accumulates from the melting of the foreign matters mingled with the coal dust. By means of a damper in the chimney the draught can be adjusted. The furnace has turned out fifty successive heats, averaging 30 cwt. of blooms per heat, without the bandlee governing the supplies of air and coal ever having been moved. The weekly averages have shown a consumption of but 6 cwt. of coal per ton of iron turned out, this being done with dust coal obtained by grinding common slack, costing several shillings per ton less than the coal ordinarily used. Various experiments have been made for the purpose of showing the heat obtainable. Thus on one occasion there was placed in the furnace, in a pot, 25 lb. of puddle bar which contained 0.04 per cent. of carbon. This was melted in one hour and forty-five minutes."

ALUM IN THE PRINTING BATH.—*Anthony's Photographic Bulletin* advises a combination of alum and nitrate of silver for a printing bath for albumenized paper. We quote:—"Every photographer knows how invariably a scum forms upon the surface of a silver solution which is not constantly used. By the use of alum this scum is entirely prevented, the double solution appearing to have the quality of more perfectly coagulating the albumen. As a consequence the paper keeps its whiteness in hot weather much better than when the simple silver solution is used. In preparing the solution it is merely necessary to add as much alum as will dissolve."

Scientific Progress.

LEAVES DO NOT ABSORB MOISTURE.—M. Prillieux has recently given the French Academy the results of some experiments which seem to prove that leaves do not absorb moisture from the atmosphere, and that nearly all the water which a plant receives must therefore be taken up through its roots. We give one of the experiments. "Five leaves of common Mallow, completely wilted, were cut from the stem so that their footstalks were quite long. The section was protected by mastic so that no absorption could take place from the cut surface. The leaves weighed 5.98 grams. They were suspended in a large bell glass in air saturated with moisture. In three days the leaves had recovered their fullness, and become firm and fresh. They weighed, however, only 5.58 grams, having lost 40 centigrams, thus showing that they had not absorbed any moisture from the air; on the contrary they had lost instead of gained, although no longer wilted." A number of similar experiments are detailed. The upper leaves and the small secondary branches, and, in general, the youngest parts, become fresh soonest. The stem, in a part of its length, shrinks upon itself, and assumes a shrivelled appearance, but this does not extend as far as the top. This shows that the youngest parts and those nearest the summit regain their freshness at the expense of the lower portions. The moisture which thus rises to the top is not of course so soon removed in the humid atmosphere, as in the open air."

SULPHUR IN ILLUMINATING GAS.—The first report of the London Gas Referees shows that the present processes for sulphur purification are so defective that in most cases they make no difference whatever in the amount of sulphur present, and in some cases the gas was found to contain one third more sulphur after leaving the purifiers than before it entered them. Professor Silliman remarks upon this Report in the Sept. number of the *American Chemist*. We quote:—"There is no question as to the power of oxide of iron and lime to withdraw a large portion of sulphur from gas under certain circumstances; but it is evident, from the facts already obtained in these experiments, that an adequate knowledge of how to apply these purifying materials in gas-works, so as to produce satisfactory results, has as yet to be acquired. Laboratory chemistry is obviously at fault here; no appreciable advance has been made in sulphur purification during the last ten years; and the real means of improvement must be looked for in experiments on a manufacturing scale in the gas-works. * * Rev. Mr. Bowditch describes his method of removing the 'sulphur impurity,' i. e., the sulphuretted hydro-carbon series of gases—by means of a tube containing quicklime heated by a lamp-flame or furnace, over which the gas to be purified is passed—and the sulphur removed by the lime at a high temperature. Additional researches are demanded in this direction, and if so low a temperature as 500° F. will effect the change, it is certainly possible to devise a process which can be employed in the gas-house in a large way to desulphurize the whole make of the largest gas-works."

ELECTRO-COATING IRON WITH COPPER AND BRASS.—"The electrolytic brass bath consists of an aqueous solution of equal parts of ammonio tartrate and potassic cyanide. After receiving cyanide of copper and cyanide of zinc in certain proportions, the oxides of the metals are added to the solution. If upon trial, this solution works with the evolution of hydrogen, a little of the blue ammoniuret of copper is added to the cold bath. The heat that may be used to this bath determines the color of the brass, and may vary from 60° C. to nearly boiling point."—*W. H. Walenn, F. C. S.*

STALE WINES UNWHOLESOME.—J. Guyot, in pointing out the unwholesome character of wines to which, for the purpose of exportation, alcohol has been added, says that all animal and vegetable products, when brought to a state of chemical purity and stability, are unfit to serve as food, and that to make a wine keep is to kill it. It is a well-known fact that many small wines are only good during their first year of existence. Such a wine is active; and it is just that activity which makes it a wholesome beverage.

BIRDS AND INSECTS BECOMING WISER.

M. Pouchet, the Director of the Museum at Rouen, and a well known naturalist, has discovered that the new school of swallows are improving their style of architecture, building their nests with more regard to sanitary principles, so as to contain more room and admit more light and air. * * A parallel instance in bees is noticed by Dr. Ogle. The arrangements for the cross-fertilization of the flowers of the heath and other papilionaceous plants by bees, are well known, as also the fact that bees have the trick of evading their duty by piercing a hole in the side of the calyx of heath-flowers, so getting at the nectar by a short cut. Dr. Ogle has remarked that while some bees visit the blossom in the natural way, and in so doing take pollen from the anthers of one flower to the stigma of the next, others avail themselves of the shorter cut; but that an individual bee, visiting a succession of heath flowers, uniformly does either one or the other. It would thus appear that the habit is not an instinct, belonging by inheritance to the whole species, but is in each case the result of individual experience.

MUTUAL INTERPENETRATION OF ATOMS.

Prof. Walling read a paper at the late meeting of the American Association upon "the assumption that matter is impenetrable." The *American Chemist* makes this note of it:—"He assumed that the true cause of the mutual resistances manifested when one body is made to encroach upon the space occupied by another is that atoms gravitate toward each other and that no resistance is offered by one atom to the occupation of the same space by another atom. It follows from these assumptions that the momentum acquired by mutual gravitation would carry each atom through and beyond the position of the other; a tendency to subsequent separation of enormous intensity would be produced, and it is this dynamic tendency to separate—constituting a virtual repulsion—and not impenetrability or real repulsion, that causes the apparent resistance to mutual interpenetration."

CLEARING OF MUDDY WATER.

Dr. Cb. Schloesing states that water, otherwise pure but contaminated simply with elsy, becomes at once clarified by very minute quantities of some salts of lime. 1-1000th part of chloride of calcium for 1 part of water effects this purpose in a moment; the nitrate, bicarbonate, and caustic lime act in the same manner. The precipitated substance may be readily separated from the water by filtration, whereas the filtration of the water containing the suspended matter is very difficult, because the pores of the filters are choked.

BOG IRON ORE.

Referring to Prof. Winchell's statement that the bog ores of Michigan were deposits in lakelets, the *U.S. Mining Register* says:—"The fact has been made patent by all our observations for the past forty years, that the exceedingly ancient (palaeozoic) Coal Measures, or Sub-carboniferous ore strata were local deposits of iron in peat bogs, in small ponds or lake-like expansions, in drift sands (whether sub-aqueous or sub-aerial drift is another question); covered over afterwards by the Coal Measures proper; then chemically converted into blue carbonate beds; then uncovered and cut into by the general erosion of the hill and valley surface; and when so exposed, reconverted through the lapse of all subsequent ages into the brown hematites which our furnace men so like."

GLACIERS OF SCOTLAND.

We find this note in *Silliman's Journal* for September:—"Prof. Uroll, in a memoir on the 'Boulder-clay of Caithness,' takes the ground that the boulder drift of Scotland is due mainly to glaciers, and not to ice-bergs, and points out the direction of the movement of the great glacier, not only over Scotland, but over the seas north and east, illustrating the subject by a map. He finds an argument for its glacier origin in the fact that the drift is *unstratified*, remarking that depositions from icebergs would necessarily be more or less stratified by the waters in which they fall. The argument is one that cannot be set aside, and holds as well for New England and the rest of North America as for Scotland. Prof. Dana, in his recent paper on New Haven Geology, draws the same distinction between the drift that was deposited by glaciers over the land, and by glaciers over waters."

Mining Summary.

The following information is gleaned mostly from journals published in the interior, in close proximity to the mines mentioned.

California.

ALPINE COUNTY.

TARSHISH.—*Miner*, Sep. 17th: The work of raising a shaft to connect with the old works above has been commenced.

The ore in Monitor tunnel No. 3, is improving materially as the drift next the casing gets deeper under the mountain. The new furnace and air pipe work splendidly.

GLOBE.—We learn that this company will put up a mill of 25 ton capacity this Fall. The ledge is 20 feet thick—and easily mined.

MORNING STAR.—Work has been commenced again. John Landers, on Monday went up to get everything in order and pump out.

AMADOR COUNTY.

RICH ROCK.—*Ledger*, 24th: We understand that the men sinking the shaft of the Coney, struck very rich rock Wednesday.

MORE MINING.—Beldin, Hatch & Co., have taken hold of the Kearsing mine and set men to work.

BUTTE COUNTY.

CHEROKEE.—*Record*, 24th: The work of laying the 30 inch pipe for the canal of the Spring Valley company, is progressing rapidly. Four teams are hauling pipe from Oroville, and four more delivering it on the line of the ditch. Mr. Lathrop expects to have the pipe in readiness to receive water as soon as the wet season sets in.

INYO COUNTY.

BULLION.—*Independent* 19th: The shipment of fine bullion, last week from the earstage, was 4,050 ounces.

LASSEN COUNTY.

BIO VALLEY.—*Yreka Journal*, 21st: Haskings, Ehlers & Co., are down seven feet, and find the claim paying as rich as ever, but short of water. When our informant left, they had eighteen pounds of gold amalgam, and dirt ready for washing, which contained between seven and eight thousand dollars.

The Susanville *Sage Brush* of the 10th, says of the Big Valley mines: Mr. Miller informs us that the owners of the original claim were hauling the dirt a mile and a half to some springs, and washing out \$175 to \$350 per day with two rockers. They were about to commence hauling the dirt to Willow Creek, four miles. Mr. M., says there is much ground which will pay from sixteen to twenty dollars a day if water could be obtained.

MARIPOSA COUNTY.

PINE TREE MINE.—*Gazette*, 23d: This mine, the most important on the Mariposa Estate, is opened 1500 feet into the mountain from the mouth of the new tunnel, and below that has three working levels at intervals of 80 feet, carrying the present workings down 240 feet below the new tunnel. The vein averages six feet in width and exhibits free gold all through it. The rock at the several levels is raised by steam power to the chamber in the new tunnel, poured into a car, and run out on a tramway to the mouth, where it is emptied into a car on the railway leading to Benton Mills. The average quantity taken out is fifty tons per day, giving employment to seventy-five men. This mine was never more promising.

RICH VEIN.—We learn that exceedingly rich rock has been found in the tunnel on the Eclipse mine, North Fork of the Merced. It prospects over \$100 per ton. The mine is owned by P. Winants, of San Francisco.

NEVADA COUNTY.

PROGRESSING.—*Gazette*, 20th: The Ynha Gravel company are down 75 feet with their shaft. They have passed through one layer of gravel 17 feet thick, and are now in hard pipe clay. They expect to reach bed-rock at 110 feet. It will take two weeks.

BRANCH MINT TUNNEL.—This has now a length of 425 feet, and will require 50 more to strike the ledge at a perpendicular depth of 130 feet.

ORLEANS QUARTZ COMPANY.—*Transcript*, 20th: This company have let a contract for setting the engine and boiler of their hoisting works, and for erecting a building. They propose immediately to sink one hundred feet deeper.

OLD SOOGS.—This mine is likely to pass into the hands of parties who intend to put up machinery for pumping, and open the claims below the head of Deer Creek.

DEVIL'S CANYON.—Same of 21st: This is in Eureka Township. The middle tunnel of the Grizzly mine is being worked and first-rate rock coming out. Kelsey,

Myers & Powers, have leased the mine and have out 60 tons of rock. By the end of the week they will have 20 tons more, and will start the mill on Monday. The Prospect ledge at last crushing paid \$25 to the ton, and some of the rock prospected as high as \$2,000. This is a new ledge. Another which shows 30 feet wide on the croppings, is being opened. The tunnel is in 80 feet and will tap the ledge in 25 more. In the same vicinity splendid gravel prospects have been obtained. The gravel is blue and contains wash gold. The lead is 100 feet wide.

EMPIRE MILL DESTROYED BY FIRE.—The Grass Valley *Union*, 22d: The destruction of the mill and the main hoisting works, with a large quantity of supplies is complete. The ground on which the magnificent mill stood is completely swept. The entire loss to the company, after a careful estimate, is \$140,000. The mine has been paying well, and therefore damages will be rapidly repaired. The mill and machinery were insured, and not the hoisting works and machinery, nor the wood on the ground, nor the company's office. The loss at the mill alone is above the insurance, which is \$40,000.

BRYAN LEOEE.—We notice continued improvement. A new shaft has been put down which reaches the depth of seventy feet. The ledge is three feet thick, and shows well in mineral.

HOPE GRAVEL.—*Union*, 25th: We yesterday saw a nice little dahl of dust from the Hope Company's claims. Sixty-six ounces of regular river channel gold, were taken out in the three days, two men running the breast.

EUREKA DISTRICT.—*Transcript*, 27th: Graniteville has a good prospect before it. Black & Co's. mill is running constantly and crushing first rate rock. The Erie Co. has out 150 or 160 tons of rock, and will start the battery during the week. The Birchville Co. are sinking, and expect to strike the ledge soon.

METROPOLITAN.—This mine is between Moore's and Orleans Flat. They have a first rate ledge and a considerable quantity of good rock out. The new double battery mill will start up next week.

PLACER COUNTY.

LAST CHANCE AND VICINITY.—*Stars and Stripes*, 22d: The editor has made a visit to that region. There are in Last Chance no awning-post whittlers. Everybody is at work, and business is healthy. At Star-town, one of the suburbs, the main street is not exactly perpendicular but is still far from horizontal. The river runs swiftly a thousand feet below. The work done in the Morning Star mine and the adjoining of Yule & Co., is no child's play. Bedrock of flinty hardness has been penetrated for hundreds of feet to enter a basin of vast extent, filled with boulders of enormous size. The deposit in which they are working is wonderfully rich and has paid with extraordinary regularity. It will take the labor of a lifetime to exhaust the pay gravel in those two claims, and there is every indication that the channel extends for miles. The is from the size of apple seed to pieces weighing ounces, and is of unusual purity, selling at Michigan Bluff for eighteen and one-eighth dollars per ounce.

GOOD YIELD.—*Herald*, 24th: Miller, Nichols & Mannel had twenty-six tons of quartz from their old claim near the old Crossus, crushed this week at the Ophir, which yielded eighty-five ounces, of amalgam, reckoned at \$900 in gold, making \$34 to the ton. The previous crushing from this claim gave \$20 per ton.

SAN DIEGO COUNTY.

JULIAN DISTRICT.—*Cor. of Alta*, 17th: We now have three mills—two running constantly on custom rock, the third will be ready to start in ten days, and will only crush the rock of the Stonewall. The Owens mine has a shaft down sixty feet and a drift to cut the ledge at that depth, where they are taking out very rich ore. The last batch of 100 tons yielded \$30 to the ton. The Washington has a shaft down thirty-five feet, and are taking out very rich rock, which is being hauled to mill. The last crushing yielded \$107 per ton. The Hayam has run a tunnel 100 feet, cutting their ledge at a depth of 75 feet. They are taking out fine ore. The last crushing showed \$20 per ton. The California has one of the richest bodies of ore in the district. The Helvetia bids fair to become the main ledge. Two hundred tons recently milled yielded \$21 per ton. The Montezuma is supposed to be the extension. The Van Wert has a shaft fifty feet deep. They show a firm ledge with rich rock. At a recent crushing this ore was found to yield thirty dollars per ton. *We want more mills.*

A San Diego telegram of 23d, says that during August, two mills at Julian City

crushed seven hundred tons of ore, which averaged thirty dollars per ton. The placer diggings yielded \$3,000 worth of gold dust, making a total of \$24,000.

SHASTA COUNTY.

UPPER SACRAMENTO.—*Courier*, 24th: Sim Southern came down Tuesday, bringing several purses filled with gold dust, or rather nuggets, some of them weighing from \$10 to \$32. A portion of this was taken out of claims on the river, but the heaviest was from a stream called Mears' Creek. This empties into the Sacramento above Southern's Ranch, is fifteen miles long, and undoubtedly contains pay from its mouth to within seven miles of its source. Fifty men can get claims there for the taking.

SIERRA COUNTY.

GIBSONVILLE.—*Cor. Butte Record*, 24th: A number of miners are prospecting on the Plumas side of the Gibson Ridge, at Point of Rocks. They think they have struck diggings, and the Surveyor has been measuring off claims.

GIBSONVILLE.—*Cor. of Messenger*, 24th: The North American claims are handed to the agent of an English Co. for \$97,000, to be conveyed after next season's washing up—in case the cash is forthcoming; and the Niagara and Vermont claims are similarly handed for \$24,000. The conveyance to be made in fee simple. The North American claims are 1,600 feet in width, running a mile more or less. They are standing higher in the market than heretofore, on account of the completion of their new tunnel, and the large prospects from it, two to four dollars a car load. The Niagara claims are believed to be good, being upon the same channel with the above. The Ne Plus Ultra have their reservoir, ditches, and sluices about completed, and report good prospects. Pilot Co. No. 1, are about starting a new tunnel, eighty to a hundred feet lower. They will have a thousand or more feet to run through rock. The Nevada have got their diggings pumped out and are in full blast with their new engine. The Union Company washed out last week nearly two ounces from eighteen carloads of gravel from a prospect tunnel. The Nip and Tuck are working 25 hands; I was informed by the President, that \$17,000 were washed out from four and a half weeks' work at the close of the season, leaving \$12,000 profit. Mr. Taher has completed an air shaft, and is now prepared to test the gravel.

PORT WINE.—The Monte Cristo Company, at Queen City, has been running a bed-rock tunnel for eighteen months, and recently struck through into pay gravel. This claim, so far as worked, has proved the richest in northern Sierra.

SISKIYOU COUNTY.

SOOTH BAR.—*Yreka Journal*, 21st: Ryan & Co., have again struck rich prospects in their quartz lead. Having run a tunnel to the ledge, they drilled several times, and the powder failed to blast the rock. They finally prospected the dust, which they had been tamping with, and washed out \$200. They ran a side drill into the ledge, and succeeded in blasting out a quantity of rock, exposing a rich exhibit of gold, and showing that the failure of the previous efforts to blast, was occasioned by the threads of gold binding the rocks together.

TRINITY COUNTY.

ITEMS.—*Journal*, 24th: Thomas Cagle is extending his flume to Trinity river. Whitmore & Co. cleaned up last week, obtaining good pay.... The shaft being sunk by Richards and Baker is down eighty-eight feet. The gravel has been growing finer. They are now in cement. There is but little water.... Wm. Ritterbush has been running tunnels into the hill opposite Northfork and has found a hack channel that prospects well.... The big flume in Weaver creek been leveled and prepared to carry the winter freshets. The company will not put in any more boxes at the head this season. They will add thirty or forty at the tail end.... The ledge discovered by R. Silcox at Indian Valley is found to be rich.

Nevada.

COPE DISTRICT.

SMELTING WORKS.—*Elko Chronicle*, 25th: We visited the works of Gerrish & Co., above town, yesterday, and found the roasting furnace full of ore. The smelting works will be in operation, Tuesday.

ESMERALDA.

DUNDERBERG MINE.—*Enterprise*, 21st: Dr. Muuckton of the Dunderberg, will have his new 10-stamp mill running by the middle of next month. His lead is 30 feet wide with a pay streak seven feet. Some specimens he showed us are very rich in both silver and gold, and an assay made in San Francisco went \$1,622 in silver and

\$265 in gold—total, \$1,887. An assay made yesterday in Silver City of another specimen went \$2,115 18.

HUMBOLDT.

GOLD RUN.—Correspondence of *Register*, 24th: The road from the Buckley mine to the Home Ticket is just completed. This will give easy access to the above mines. L. D. Webb, is prospecting on the second extension South of Golconda. He has a ledge three feet wide with good walls and solid mineral that is equal to the best Golconda milling ore. Mr. Webb has run in on the ledge ten feet, and has taken out 30 tons of fine milling ore.

REESE RIVER.

BULLION.—*Reveille*, 19th: On Saturday the Manhattan shipped twelve bars of bullion, weighing 10,333 pounds and valued at \$16,277. On the 19th the Co. shipped four bars valued at \$2,634.

RICH.—A small lot of three-fourths of a ton of ore from the Oregon mine, just worked at the Manhattan mill, yielded silver at the rate of \$3,000 per ton.

BELMONT.—*Cor.* of same 24th: Some most interesting and splendid specimens of surface silver ores are obtained from the exposed portions of the El Dorado South lode. Only a portion of the vein matter is in the solid condition. Nearly the entire vein above water is in a state of chloridization. The lode varies from fifteen to forty feet in width. The productive portion from nine to twenty-three feet. At the depth of 240 feet in the main working shaft, at water line, a level north in the solid ledge is now in sixty feet, proving it to be over eleven feet in width. At the south workings an enormous mass of chloride ore, overrides the solid lode, which has worked at the mills \$130 to \$562 per ton. There is now on dump-pilks 1,000 tons of first and second class ore. That added daily to the present large amount proves the ore alone in sight above water line to be worth at least a quarter of a million of dollars. Already over \$130,000 has been the yield of ore from this property, at an average of \$176 per ton.

WASHOE.

OPHIR.—*Enterprise*, 26th: Rumors of a rich strike have been in circulation for two or three days.

SAYAOE.—Daily yield 60 tons. A body of ore—the same struck on the D street level of the Gould and Curry—has been developed. This is turning out splendidly. The ore mills \$36 per ton. That from the eighth station yields \$28.

SACRAMENTO AND MEREDITH.—Since last report there has been a change for the better in the ore extracted. Judging from present appearances, their next clean-up will be better than any they have yet made. They reduce 48 to 55 tons of ore per day.

OCCIDENTAL.—The Co. are taking out 60 tons per day of good milling ore, from drifts running from the winze from the lower tunnel. The mill is in constant operation and is found to work to perfection.

VIROINIA CONSOLIDATED.—The tunnel from the shaft at the 500-foot level is in 630 feet. The upper works produce eight to ten tons of good ore per day.

CALEDONIA.—Taking out 50 tons of good ore per day, which is being crushed at the Piute Mill. The rock appears to improve as it is followed down. Car assays average \$43. Some has been found in the bottom of the mine that assays over \$1,000; but this is from selected specimens.

HALE AND NORCROSS.—The Co. are taking out 230 tons per day of excellent ore. The north winze is down 60 feet below the seventh station and is in very fine ore.

IMPERIAL EMPIRE.—The daily yield is 40 tons from the upper works of the old Imperial. The main shaft has been sunk to a depth of over 1,300 feet.

OVERMAN.—The body of ore on the 226-foot level, 200 feet east of the shaft, is of fair quality and has the appearance of being extensive. The richest ore in the mine is found between the 400 and 500-foot levels.

GOULD AND CURRY.—The rich deposit of ore lately found is yielding a large quantity for milling.

SIERRA NEVADA.—They have an abundance of fair ore, and their mill is kept in constant operation. Their supply of low grade ore may be said to be inexhaustible.

SEGREGATED BELCHER.—Are taking out ten or twelve tons of fair milling ore per day from the 300-foot level. The Eureka mill has been crushing ore for them, but it is at present shut down on account of scarcity of water.

SUTRO TUNNEL.—Yesterday the tunnel was in 1,582 feet. The rock is still softer and they have made during the week thirty-eight feet.

BELCHER.—Yielding twenty tons per day. Prospecting is still vigorously prosecuted.

HOPE.—Yielding the usual amount of ore per day, milling on the average \$23 per ton. The mill is kept in constant operation.

CHOLLAR POTOSI.—Yield of ore for the week 1,600 tons. All parts of the mine are looking well.

WHITE PINE.

REVIEW.—*Nevada*, 25th: We report continued improvement in the aspect of our principal mines. In the Base Metal Range great quantities of ore are accumulating on the dumps. This is attributable mainly to the erection of the Matteson Smelting works—the successful starting of which has guaranteed ready sale for ores at fair prices.

ITEMS.—Aurora South: One hundred men are taking out sixty tons high grade ore daily.... In Original Hidden Treasure twenty-five men are at work. The mine never looked better, and an exceedingly rich pocket was struck during the week.... Silver Wedge is producing better ore than over.... Ward Beecher yields twenty-five tons per day; employing twenty-six men. The assays during the last month average \$50 to the ton.... Consolidated Chloride Flat mines have been leased and men are at work.... Burning Moscow shows good ore; twelve men at work.... Noonday takes out ore good and plenty.... Virginia is preparing for the resumption of operations, Monday.... Addington, on the western slope, has been leased to J. C. Powell, who has twenty tons of ore on dump, which will mill \$60 per ton.... Eberhardt works fifteen men in the Keystone and Blue Bell shaft; but "num" is the word.... Jennie A is taking out immense quantities of good carbonate ores.... Camperdown, on the eastern slope, is taking out fine carbonate and galena ores. The incline is down 80 feet, in ore all the way.... Blue Cloud shows good carbonates, but galena predominates. Three shafts twenty feet deep have been sunk; twenty tons fair ore on dump.... Ticonderoga has a shaft twenty feet deep, out of which forty-five tons of fine ore have been extracted.... The mines at Mount Ophir are nearly all at work. It is intended to start the Monte Christo mill with its new Stetefeldt furnace, to-morrow.... The Stanford mill will start upon ore from the South Aurora, October 1st.... The Dayton and Manhattan have been running for the last week.... The Henderson mill has started up.... The Rathburn furnace is having a new lining and will start in a few days.... Matteson furnace No. 1, turns out six tons of bullion per day; No. 3, is almost ready; No. 2, is drying.

BASE BULLION.—Jennie A, shipped yesterday, to San Francisco, 615 bars, weighing 55,350 pounds, smelted in the Rathburn furnace since Monday morning, out of 77 tons of ore.

OUTSIDE DISTRICTS.—Robinson begins to be lively. The Cummings mine employs a large force. The furnace will start again Sunday with a large supply of coal.... Nothing doing at Egan. The Gilligan mine has sent a lot of ore to Reno, to be roasted in the Stetefeldt furnace, and if successful, the company will erect a furnace and start work.

SPIRITUAL.—F. M. Clark, of Reveille District, was told by a female medium in Chicago, a year ago, that a large body of rich ore might be found by moving one foot to the north and going down 15 feet on the Santa Fe claim, which had been abandoned after sinking a hole 6 feet in solid limestone. Also, that in the Fisherman ledge, 15 feet from a certain point, rich ore would be found. Directions were followed and \$1,600 ore turned up in the first case, and \$6,000 ore in the second. This must be true, for the *Nevada* has some of the ore.

EUREKA.—*Sentinel*, 24th: Work has been commenced again on the El Dorado mine.... The new engine for the Jackson Works, is in place. The company has struck \$300-ore.

Arizona.

UNCLE BILLY.—Prescott *Miner*, 10th: V. B. Pointer closed operations on his mine on Lynx creek last week, for the season—water having failed. He states that on the last run he ground 26 tons of rock, from which he realized \$1,200 in free gold.

BRADSHAW.—The Del Pasco were getting out decomposed rock of surprising richness—\$38 had been washed out of one pan of the rotten vein matter, and from \$10 to \$20 had been frequently obtained. They were grinding the rock in arrastras.

ITEMS.—Same of 17th: Messrs. Bain, Alexander, and others, came in from the Bradshaw mines during the week. Del Pasco were down 20 feet—were drifting from the bottom, and getting as rich ore as

any yet. Pieces of rock in which no gold was visible, on being crushed and washed, yielded enormously.... Operations at the Sterling mill are suspended for lack of water. The short run is said to have been satisfactory, the yield of free gold being \$14 per ton. One mile below the site of the mill there is plenty of water in the driest season.... Chas. Otten on Sunday, brought in over a pound of gold. Otten has a good claim on the Hassayampa.

Idaho.

ITEMS.—*Avalanche*, Sept. 17th: The shaft on the Illinois Central, is down 30 feet. The average width of the ledge is 15 inches. The quartz is rich in silver, intermingled with fine gold.... The new shaft on the Red Mountain is 30 feet deep, from the bottom of which a drift has been run north 30 feet. The ledge is 16 inches, containing small rich streaks. The most valuable portion is put in sacks.... The Chipmunk shaft is down 42 feet. The ledge is increasing in width.... Pete Nick, on the Corduroy, has 35 men at work. The winze is down 65 feet, showing a vein two feet.... There are one hundred men employed about the Chariot.... Clark has 65 men at work in the Ida Elmore and New York.... The Blue Jacket shaft, is 55 ft. deep, showing a ledge two feet wide. There are 40 tons of ore on dump.... "Swallow" is a gold bearing ledge discovered this week by Sam Slick, in Vass Gulch. At a depth of five feet the vein is 20 inches in width and prospects 15 cents to the pan.... Judge Robinson and Dan Monroe are working the "Mitrailleur." The vein is only three inches in width but will yield \$300 per ton in gold.

Lower California.

SAN RAFAEL.—San Diego *Union*, 22d: We are informed that there are between 300 and 400 people in the Valley mining region. About \$1,000 worth of gold dust from these mines has been sold in San Diego during the past week.

A San Diego telegram of 27th says: Two Mexicans discovered a quartz ledge in the vicinity of San Rafael Valley, which is so rich that a small piece of ore weighing sixteen ounces contained fourteen ounces of pure gold. Numbers from all parts of the country are leaving to visit these mines.

Montana.

PILGRIM BAR.—*New North West*, 16th: The clean-ups yesterday, were Berry & Co., \$3,450; Blair & Co., \$2,000; Catching, Kohra & Co., \$1,926; Roberts, Fly & Co., \$1,300. The others were up to average. Thos. Irvine, Jr., James Pierce and H. C. Fisher have commenced opening their ground on the hill above, and yesterday made the first clean-up of over \$800.

DEER.—Only five companies—in all 20 men—are working, 10 of whom are on the Hayden, Gibbs & Co.'s claims. Water has fallen off to a 15-inch head, 2½ hours a day.

PHILIPSBURG.—Cole Saunders says the difficulty is at last overcome. Smelting is the word; and as the Trout ore does not contain sufficient galena, it will be mixed with ore from Soap Gulch. It is found to work like a charm.

SILVER STAR.—Cor. of same: Ground in Basin Gulch laid over to May 1st 1871. Thompson & Dickey's galena lode, at Soap, is yielding five tons of ore per day to two men—worth \$10 per ton to them on the ground, and 50 more to Stapleton at his furnace in Argenta. The Everett mill is crushing 15 to 18 tons per day of \$30 quartz, taken out at a depth of 150 feet, from a 500 feet tunnel on the Green Campbell. The Iron Rod is on \$100 rock. The Clipper crevice is 2 to 15 inches, but the ore yields largely. They cleaned up from their arrastra 69 ounces of retort after a nine days' run.

QUARTZ CREEK.—*Independent*, 17th: Tom. Smith & Co., at the mouth of Quartz Gulch, are making ten to twelve dollars a day to the hand. Doc. Cobert & Co. are running a drain to discovery claim. They have not yet reached bed rock, but are getting 25 to 50 cents per pan in the gravel. Mike Golden has laid 100 feet of flume, and will begin sluicing to-morrow. He has taken out as high as \$2.50 to the pan.

CABLE CITY.—Prospects are good. The ledge at the thickest part is 50 feet, all of which pays well. The shaft is 150 feet down. The next level will be ready for stopping by the 25th.

RACE TRACK DITCH.—The companies working Uncle Ben's gulch are making \$15 to \$18 per day to the man. The Prairie diggings promise well.

MOOSE CREEK MINES.—The reduction works of Day & Harvey, are in operation. They consist of a small furnace, two stamps,

a Chili mill and two arrastras. The ore averages \$150 per ton. The first class ore of which there is 100 tons on the "dump," will yield \$225 to the ton.

San Francisco Stock Market Review.

THURSDAY EVENING, SEPT. 29, 1870.

For the period under review, the mining share market exhibited considerable life, particularly in outside descriptions of stock, a more healthful disposition upon the part of dealers having manifested itself in their behalf. With reference to the immediate stock in trade of the Board—the Comstock shares—a much improved feeling prevails; and the future of these claims looks much more hopeful than it did some time past. The aggregate amount of bullion now being extracted is really surprising, under the rather apathetic condition of affairs, and the yield for the current year will be very gratifying.

The White Pine *News* of September 20th contains a very interesting tabular statement of the ore product of that region as furnished by Mr. Dayton, Deputy County Assessor, for the quarter ending June 30th, 1870, and remarks as follows: "During the three months, from April 1st to June 30th, the mills in this district reduced 8,973 tons and 1,368 pounds of ore, yielding \$368,414 71—averaging \$41 09 per ton; and further, that 1,004 tons of base metal ore were sold on the dumps for \$17,404 35, or at an average of \$17 33½ per ton—giving a total product of \$386,119 06; which certainly does not look so very bad for the resources of our district, and which is the most positive evidence that the mines on Treasures Hill and on the Base Range are not yet worked out. Looking at the yield of a few of the more prominent mines, such as the Aurora South, with 2,833 tons, average \$47 29; the Original Hidden Treasure, with 2,472 tons, average \$48 21; Burning Moscow, with 26 tons, average \$162 23; Chloride Flat, 86 tons, average \$50 63; Snow Drop, 55 tons, average \$97 24; Summit & Nevada, 758 tons, average \$31 12; Antumn No. 2, 41 tons, average \$63, etc., it will be seen that the yield of our mines is steadily increasing, and that the next quarter, with an increased force of labor employed, will make a still better showing. Certainly our mines are not producing the immensely rich chlorides as during the last year, but the present results show that we have got mines on which we can depend, and which, from present appearances, are not very likely to give out. It being a well-known fact that mines giving an average yield and quantities of ore as above quoted, are more likely and always do prove better paying for their owners than those that run away up in the hundreds and thousands and yielding but small lots of ore. Let all those who doubt the permanency of our mines give the statement a careful perusal, and we are sure they must come to the conclusion that our District is not quite played out yet, and that our prospects for better times are daily increasing. What with additional milling and smelting facilities, such as are being built at present, and on the other hand with the increased yield of our mines, our prospects certainly never looked brighter."

This table embraces the reports of eighty companies, with an aggregate of 9,977½ tons of ore, worked or sold, valued at \$386,119, which is equal to \$38 70 per ton.

HALE & NORCROSS.—has been in request, under moderate sales, showing quite an advance. For the week ending September 24th they extracted 151½ tons of ore from the 300 level, and 899½ from the seventh station level, making a total of 1,051 tons; previous week, 1,118½ tons. They have in their dumps 6,040 tons. On the 27th inst. the shaft had attained a depth of 69 feet below the seventh station level. They are continuing to sink the north winze, and the quality of ore encountered has greatly improved within a few days past. The ore-breasts north of the shaft continue to look well, and the ore-breasts south of the shaft show considerable improvement.

GOULN & CURRY.—exhibits a marked decline during the week under review, with a good line of transactions. For the week closing September 25th they extracted 16½ tons of first-class ore, valued at \$587 82 per ton, and second class 563½ tons, showing an assay value of \$53 08 per ton. With the exception of a seam of 2½ feet good ore found in the El Dorado workings, no new developments have been made.

CHOLLAR-POTOSI.—has been less active than

last week; however, it continues in favor at a good figure. They extracted 1,699 tons of ore during the week ending September 24th, valued at \$69 10 per ton; previous week they took out 1,716 tons. On the 27th, the south face of the stope in the Potosi Tunnel level had seven feet of white quartz, and assays from samples reach \$23 per ton. They are now carrying this drift forward for the purpose of thoroughly prospecting the same.

BELCHER.—is in slight request. On the 27th, the 200 level exhibited some improvement, assays showing \$25 ore. The north end of the 200 level continues to look well. They are running the drift in the pay streak, which is reported to be about four feet wide, car samples assaying \$60 to the ton.

OVERMAN.—sold moderately at previous figures. For the week ending September 25th, the 400 south raise is said to have produced the usual amount of first-class ore, and from present appearances, they expect a large increase from this point. The ore on the 226 level has nearly doubled in width during the week under review. The Lambert Tunnel is improving as they go south, assays for the week showing \$43 94 per ton. On the 24th inst. they sent forward \$7,100 in crude bullion.

SIERRA NEVADA.—continues to be well maintained. During the semi-monthly run, ending September 16th, the bullion yield amounted to \$13,089.

CROWN POINT.—is less active, and lacks firmness. For the week closing September 23d, 197½ tons were taken from the old works, valued at \$3,912, equal to \$19 80 per ton. The incline is down 53 feet below the 1,100 foot level, the material encountered being a mixture of quartz and porphyry, making it easier to advance than heretofore. The south drift from the 1,100 foot level is in from the main east drift 79 feet, the entire face of the drift showing quartz.

SAVAGE.—increased in sales under well maintained rates. During the week ending September 24th, they extracted 465 tons of ore, valued at \$12,254, equal to \$26 35 per ton. "The winze from the 8th level has reached the 9th station, and from the bottom of this winze it is the intention to run a drift north to connect with the drift running from the shaft, and will also run south to connect with the 9th level of the Hale & Norcross. The 9th station has been opened out east 90 feet from the shaft. They have resumed the work of sinking the main shaft, and in 60 days expect to make a point sufficiently low to open the 10th station. The Potosi chimney shows well, and the present prospects are good for a large body of ore. The winze on this body shows a decided improvement, the daily yield for the week being fourteen tons."

Mining Shareholders' Directory—Meetings, Assessments and Dividends.

[Compiled weekly from advertisements in the *SCIENTIFIC PRESS* and other San Francisco journals.]

NAME, LOCATION, AMOUNT AND DATE OF ASSESSMENT	DAY	DELINQUENT, OF SALE.
Alpha Cons., G. H., July 13, \$1.....	Aug. 22—Sept. 20	
Belcher, G. H., Sept. 6, \$2.....	Oct. 10—Oct. 20	
Bronide Tunnel, W. P., Aug. 9, 10c.....	Sept. 13—Oct. 3	
Brush Creek, Sierra Co., Aug. 5, \$2.50.....	Sept. 9—Sept. 29	
Cherokee Flat, Butte Co., Sept. 10, \$5.....	Oct. 14—Oct. 31	
Crown Point, G. H., \$3.....	Sept. 6—Sept. 27	
Cons. Virginia, Storey, July 6, \$1.....	Aug. 10—Sept. *	
Bagle, Sta. Barbara, Co., July 27, \$20.....	Sept. 19—Sept. 26	
Empire, G. H., Aug. 4, \$6.....	Sept. 8—Sept. 29	
Empress, G. H., Aug. 4, \$6.....	Sept. 8—Sept. 26	
Gold Hill, G. H., Sept. 3, \$10.....	Oct. 13—Oct. 31	
Ida Elmore, Idaho Ter., Sept. 10, \$5.....	Oct. 15—Oct. 17	
Kentuck, G. H., Aug. 27, \$5.....	Sept. 29—Oct. 17	
Kincaid Flat, Tuol. co., July 20, \$2 50.....	Aug. 24—Sept. 14*	
Latawans, W. P., Aug. 15, 15c.....	Sept. 14—Oct. 3*	
Land Purchasers' Ass'n.....	Aug. 3—Aug. 30—Sept. 20	
Meadow Valley Ex., Sept. 19, 60 c.....	Oct. 23—Nov. 21	
Mountain City, Elko co., July 14, 25c.....	Aug. 29—Sept. 25*	
N. Bloomfield, Nevada co., Sept. 22, \$4.....	Oct. 25—Nov. 11	
Noonday, W. P., July 20, 20c.....	Aug. 24—Sept. 30*	
Nevada L. & M. W. P., Aug. 11, 2c.....	Sept. 14—Oct. 3*	
North America Cons., July 16, 5c.....	Aug. 17—Sept. 17*	
Ophir, Virginia City, Sept. 9, \$3.....	Oct. 13—Nov. 2	
Hidden Treasure, W. P., Sept. 27, \$2.....	Sept. 30—Oct. 20	
Silver Spring, Inyo Co., Aug. 25, 25c.....	Oct. 18—Dec. 1*	
Segregated Belcher, W. H., Aug. 25, \$1.50.....	Sept. 23—Oct. 18	
Wheeler, Esmeralda co., Nev., Aug. 23, 50c.....	Sept. 20—Oct. 20	

MEETINGS TO BE HELD.

American.....	Special Meeting, Oct. 3
Chicago and Detroit Cons.....	Annual Meeting, Oct. 3
Eureka.....	Special Meeting, Oct. 20
Eureka Cons.....	Annual Meeting, Oct. 10
La Blanca.....	Annual Meeting, Oct. 14*
Manchester.....	Annual Meeting, Oct. 3
LATEST DIVIDENDS—(Within Three Months).	
Eureka, div., \$7.50.....	Payable August, 1870
Hale & Norcross, div., \$5.....	Payable Sept., 10, 1870
Sierra Nevada, div., 50c.....	Payable Sept. 15
Union, div., \$1.....	Payable Aug. 5, 1870

*Advertised in this Journal

FATAL TO THE TEETH are all acid preparations. They may bleach the enamel, but they as surely dissolve and destroy it. The mild, genial balsamic and preservative **SOZODONT**, impregnated with the SAPON of the famous tropical Soap Tree, of Chili, is the only absolute safe article of its kind in the market, and protects the teeth from all destructive influences, as well as keeps them free from tartar.

Tobacco in California.

The "vicious weed" seems to "grow itself" in many parts of the mild climate of California. In the spring of 1869, we were surprised at finding in one of the deep ravines, some three miles west of Gilroy, a patch of tobacco in full bloom and growing wild. It stood in thick clusters, surrounded by weeds and grass, and overgrowing the dry limbs which had fallen from the surrounding trees. These plants had sprung up on ground once cultivated along the stream, and continued their growth through the winter, without weeding, hoeing, "topping" or "sucker-ing," and that too unmolested by worms, the great pest of tobacco raising in the Eastern States. The land where these plants were growing had been cultivated with tobacco. But there are several varieties of tobacco indigenous to the State. Various mention is made of such plants in the Pacific Railroad reports.

The plant is very common in the neighborhood of Tehama, where it attains a height of from 1½ to upwards of 3 feet, with vigorous stalks and leaves, the latter however smaller than the cultivated plant. It is said that the Indians have been in the habit of gathering it for years past, and using it for smoking purposes.

As the tobacco of commerce, has been brought to its present improved state from a weed which grew wild in the now Central American State of Honduras, it is by no means impossible that some of the indigenous varieties of tobacco of California might, by careful culture, be advanced to a superior degree of perfection to any now under cultivation.

It is curious fact that tobacco is cultivated in every State and territory in the Union but Dakota. The total product of 1850 was 99,800 tons; which in 1860 had increased to the enormous amount of 217,101 tons. The yield in this State in 1850 was 9,802 tons; in 1860 it had only increased to 10,609 tons.

Its chief place of culture is on the Uvas Creek, in the San Jose Valley, where some two years since five growers, Messrs. Hanna & Brothers, M. E. McCutchen, J. D. Culp, Joseph Duncan and John Bueley cultivated an aggregate of 74 acres. A Mr. Martin, of Monterey County, grew some 40,000 lbs. per year, which is sold largely for washing sheep. Some small quantities are raised in San Diego County, and other portions of the State.

The quality of California tobacco, if properly cured, is equal to the best, although dealers are shy of it until it has been sent to New York and shipped back again, as "genuine Kentucky Leaf," "Maryland," "Virginia" or "Connecticut, when it is considered an A No. 1 article! *This thing has been done;* and more's the shame on our dealers that such things are allowed, and thus made a useless tax on our industries. Tobacco growing might be made an important interest in California. If the "filthy weed" must be used, why not employ the home article, which can be made superior to nine-tenths of that which is imported. The worm, so troublesome at the East, is but little known here; while in our climate it can be cured in the open air, thus saving a great expense entailed by the necessity of house drying at the East. Mr. Culp, above mentioned, has a large factory on his place on Uvas Creek, where many tons of genuine "Killiknick" are manufactured, and which many of our readers have doubtless "puffed" in the full belief that they were burning the genuine "old Virginia."

PRESERVING HOPS.—A new improvement in sacking, or baling hops, now in favor in Canada, is to put wide, strong sheets of paper inside the sacking. As paper is a non-conductor, and air tight, it is believed to be a preventive of the rapid escape of lupulone.

Angora or Cashmere Goats.

Among the several exhibits of Angora or Cashmere Goats at the stock grounds, of the late State Fair, we have been especially interested in that made by Messrs. Gray & Gilmore, of El Dorado, El Dorado County. They showed seven thorough bred hucks that are models of beauty, and indicate the "blood" in its purity. Our attention was called especially to one huck "Sultan" six years old, that was imported from Turkey, in 1867, to Massachusetts, and thence by Gray & Gilmore to this State.

This buck is the most perfect beauty we ever saw, and every person that has seen it will accede to this as the finest specimen on exhibition. It is claimed that this is the best Angora huck in America, if not in the world. The entire lot which these gentlemen exhibit are the progeny of this imported buck. Besides the seven thorough bred, which are remarkable for length and fineness of fleeces, they also show four graded ewes of 15-16 blood Angora. There is but little difference in their appearance; but a close examination will show more coarse hairs or *kemp* in the fleece.

The fleece of the graded goat is worth about \$1.00 per lb., while the pure breed fleece will bring about \$1.25 per lb. One graded ewe, though but four years of age, gave five lbs. of fleece.

Messrs. Gray & Gilmore have thirteen hundred head of goats, and make this business a speciality. They have about three hundred native, and seven-hundred half breeds, the rest are higher grade, to pure blood.

Crossing with the Common Goat.

Mr. N. Gilmore, one of the partners, and the gentleman with whom we conversed, claims that the advantage in crossing with the native, or Mexican goat is very great to the native goat. First, the meat is greatly improved, becoming rich and tender; there is less, in fact scarce any disagreeable scent about the Angora goat, and the rank taste that the native goat meat is liable to have disappears. It is also improved in every other respect, except perhaps in the quantity of the milk, in which no particular difference is observed. But the most remarkable improvement and the most profitable as well, is in the richness of the fleece.

For Furs and Buggy Robes.

At the first crossing, the fleece becomes glossy and wavy-like, making beautiful saddle trimmings, hair rugs, etc. At the second crossing, the fleece is not only glossy, but fine and soft as silk. The skins at this grade make the most beautiful robes for carriages. The best silver gray fox skins, worth \$40 to \$50 each, are not superior for beauty; while for wear, and for gloss, these goat skins are superior to the fox. Mr. G. had on exhibition two robes, made by his wife, which will satisfy any observer of the correctness of this statement.

When we take into consideration the important fact that our wild furs are yearly growing scarce, and correspondingly high, the advantage of thus being able to produce our own most useful furs, in this way, will be appreciated. Aside from the value of the shorn fleece, the meat as food, and the superior fur for many purposes, the skin can be tanned and used for all the finer work—as for gloves, ladies' fine shoes, etc. No stained skin can equal for fineness of texture, strength and beauty of the leather made from the skins of this goat. Messrs. Gray & Gilmore have a large flock of Angora goats and grades—and are devoting their attention to the business in a way to insure encouragement and success.

Good Business for Young Men.

A herd of common goats can be bought at about \$2.00 per head. One huck will serve from one to two hundred in a season. They will find pasture on lands throughout our State in hilly and mountainous districts, which are easy to be obtained, and of little value for cultivation. We know of no enterprise more promising to a young man with limited means than this very thing. It costs but little to make a small

beginning, and thousands of places just adapted to this sort of stock breeding may be taken up at government price, where nice homesteads may be laid out, and where the vine and fig tree, the mulberry, and many other profitable things can be planted, while the goats are feeding and increasing in numbers and value. This enterprise cannot be overdone in many years in California. There is no country under the sun where the conditions of soil and climate are more favorable to the breeding and growth and health of this animal. It is in other lands an unusual occurrence for these goats to breed twins, but Mr. Gilmore asserts that five of his goats have had twins this season. One pure blooded ewe that dropped twins on the 21st of last January, gave birth to a fine pair of twins again July 14.

Tropical Trees and Fruits in Stockton.

Three century plants have bloomed in Stockton this season, ranging in height from 25 to 30 feet. There are many more fine, vigorous ones to be seen in various parts of the city. Wherever this plant has been tried in the open air in this State it succeeds without attention.

We have also noticed several palm trees there, two very fine large fan-palms, something over a dozen years old, growing in the yard of Mr. Hewlett. They were planted by Mr. Crozier, Editor of the Santa Cruz Sentinel, and have never received shelter. The stocks are about 9 feet high, and 18 inches through, while their spreading leaves reach out several feet.

Oranges and Lemons.

At the home of Dr. Holden, we saw oranges growing on a tree seven years old, which grew from seed obtained in Panama. This is the third crop, as it commenced bearing the fourth year, and has produced about 300 oranges since that time. The Doctor has several orange and lemon trees growing without shelter in his garden. He thinks them quite as hardy in this climate as peach trees, and says he has no doubt as to the practicability of the open culture of orange and lemon orchards throughout our interior valleys.

Mr. West, nurseryman, at Stockton, whose "card" will be found in our advertising column, has a fine lot of young orange and lemon trees growing in the open nursery row, which have an unusually bright and thrifty appearance. He thinks they do better in an open exposure than in a partially sheltered one.

CHEESE FACTORY.—At the head of Sardine Valley, on the Henness Pass road, an extensive cheese factory has been established by Mason, Parsons & Kies, and they are manufacturing some of the finest cheese produced on the Coast. The gentleman who is superintending the process is from one of the best dairy farming localities in New York, and the establishment has every facility, in the way of machinery, for the successful prosecution of the business. Everything about the factory is kept in superb order. At the time of our visit they were milking one hundred cows, and turning out about twelve cheeses per day. The seasons' production amounted to about twelve tons. The cattle have full range of Sardine Valley, where the grazing is equal to any in the State, and the rich milk produces the finest cheese. The product of the establishment is shipped east and west on the railroad from Truckee, and the proprietors find ready sale for all they can make.

TRANSPORTATION OF EGGS, ETC.—The Sacramento Union says: By the Central Pacific freight train, Wednesday evening, there arrived from the Eastone of the Davis Refrigerator Company's cars, bringing 8,000 dozen eggs, and a quantity of Crawford peaches, Concord grapes, from St. Joseph, Michigan. The car has been on the way since Sept. 9th, yet the fruit, which we have been furnished with samples was brought through in as perfect a condition as when shipped, owing to the plan adopted, by which an even temperature of thirty four degrees is maintained in the cars continually. It is designed to take back on the return trip a load of California grapes, which the owner of the car feels confident they can place in the Eastern market in a condition that will admit of their being displayed in their native excellence.

A Simple Ladder and Stand for the Orchard.

The annexed engraving represents a cheap and simple ladder which is recommended by the *Hearth and Home* for use in the orchard. Any boy can make one. Take any young hard wood sapling, from 4 to 5 inches in diameter, according to the length desired; split it at the butt as shown; put a wooden wedge in the cleft to keep it open, and a strong band just above to keep it from splitting farther up. It may then be bored and the rungs inserted as shown. It will be found much easier and safer to rest the upper end in the crotch of a branch or limb, than to rest in the same or almost any other place, convenient of access, a ladder of the ordinary construction. It will also be found less liable to injure the tree.



Such a ladder is of course best adapted to an old orchard where the trees are tall and the limbs large. In a young orchard the best convenience for picking will be a 6 or 8 ft. a four legged stand, with the legs well distended and properly braced, two of which should have slats either as a single or double legged ladder. The steps may be employed for picking from the lower limbs, while the basket rests on the table or platform; while the higher limbs may be reached by standing upon the top. Such an arrangement will be found much better and far more safe than an ordinary step ladder, and may be made quite as light.

LARGE HOP YIELD FROM ONE YEAR CUTTINGS.—Mr. Ralph Hamlin, of Alameda county, informs us that he has raised from 2½ acres of hop cuttings, planted last February, 4,600 lbs. of hops of excellent quality. This is about equal to the yield of old vines. He says that he does not train his vines upon poles of any kind, but lets them trail upon the ground like melon vines. He thinks they do better on the ground than when climbing upon poles. His land is heavy alluvial. He cultivates until the vines occupy the ground, then lets them go until picking time.

THE APPLE CROP, throughout the Union, this year, is unusually good, and will probably exceed that of any year which has ever preceded it.

San Francisco Market Rates.

Wholesale Prices.		
THURSDAY EVENING SEP. 29, 1870.		
Flour, Extra, 48 lbs.	\$5.75	@ 57 1/2
Do. Superfine, 48 lbs.	4.75	@ 50 00
Corn Meal, 48 lbs.	2.25	@ 25 00
Oats, 48 lbs.	1.75	@ 17 1/2
Barley, 48 lbs.	1.25	@ 12 1/2
Hay, 48 lbs.	1.00	@ 10 00
Live Oak Wood, 48 lbs.	1.00	@ 10 00
Sheep, 48 lbs.	1.00	@ 10 00
Hogs, 48 lbs.	1.00	@ 10 00
Hops, dressed, 48 lbs.	7 1/2	@ 6 00
GROCERIES, ETC.		
Sugar, crushed, 48 lbs.	14 1/2	@ 14 1/2
Do. Hawaiian, 48 lbs.	8 1/2	@ 11 1/2
Coffee, Costa Rica, 48 lbs.	—	@ 20 00
Tea, Japan, 48 lbs.	65	@ 85 00
Do. Oolong, 48 lbs.	60	@ 1 25
Hawaiian Rice, 48 lbs.	7 1/2	@ 7 1/2
China Rice, 48 lbs.	4 1/2	@ 4 1/2
Apples, 48 lbs.	14	@ 14 1/2
Candies, 48 lbs.	20	@ 20 00
Overland Butter, 48 lbs.	20	@ 20 00
Ranch Butter, 48 lbs.	20	@ 20 00
Potatoes, 48 lbs.	12	@ 12 1/2
Cheese, California, 48 lbs.	12	@ 12 1/2
Eggs, 48 dozen	12 1/2	@ 12 1/2
Lard, 48 lbs.	14	@ 14 1/2
Shoulders, 48 lbs.	9	@ 9 00
Retail Prices.		
Sutter, California, fresh, 48 lbs.	50	@ 60 00
Do. pickled, 48 lbs.	20	@ 25 00
Cheese, 48 lbs.	20	@ 25 00
Honey, 48 lbs.	25	@ 30 00
Eggs, 48 dozen	18	@ 20 00
Hams and Bacon, 48 lbs.	22	@ 25 00
Cranberries, 48 lbs.	1 1/2	@ 1 25
Potatoes, 48 lbs.	12	@ 12 1/2
Pears, Table, 48 lbs.	5	@ 5 00
Plums, dried, 48 lbs.	10	@ 10 00
Apples, dried, 48 lbs.	10	@ 10 00
Oranges, 48 lbs.	10	@ 10 00
Lemons, 48 lbs.	10	@ 10 00
Chicken, 48 lbs.	75	@ 1 00
Soap, Pale and Soft, 48 lbs.	12 1/2	@ 15 00
Soap, Castile, 48 lbs.	12 1/2	@ 15 00

Reading for the Hour.

The Strasbourg Cathedral Clock and Library.

One of the most lamentable results of the siege of Strasbourg, leaving out of view the loss of human life, is the injury which the bombardment has inflicted upon the noble cathedral and its wonderful astronomical clock. The vast cathedral, which, perhaps more than any other one thing, has made the name of Strasbourg celebrated, is one of the finest Gothic buildings in Europe. It was founded A.D. 504. The choir was built by Charlemagne; probably about A.D. 809, though it was not completed until 1439. The material of which the cathedral is built is a brown stone, very much resembling our Connecticut Portland freestone, so extensively used in Fifth Avenue. It was obtained from a quarry at Wassenhonne, in the valley of Couronne, a few miles from Strasbourg. The architect of the existing edifice was Erwin von Steinbach, of Baden. One John Huells, of Cologne, was the architect of the peerless tower. Its spire is the loftiest in the world. Its height 466 feet, surpasses St. Peter's, and is about equal to that of the Great Pyramid. The greater part of the entire structure was destroyed by lightning in 1007, and the restored edifice was begun in 1015, and completed in 1439. The cathedral is in every part nicely decorated with sculptures; and the western front, rising to a height of 230 feet, is or was, particularly fine with its wealth of statues, ornamental carvings and bas-reliefs. It has a circular window 48 feet in diameter. The Prussian heavy artillery has made, it is said, a ruin of part of the vast building.

The astronomical clock, the product of a German clockmaker, in about the year 1550 is a marvel of ingenuity and mechanical skill, and has no counterpart. It performs not only the ordinary service of a clock, but exhibits the days, and the months, and the years; the process of the seasons; the signs of the zodiac, and the names and movements of the heavenly bodies. At each quarter-hour an angel comes out and strikes on a bell; at every hour another angel comes and strikes twice; and at 12, meridian, a figure of Christ appears, accompanied by the twelve apostles, all of whom move around a central point and pass in out of sight by another door, the stroke of twelve being given, and a cock flaps his wings and crows. The clock is enormous in size, like everything else connected with the vast cathedral, and is invisible from the outside street—the spectator passing through the nave of the cathedral to see it. It has suffered from fire and violence before the present year, having been out of repair and motionless since the revolution of 1793, until the year 1842, when it was repaired by a watchmaker of Bas-Rhin, and has been in operation since. It is to be hoped that this ingenious piece of mechanism has not been irreparably injured by the present bombardment.

The loss of the Strasbourg library—a vast collection of 800,000 volumes, including many curious monkish parchments—is total and irreparable. It can never be replaced by any collection hereafter made. It was the slow result of a thousand years; and its destruction by fire, caused by the Prussian hot shot, is like the burning of the Alexandrian library in this, that of a great number of the works destroyed no duplicates can ever be obtained.—*Hartford Times.*

Sponges.

The common washing sponge is still considered by many as of vegetable growth. Still it appears to be definitely established that it belongs to those low forms of animalcules that are comprised under the term zoophytes. However, the sponge which you use daily in your ablutions is not the animal as it lives and thrives, but only its horny substance, its skeleton. When cut loose from the submarine rocks on which it is found at considerable depth, the sponge presents itself as a black, jelly-like mass, which, when left in the air for only a few days, will give off a most disagreeable smell, originating from the gelatinous part in question. In the natural sponge you have before you a regular colony of animalcules. The elastic, horn-like net-work is then impregnated to its innermost parts with a slimy substance that is penetrated throughout by fine capillary tubes, not visible to the naked eye. In order to prepare it for use, it is first left in the air for a short time, until the gelatinous part is decomposed, then the mass is washed in hot water, and afterward in a bath of dilute

muric acid. The toilet sponges are bleached by means of chlorine and hyposulphite of soda. The so-called wax sponges that are used by doctors for dressing ulcers are purified sponges dipped into fluid wax, and then pressed between hot plates. The French and Austrian governments have commenced to rear sponges artificially—the former on the shores of the Mediterranean, the latter on the coast of Dalmatia.—*Ec.*

A State Dinner in China.

The next day we received invitations to dine with the magistrate of the city. As we traversed the court at the appointed time, our ears were greeted with a sound of suppressed chattering, and we could see that all the chinks of the surrounding windows were occupied by the ladies of the household. Our host led us into a room where the table was spread. In accordance with Chinese etiquette, he spent some time in persuading each of the guests to take the head of the table, a distinction which each one was bound by the laws of politeness to decline. The host then, standing at that place himself, insisted upon each and all sitting down before him, which was persistently declined, as it would have been a breach of politeness for a guest to take his seat first. The dinner began with a cup of hot rice wine. The table was loaded with dishes, which were placed one upon another in tiers, forming a pyramid of Chinese delicacies. There were soups made of birds' nests, of the heliotis, and of sharks' fins; there was beche-de-mer; there were stews and patés; there were roots of the water-lily; but it would take too long to enumerate all the dishes spread out before us, of each of which one was expected to taste. Great as is the variety of articles of food in the Chinese cuisine, some things which in other countries are considered most essential, are missed by the traveler, and of these none more than butter, bread and milk. There is a kind of bread which is cooked by steam, and there are flour-cakes fried in oil; they are poor substitutes. A little milk is sold, and women's milk is peddled round the cities, mostly for the use of invalids. There is an old story on the coast that, at a dinner given by a foreigner, the host took a servant to task for serving no milk for the coffee.

"Boy go catchee milk," said the gentleman. The servant disappearing, soon returned with the answer: "No have got."

"What for no have got?"

"That sow have got too muchee piecee chilo; that woman have die," replied the boy. By this the servant informed the gentleman and his guests that they had been sved from drinking the milk of either a sow or a woman only by the death of the latter and by birth of a litter to the former.

The only unpleasant feature about our dinner was the custom of every one helping everybody else, so that I could eat nothing which had not made the acquaintance with my neighbor's chop-sticks. The intervals between the courses were occupied in eating the kernels of pumpkin seeds, which are so much used in China that they form an important item in the trade of certain provinces. On peeling these seeds, if in no other way, the long nails of a Chinese exquisite certainly do good service.—*Raphael Pumpelly.*

What Flowers Teach.

Flowers teach us the tenderness of God's character. If he had made nothing of this kind, if his works had been for bare utility and had coarse and more substantial creations only, the tender side of the Divine character would have failed of the revelation it now has in nature. You cannot come across a delicate, trembling flower in the shade of a wood, so small that your heel could crush out its life with one careless step, but that you will think how gentle God must be, who made this flower in its exquisite beauty to live there, and daily cares for it in the regular course of His providence.

Following the same idea, the sleep of the flowers touches our sympathies. Many of these at night will fold their petals closely together, and like the darlings of a kind mother, repose trustfully in the care of their Creator. And during the long, dark night, they gather the dews which distill in the quiet air, and when day comes, the first beams of the morning fall on millions of glittering drops, and flash back from leaf, and bud and petal, and grassy blade, in such brilliance, that the whole waving and nodding field of blooming beauty seems dressed in gems more resplendent than any dream of oriental magnificence.—*Selected.*

Keeping Grapes Underground.

We have noticed from time to time, in our Eastern Exchanges, for the last two years, several paragraphs recording the successful preservation of grapes into and through the winter, by burying them in the ground. Some have employed stoneware jars, some boxes and others kegs; but all apparently with good and about the same success. We have not heard of its being tried anywhere except in the Eastern and Middle States; where the exposed ground is frozen most of the winter. We see no reason, however why it may not succeed in California, if the locality can be thoroughly drained. A correspondent of the *German-town Telegraph* gives the following directions:

In the fall, when they are perfectly ripe, they are taken from the vines, when they are free from any thing like moisture, handled carefully and packed in small kegs—nail kegs were the kind used in this instance. Put a layer of green leaves, right off the vines, in the bottom, on this a layer of grapes, then leaves again, and grapes alternately until the keg is full, then finish off with leaves. Put in the head, and your cask is ready for what? Why, to be buried in the ground. Dig a trench so as to admit the casks deep enough that they will have about a foot or fifteen inches of soil over them when covered. The ground should be packed moderately tight, and a board laid along on the top before the ground is thrown in. They throw some litter on the face of the ground over those they wish to take up during the winter, to prevent the ground from freezing so hard as to keep them from getting at them.

One important thing must be observed, that they be placed where there can be no standing water about the casks, or they would suffer.

On further inquiry I learned that the farmers in that neighborhood have practiced this mode for years, and don't seem to think it any thing new.

We would express the opinion that if the grapes are buried, the keg or whatever they may be packed in should be water-tight. If moisture penetrates, the grapes will not keep.

The following statement was made some time since at the "Cincinnati Horticultural Society," by J. J. Boring, Jr.:

"My mode of preserving grapes is as follows: Select, on a good dry day, none but fully ripe and good bunches; put them in low, two or three gallon stone jars, (called square jars here, as they are as wide as they are long,) and put them in a trench, so that the top of the jar is eight or twelve inches below the surface of the ground; put a piece of board (not pine) over each jar, or over every two jars, and fill up the trench with the ground extracted. If covered with straw or coarse litter, the jars can be unhurried with less trouble in cold weather.

"The last of May I have had grapes equally as fresh and sound as in October, and this year I expect to have some later yet. By way of experiment, I have kept some this winter in low boxes, and found them to keep just as well; but when kept in boxes it will, of course, be necessary that the top consist only of one board, else water will soak through, and that the ground never gets full of water. A gravelly bottom may do best. Boxes buried in cellars or out-houses, will answer fully as well as stone jars. Grapes that were gathered soon after the long wet spell of weather, about the latter part of September, and the beginning of October, of last year, did not do well, as they were too watery or juicy, and the skin too soft.

The matter was referred to a committee from whose report we make the following extract:

"In commenting on the foregoing satisfactory and lucid description of the mode adopted by Mr. Boring, your committee would suggest that the peculiarly favorable character of the soil about Lancaster, may have had considerable influence in proving the success of the experiment. The soil in that region is of a dry, porous, sandy character, very different from the soil in the neighborhood of Cincinnati, which is generally close, compact clay, very retentive of moisture.

"The committee merely allude to the difference in soils as a hint of caution to our fellow members not to experiment on too large a scale, until satisfied of its efficacy by preliminary trials.

"As your committee remarked on reporting on the condition of the fruit tested by

them, 'the simplicity of the mode recommended itself for general adoption'; still the difference of circumstances may reasonably account for variable degrees of success or failure.

BEAUTY AND TOIL.—We have seen the lip of a proud beauty curl at the name of "mechanic," when the finery that bedecked her form was the creation of his handy-work. We have seen the man who revelled in wealth gained by years of labor by his father in a mechanical employment, turn with a feeling of scorn from the men whose palm was hardened by useful toil. We have heard the politician descend upon his rights, as if it were a favor to grant them; and we have listened to many who investing themselves with a borrowed plumage, have with an approbious and anti-republican feeling, ventured to lower him in the scale of his fellow men. To such fools of an hour we have but one word to answer—it is this. You do not know the minds you would slight; they were the first to raise the cry of alarm against British oppression; they would be the first now, and none have with more confidence of sincerity, submitted to the laws enacted by their country.

COMPLIMENTARY TO WOMAN.—Recently forty-five young men and twenty-six young women, in Switzerland, pursued in common a course of study and practice, for three weeks, in the art of telegraphy, at the end of which period they presented themselves for examination, with the following result, 100 at all complimentary to the male gender.

Pronounced to be of the 1st class,	Men.	Women.
" " " " " 2d "	2	4
" " " " " 3d "	12	12
Those who did not pass,	24	9
	8	1

A FEW MINUTES' WORK.—It is not generally known that many of the myriads of pestiferous flies which haunt our houses and fields, torturing man and beast, may be prevented from breeding by giving a little labor to the drains and privies. The eggs of many of the flies are deposited in human excrement, and if dry soil and lime be thrown occasionally down the vents, the offensive smell will be overcome and the insects will have to seek other breeding places. Again if the drains are covered and the water suffered to fall into a closed cesspool, another breeding place is destroyed. A little labor will diminish these plagues wonderfully.

LITTLE BROTHERS.—Sisters, do not turn off your younger brothers as if they were slays in your way and any service which they might ask of you were a burden. Perhaps the hour may come when over a coffin that looks strangely longer than you thought, and over a pale brow where often half unwittingly and perhaps with a petulant push, you perted the hair—you bend with blinding tears and sobs that shake your very soul, while remorseful memory is busy with the by-gone hours. You will wish then that when he came and asked you to help him in his play, or to lift him on your lap because he was tired, or take him out because he wanted to see, you had laid aside your book and made the little heart glad.

GALVANIC DEPOSITION OF NICKEL.—H. Bouillet, says, in *Comptes Rendus*, that the assertion of M. Adams, in reference to the necessity of having the nickel solution absolutely free from alkalies and alkaline earths, is quite incorrect; and, in proof thereof, exhibits a perfectly coherent piece of nickel, obtained by Professor Jacobi, of St. Petersburg, from the double sulphate of nickel and magnesia, by the use of a nickel anode, which, curiously enough, is not entirely dissolved, but converted into a spongy suboxide of nickel.

The production of iron ore from the Lake Superior mines this season is estimated at a million tons, which will probably yield 600,000 tons of metallic iron, or twice the entire product of the United States in 1843.

The human body, according to Dr. Nichols, in the *Journal of Chemistry*, contains phosphorus enough for four hundred ordinary two-cent packages of matches, but not quite sulphur enough for them. There is water enough to "drown the individual," or, rather, another individual.

AURORA.—There was a brilliant display of Northern Lights last Saturday evening, which was observed also all over the State and in Nevada unusually fine.

FALL RIVER is now the City of Spindles, having 552,237, while Lowell has but 515,066.

Scientific Press.

W. B. EWER..... SENIOR EDITOR.

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San Francisco:

Saturday Morning, October 1, 1870.

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Mining Edition and Agricultural Edition.

This week we commence issuing two editions of the PRESS which will differ only in the matter contained in the two central pages—i.e., in one edition they will contain matter expressly for miners, and in the other especially for farmers. The reading and advertising matter in the other 14 pages will be precisely alike in both editions.

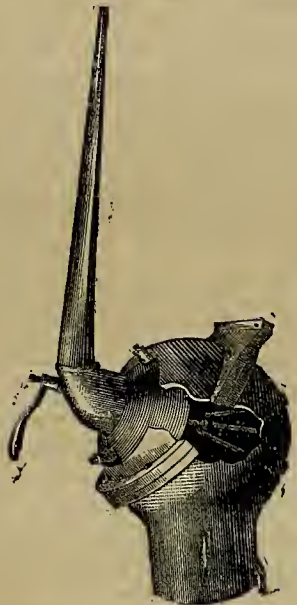
We have divided our mail list so as to send each edition to those we believe it to be preferable to, but as we could not be expected to know the preference of all our subscribers in this matter, we request those who do not get the edition they most desire to inform us at once by mail and we will take pains to have their names changed from one list to the other.

This new enterprise is undertaken with a desire to furnish more reading matter for each of the interests represented, and to make the PRESS still more popular with its ever widening circle of intelligent readers. It will be continued only in event of its success in that direction.

The Craig Nozzle.

Our Hydraulic mines still contain vast amounts of untouched treasure. Those who have read the columns of our mining summary will have seen how, this year, new discoveries have been constantly made, showing that the old workings have yielded up but a portion of their precious metal. As our methods are continually being improved, we are constantly obtaining better and better results, and the future prospects of our mining interests seem all the more promising.

The nozzle which we illustrate to-day is one which has been in use for some time, and is known undoubtedly to the majority of our readers. We can, perhaps, do no better than to insert here the description



furnished us by our correspondent, L. P. Mc., who has been traveling extensively through the mining counties and has seen the device at work. He writes as follows:

"The Messrs. Craig have been engaged for the past three years in perfecting this invention, and their efforts have resulted in the production of an apparatus for hydraulic mining that, after thorough trial in over a hundred of the most extensive and prominent mines in the State, has received the highest recommendations of experienced miners. The invention consists of a hollow globe or reservoir, in which fits a ball or socket which is provided with an elbow, the globe being cut open on top. The ball revolves entirely round horizontally, and up or down at an angle of about 40 degrees. This play has been found amply sufficient for all ordinary mining purposes and the water, being fed to the discharge pipe from the globe or reservoir, has not the bad effect caused by a short turn in the pipe, like that produced by a common elbow, but causes a perfect stream to emerge at any point to which the nozzle may be directed. As a matter of economy, it not only places the water of 7 or 8 ordinary hose pipes under the control of one man, but its durability is so great (one lasting a life time) that its extra first cost is seldom noticed, it being in convenience alone worth more to the miner than the difference of cost of canvas hose. No canvas being used, it is not liable to breakage under heavy pressure, and saves the annual outlay for canvas, while the concentration of a larger body of water in one column has been found to nearly treble the amount of execution in comparison with ordinary expenses. The Globe Nozzle and its improvements are covered by three different patents, owned by Messrs. Craig, who now have two suits pending in the U. S. Circuit Court against manufacturers and users of alleged infringements thereon."

We still need more of such improvements as these to develop our mineral resources, and the inventors of such ought to be encouraged. The economy effected by a device of the kind enables us to enrich ourselves individually and the State at large. The Craig nozzle is manufactured at the Marysville Foundry by Messrs. Prescott & Schiedell, and these gentlemen or the proprietors, Messrs. R. R. and J. Craig, Nevada City, may be addressed for further particulars.

TAKING FOREIGN MINERS.—We see it stated that the constitutionality of the act of the Legislature of California, authorizing the collection of foreign miners' taxes, will be tested in the Federal courts of the city. An act of Congress forbids the collection of such taxes and makes this a penal offence. The matter ought to be settled.

Our Home Industries.

The New Stockton Woolen Mill.

A woolen mill in Stockton has become a reality, and is now running. Last February Messrs. Lambert, Doughty & Tattersson, of Stockton, entered into co-partnership, for the purpose of building a woolen factory, and ordered from the noted woolen machine works of Davis & Furber, of North Andover, Mass., the necessary machinery for the purpose—that is, they ordered from Massachusetts what they could not obtain in California, for these gentlemen, making it a rule to patronize home manufactures, had all the driving machinery and gearing made in this State, even though it cost more.

The engine is a 40-horse power, made at the Vulcan Iron works in this city, and works like a model. The boiler was made at the Globe works, Stockton, and is also excellently constructed, being especially adapted to the fuel to be employed—an important consideration. As soon as they ordered their machinery, they proceeded at once to erect the building. This is upon the south bank of Mormon Slough, which is navigable to the building, where it is 18 feet deep at high tide. The tide rises there about three feet.

The building is 93 by 50 feet, a plain but substantial wooden structure, of 1½ stories. It is quite evident to an observer that the strictest economy has been regarded as to material and labor. The company have made the building no larger than to accommodate the one set of machinery which they now have, preferring to enlarge as business may increase in the future.

The one set of machinery includes one picker, three cards, first breaker, second breaker and finisher; two jacks of 400 spindles; four looms, one dresser, one jig, one fulling mill, etc. All of which, excepting the spinning jacks, are on the first floor.

The machinery arrived on Monday, the 19th, having been shipped around Cape Horn. Everything was prepared for setting it up on its arrival, and on Thursday, the 22d, (the 4th day after the machinery arrived) they commenced carding! On Friday spinning was commenced, and dressing on Saturday!

This we call quick work, and that which looks like business. Mr. James Tattersson, one-third owner, and Supt. is a working man, and has had 25 years experience in woolen mills. He was engaged in the starting of the woolen mills at Merced, and the Marysville woolen mill, in this State. He sets up the machinery with his own hands, which are hardened with toil. He informed us that the total expense of buildings, machinery, etc., will not exceed \$27,000. He takes pride in this enterprise and asserts that if economy will win success, he is bound to succeed. We are ready to add, that if energy deserves success, that he is at least deserving.

Through impractical extravagance, an enterprise may degenerate into a miserable speculation, which will end in disreputable failure. Such has been too often the case in California. Many industrial schemes have been too prodigal in anticipation of success, too reckless of expenditures in the start or inception, and have failed where practical industry and economy might have succeeded.

The sort of goods which the company will manufacture at present will be mostly blankets. The long wools, such as the Cotswold sheep produce, is the best for such goods; little of it, however, can be procured at present. But our common bred wools work up very fair.

We commend the courage and spirit of men who have faith in things to be, to go into an enterprise of this sort, when a general depression affects everything.

The woolen mill at Sacramento has been idle for some months; but not because there is no wool in the country, and no clothing worn. Why, we are not informed, but presume that it doesn't pay. This Sacramento mill, cost in the neighborhood of \$100,000; idle capital of course, when the mill is not running. If labor was dear we might attribute it to that cause; but cannot admit it now. Whatever the cause—the fact remains the same.

Work at the Union Foundry.

In our late mention of the work going on at the foundries in this city, we omitted the Union Works, not because nothing was going on, but because, if anything, too much was being done. The following items will show how brisk business has been at these works.

A large amount of work is just being completed for the Eberhardt and Aurora Consolidated Mining Company (Limited) of London. A sixty-stamp mill has been built with 22 pans, 11 settlers, 3 agitators, 4 retorts, 1 rock breaker, a drying floor 50 feet long, a machine shop with a complete assortment of tools, everything, in short, to make a complete mill. There is a donkey pump, and 4 boilers, 56 x 16. Two Scott and Eckart cut-off engines have been built, 18x42 and 20x42 inches, which are most beautiful specimens of workmanship. Not only are they solidly and finely built, but they are also very tastily and appropriately decorated. On the governor of one will be placed the American eagle and shield, on that of the other the English lion and shield. On the sides will be fixed the arms of England and of the United States, and on the ends a device combining the two. The bed-plates will have figured on them the flags, crossed, of the two nations. They are most complete in all respects. The water for the boilers will be furnished by a feed-pump constructed with all the modern improvements especially for these engines, which will be supplied, moreover, with Armstrong and Starr patent heater and filterer.

The amalgamating department of the mill is so arranged as to save all handling, everything working automatically as far as possible. Thus, the quicksilver will be strained into a car which is elevated by machinery, so that no manual labor is required or allowed for handling the metal. The whole mill will be a model one of the very first class.

For the Meadow Valley mill, 10 additional stamps, with four pans, two settlers, four Payne and Stevens' concentrators and two retorts have been made, and a large lot of machinery to make a fine 30-stamp mill. For Mill City, Nevada, a five-stamp mill complete has been built. A similar sized mill has been made for San Diego, and large additions for the Stanford mill, at White Pine, are being constructed.

Four Statefeldt furnaces are under way, that is, the castings for four such furnaces. With each one goes a 10-stamp mill complete, of the best make. These are intended for Belmont, for Monte Christo, near White Pine, for Mineral Hill, (all these in Nevada) and for Mr. Kraft of Mexico.

A very large horizontal engine, the largest yet made here, is being built for Messrs. Kepp and Bargion of Stockton, for use in the Oakland Cotton Mills. The cylinder is 24x48, and the bed-plate, cast in one piece, weighs 14,000 lbs. A set of engines and boilers are being constructed for a marble manufactory, boilers 56 in. by 16 feet, and engine 15x42. Likewise a complete set of boilers for the Mariposa Mill at Wnshoe. Also a large amount of Excelsior pumps.

For the Petaluma and Santa Rosa Railroad, 20 cars are being built, and the foundry is putting up work to suit 400 wheels and axles for the same road. Col. Donahue has ordered two locomotives with cylinders 14x22 inches and five-foot drivers.

These items do not include all which is being done, but still make a pretty large show for the foundry business. In addition, the Union Works have a large amount of custom and miscellaneous jobs in hand, and that they have turned out a great deal of work is shown by the fact that they have been keeping 360 men employed for a considerable time.

The Shoshone Falls.

The Snake or, as it used to be called, the Lewis River is in many respects a peculiar stream. Rising in the Rocky Mountains, it traverses Southern Idaho, turns then towards the north and forms the boundary line of Idaho and Oregon for a considerable distance, and finally sweeps round in a semi-circle in Washington Territory to mingle its waters with those of the Columbia. In its course it bends and doubles in a most tortuous manner, flowing with a generally rapid current through mountainous regions, dry and sterile sago deserts with here and there grassy oases, rushing through rocky chasms and bounding over numberless falls and rapids. In a part of its way it affords opportunities for mining operations, elsewhere in spots supplying the

The banks, composed of regular strata of basalt and sandstone, are often divided into symmetrical blocks, like gigantic masonry. Tall columns with projecting tops jut out into the river, some straight, some tottering to a fall, while the remains of others lie in broken heaps below. Huge gaps yawn in the rocky walls. Above, the stream tumbles over a series of cascades, from thirty to fifty feet in height, rushing between a number of islands, and then uniting its waters for one grand leap in an unbroken mass down two hundred and ten feet into the seething, boiling, roaring chasm below, whence rise white clouds of mist, hiding the lower part of the cataract from view, and giving rise, in the sunshine, to two rainbows spanning the abyss. Then, in a calm swift current, the waters rush in to other scenes.

Notes on Contributions to our Cabinet.*

We have to-day to speak of specimens sent us from Mineral Hill, Nevada. Our readers will find, on page 90 of this volume, a detailed description of this locality, of the formation, mines, etc., by our correspondent, W. H. M., who speaks most highly of the district. The specimens we have received vary considerably in appearance, although a large number are similar. There are some very fine pieces in the lot.

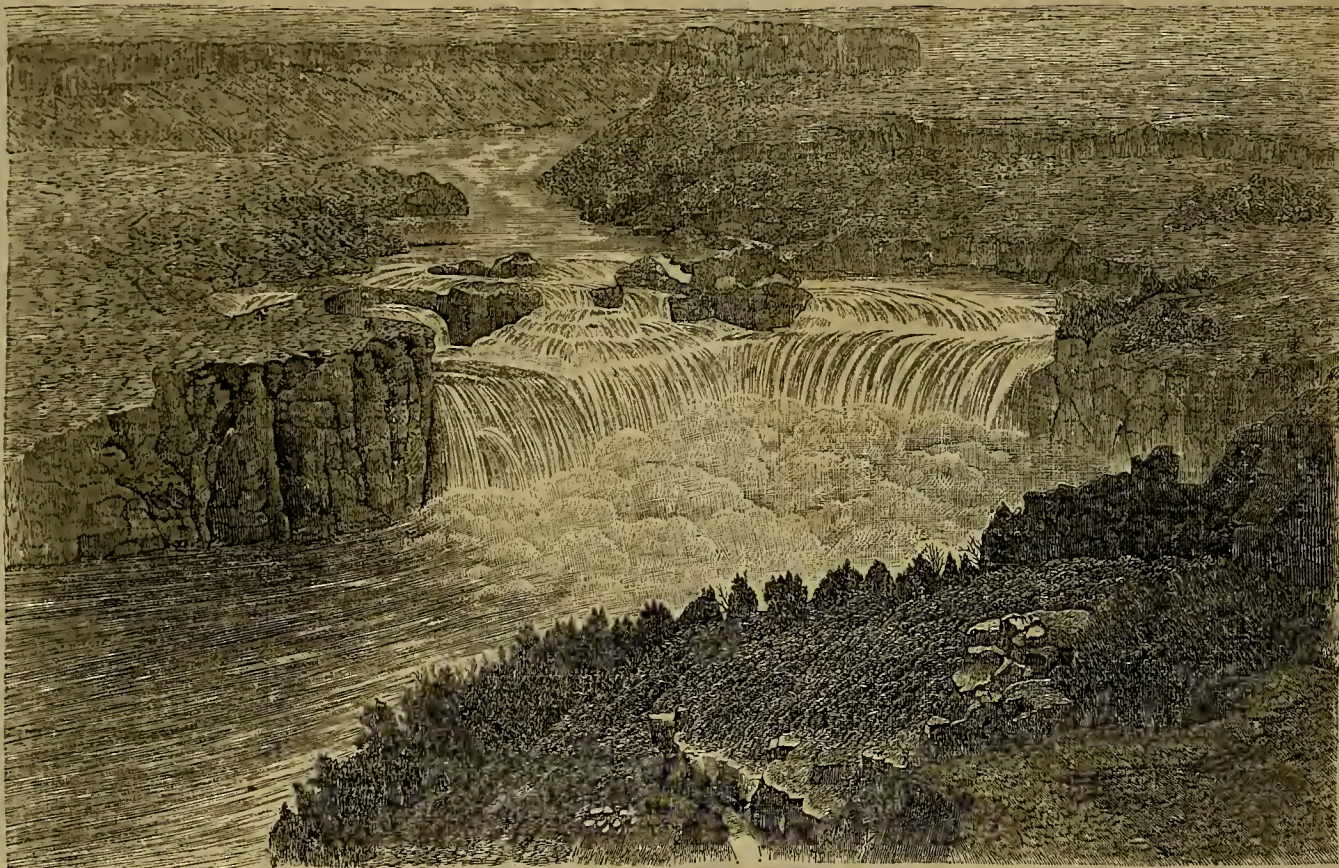
No. 491.—This includes a number of specimens from the Mary Ann Mine, owned by the Mineral Hill M. Co. They consist of a quartzose gangue impregnated with varying quantities of lead minerals. Galena occurs sparingly and there is but very little copper. But the principal minerals, which constitute almost wholly one or two

Austin mine, is of entirely different appearance. This consists of some anglesite and galena, finely impregnated in the gangue, which is colored green and blue with copper carbonate stains.

No. 500.—A specimen from the May Day Queen, consisting of a rounded mass of coarsely crystalline galena, which is oxidized on the surface.

No. 501.—From the Western Slope, owned by Spencer & Co. This is of entirely different appearance again. There is apparently a large amount of Stetefeldite, in which come small crystals of galena. There are blue and green stains from copper, and in the cavities are small hot-ryoidal masses of chrysocolla, or silicate of copper. We should be glad to get more specimens like this.

No. 502 and 503.—These come from an



THE GREAT SHOSHONE FALLS ON THE SNAKE RIVER, IDAHO.

needs of the farmer, and presenting many grand scenes for the lover of scenery and phases of interest to the mineralogist and geologist.

Some fifty miles above the crossing of the Kelton and Idaho road at the Overland Ferry the river enters the Big Cañon, a rocky cleft, about a quarter of a mile wide, with perpendicular walls ranging from a hundred to a thousand feet in height, formed in a section of country overflowed in large portions by broad fields of dark basaltic rock. In these volcanic wastes huge gaps and fissures of great depth abound, and dikes or mounds testify to former convulsions of nature. Traveling over these plains, one comes to these huge rents without being aware of them until in close proximity. This formation detracts from the grandeur of the scenes, and causes the roar of falling torrents to be inaudible at any considerable distance, except under particularly favorable circumstances.

Twenty-three miles below Fort Hall, in a monotonous plain, the river plunges down in one unbroken sheet a distance of sixty-five feet, at the American Falls. Sixty miles below this, at the Little Shoshone Falls, the leap is for a distance of one hundred feet; and three miles farther down, in the wildest and deepest part of the Big Cañon, where the river banks rise perpendicularly a thousand feet, are the Great Shoshone Falls,—the subject of our illustration.

Concerning the other remarkable occurrences along this stream,—the cathedral rocks, the natural bridges, buttes, etc., etc., an interesting volume might be written. But we have no place for that volume here. The view of the Falls which we present to our readers, we have had engraved from a photograph sent us by our traveling agent, Mr. W. H. Murray, who apparently, amid his business occupations, has always an eye to the picturesque and sublime.

PROSPECTING EXPEDITION.—An excursion party has just left New York for Colorado. Among the number are several capitalists, and their avowed object is to visit the mines around Georgetown with a view to investments. A good idea.

THE MASONIC MIRROR.—This valuable exchange, the organ of the Craft on this coast, comes everfilled with matter of paramount interest to the Fraternity and pleasant for family reading. We read it with interest, can heartily recommend it, and would like to see its scope of influence, already large, further extended. It does good work and deserves hearty support.

TELEGRAPHIC.—In the afternoon of the 27th. the lines of the Western Union Telegraph company were completed to Santa Barbara and San Buenaventura and opened for business.

pieces, are gray, lamellar sulphate of lead (anglesite) and yellow molybdate of lead (wulfenite).

No. 492.—Two specimens from the Silver Queen, owned by the same company. One is considerably decomposed and evidently came from on or near the surface. The other resembles the ore from the Mary Ann, but has considerable quartz and some copper stains.

No. 493.—From the Giant Shaft of the same company. Holds considerable of the sulphate and the molybdate, with but very little of the sulphuret (galena).

No. 494.—This came from the Star of the West, and differs considerably from the preceding; for it contains but little, if any, sulphate of lead, while there is apparently some Stetefeldite; considerable discoloration from iron and copper, and one or two small pieces of native silver, the latter being discovered only after a careful search.

No. 495.—From the Great Republic, is rich in white and gray anglesite which is the principal mineral contained.

No. 496.—From the Troy South, owned by Spencer & Co., is similar to the first specimens mentioned, but there are more green copper stains.

No. 497.—This, from the Austin ledge, owned by Plummer, McCabe & Co., resembles the last. The same may be said of No. 498, from the Spencer ledge, owned by Spencer & Co. But No. 499, from the

entirely different locality—the mines at Little Cottonwood, Utah. The first is a piece of nearly solid galena with a very little zincblende. The second is quite a curiosity, being one of the first bars of lead smelted in the territory. It was presented to us by Mr. S. D. Woodhull, one of the brothers who erected the first lead smelting works in Utah. The lead is apparently of very good quality. The galena assays, we are told, about 71 per cent. of lead and 77 ounces silver. This specimen is from the Chicago ledge.

*Under this heading we shall continue to mention and describe, according to merit, such specimens of ores, minerals, fossils, curiosities, etc., as may be sent to us by mail or express prepaid. Each article will be numbered, marked with the name of the donor and the locality, and placed in our cabinet. A full account of the place, occurrence, etc., when sent adds much to the value of such specimens.

TILTING STAND FOR ICE-PITCHERS.—The address of the patentee of this invention, illustrated last week, is John Gibson, Jr., 791 (instead of 711) Broadway, Albany, N. Y.

COMPLETED.—The Blue Point Grand Mining Company's bed-rock tunnel was completed in the evening of the 15th inst., after 3½ years work. It is 2,270 feet long. The occasion was celebrated by appropriate festivities at Sucker Flat.

THE OREGON LEGISLATURE met on the 13th, and elected Grover Governor over Palmer.

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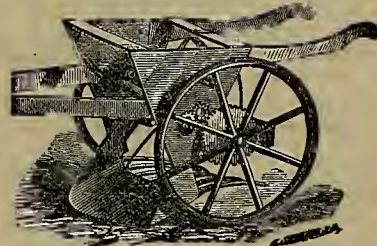
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SCIENTIFIC PRESS.—This paper comes to us this week with a full double sheet extra. It contains a full map of California, a map of the San Joaquin valley, with a brief description and statement of the productions of each county, besides the usual mining, agricultural and scientific intelligence. It is a paper that should be in the hands of every farmer, miner and manufacturer on this coast.—*San Francisco.*

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This Light takes the place of the Candle, the Kerosene Lamp and Coal Gas. Each Lamp is a perfect Gas Factory, making its own gas as fast as it is required. It is a safe, cheap and beautiful light. Circulars and full particulars sent on application.
A few good traveling agents wanted to sell this and other valuable Patents.

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By the use of "Burns Patent Safety Bridle" the wildest horse can be controlled with ease. The mildest bit is used and the horse's mouth cannot be injured. No restive horse should be driven with any other bridle. Send for descriptive circulars, or call and see the Bridle. Shop Rights for Sale.

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The best machine to Clean Grain in the world. Prices reduced. Send for descriptive circular and price list. County Rights for sale.

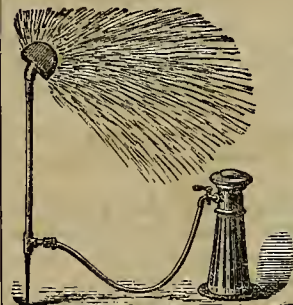
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We have for sale the right to the Pacific Coast for the safest, cheapest, most compact and simple Engine and Hoisting Machinery for mining and other purposes ever invented. Although new it has been thoroughly tested and we have strong testimonials in its favor from many of the most substantial men of the East. We invite manufacturers and others, to call at our office and make their own investigations.
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I also have Cast Iron Stocks, or Hydrants; price, \$3.50 each. PUMPS, assorted kinds, and



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THE FINAL RESORT WHEN ALL OTHERS FAIL. It cures a smoky chimney and ventilates a house. The BEST AND CHEAPEST IN USE. They cause a draft that dispenses with high stacks or chimneys; doing away with Blowers for large Steam Mills.

Metallic Life Boats of superior build at Eastern Prices.
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Determination of Minerals and the use of the Blow-Pipe, to those wishing to gain a knowledge of these branches. Any person may learn to make the ordinary assays in a few lessons. Address me at the Pacific Chemical Works, 215 First street, or Box 1180, Post Office. (25v-10) HENRY G. HANES.

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Letters Patent No. 53,194, granted March 13th, 1866, secured to me the amalgamation of Metallic Ores in a closed vessel by the action of Mercury, mercurial fumes, steam and agitation, the heat being applied externally. All persons using, making or selling any Amalgamator in violation of my rights, are hereby requested to settle for the past and arrange for the future, as legal proceedings will be instituted to enforce my rights in the premises.
JOHN T. STAATS, PATENTEE,
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DR. BEERS, Dentist,
Has removed from Tucker's Building to
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north, opposite the Occidental. 2v20-3m

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HERCULES POWDER,
Which combines all the force of other strong explosives
now in use, and the lifting force of the best blasting
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A circular containing a full description of this Pow-
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10v20-3m JOHN F. LOESE, Secretary.

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DESIGNS AND PLANS
—FOR THE—
NEW CITY HALL
—OF—
SAN FRANCISCO.

Office Board of City Hall Commissioners, southeast
corner of Sacramento and Montgomery streets, San
Francisco, June 22, 1870.

The Board of City Hall Commissioners hereby give
notice that they will be prepared to receive at their
office, on or before the FIRST DAY OF NOVEMBER
NEXT, designs and plans for the new City Hall of San
Francisco.

The Commissioners, in order to obtain the very best
design and plan, invite the fullest competition among
architects, and to this end have resolved to offer the fol-
lowing premiums:

First—For the design and plan selected and
adopted.....\$2,500
Second—For the second best design and plan..... 2,000
Third—For the third best design and plan..... 1,500
Fourth—For the fourth best design and plan..... 1,000
Fifth—For the fifth best design and plan..... 500
The premiums payable in City Hall warrants.

As a guide to architects in the preparation of the de-
signs and plans, the Commissioners have prepared a
pamphlet containing full instructions and suggestions,
as well as the terms and conditions upon which the pre-
miums will be awarded.

Pamphlets can be had on application at the office of
the Commissioners.

Any design or plan in which the requirements of the
Board, as set forth in the printed instructions, have not
been reasonably complied with, will be rejected from
the competition.

P. H. O'NEAVAN, Chairman,
JOS. G. EASTLAND,
CHAS. E. McLANE,
City Hall Commissioners.
26v20-4m

1840 1870
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PROF.
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classes, and to day, after a public trial of thirty years—
the average life of man—it stands unrivalled and unex-
celled, spreading its usefulness over the wide world.
Its large and increasing sale affords positive evidence of
its enduring fame. We do not deem it necessary to say
much in its favor as one small bottle will do more to
convince you of its efficacy than all the advertisements
in the world. Give it one fair trial and you would not
be without it for ten times its cost.
Directions accompany each bottle.
Sold by all Druggists.
Price 25 cts., 50 cts., and \$1 per bottle.

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MADE
With our Stencil and
Key-Check Outfit.
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The Scientific Press is devoted specially to matters of
mechanics, inventions and processes pertaining to the
development of mines, and gives free and full discus-
sions of such matters. Terms, \$4 per year.—White Pine
News, May 4th.

Railroads and Steamers.

Central Pacific Railroad.

Time Schedule, September 2, 1870.

EASTWARD.		Express Train Daily.	Passenger Sunday excepted.	Mixed.*
San Francisco	Leave	8:00 A. M.	4:00 P. M.	7:00 P. M.
Oakland	"	8:30 A. M.	4:30 P. M.	"
San Jose	"	7:45 A. M.	4:35 P. M.	"
Stockton	"	12:02 P. M.	7:53 P. M.	"
Sacramento	Arrive	1:50 P. M.	9:30 P. M.	7:40 A. M.
Sacramento	Leave	2:10 P. M.	"	8:00 A. M.
Marquette	Arrive	4:00 P. M.	"	1:15 P. M.
Chico	"	6:45 P. M.	"	5:20 P. M.

WESTWARD.		Express Train Daily.	Passenger Sunday excepted.	Mixed.*
Ogden	Leave	6:00 P. M.	5:00 P. M.	"
Kelton	"	10:42 P. M.	1:30 A. M.	"
Eiko	"	8:45 A. M.	7:15 P. M.	"
Carlin	"	10:15 A. M.	8:45 P. M.	"
Battle Mountain	"	1:25 P. M.	3:15 A. M.	"
Whinnemucca	"	4:05 P. M.	9:00 A. M.	"
Reino	"	1:00 A. M.	1:30 A. M.	"
Chico	"	8:45 A. M.	12:04 A. M.	"
Chico	"	8:30 A. M.	10:30 A. M.	"
Marquette	"	9:10 A. M.	2:30 P. M.	"
Sacramento	Arrive	11:25 A. M.	7:00 A. M.	"
Sacramento	Leave	11:45 A. M.	7:30 P. M.	"
Stockton	"	1:40 P. M.	8:35 A. M.	"
San Jose	Arrive	3:35 P. M.	10:10 A. M.	"
Oakland	"	5:30 P. M.	12:10 P. M.	"
San Francisco	"	6:00 P. M.	12:40 P. M.	9:30 A. M.

Local Trains.		A. M. P. M.
3:00	9:10 leave... SAN FRANCISCO... arrive	10:40 7:30
3:20	9:20 " " " " " " " " " " " "	10:12 7:05
4:40	11:05 " " " " " " " " " " " "	8:40 5:35
5:35	12:00 arrive... SAN JOSE... leave	7:45 4:35

From	From	From
SAN FRANCISCO.	OAKLAND.	BROOKLYN.
B 6:40 A. M.	B 6:40 A. M.	B 6:30 A. M.
9:00 " "	8:00 " "	B 6:45 " "
D 10:00 " "	9:00 " "	9:50 " "
11:00 " "	10:00 " "	"
12:00 M. "	11:00 " "	"
2:00 P. M. "	12:00 P. M. "	11:50 " "
D 3:00 " "	2:00 P. M. "	2:50 P. M. "
4:00 " "	3:00 " "	"
5:15 " "	4:00 " "	"
6:45 " "	5:20 " "	5:10 " "
B 11:30 " "	6:55 " "	6:45 " "
From	From	From
SAN FRANCISCO.	ALABAMA.	RAYMONDS.
B 7:30 A. M.	R 5:35 A. M.	B 4:30 A. M.
E 9:00 " "	E 7:36 " "	B 7:00 " "
BC 9:30 " "	E 9:06 " "	E 8:30 " "
EC 11:30 " "	R 9:36 " "	B 9:00 " "
1:30 P. M.	E 11:26 " "	E 11:00 " "
4:30 " "	1:35 P. M.	"
6:00 " "	4:35 " "	3:55 P. M.
"	E 6:05 " "	"

B. Sundays excepted. E. Sundays only.
D. To Oakland only. C. To Fruit Vale only.
A. N. TOWN, Gen'l Sup't C. P. R. R.,
T. H. GOODMAN, Gen'l Pass'g Agent, Sacramento.

SHORT ROUTE.



The following time will take effect
Saturday.....October 1, 1870.

GOING NORTH—DAILY (SUNDAYS EXCEPTED).				
New World	Trains	Trains	Trains	Trains
Leave	Arrive	Leave	Arrive	Leave
San Francisco	Callstoga	San Francisco	Callstoga	Marquette
8:30 A. M.	12:15 A. M.	12:30 A. M.	2:15 P. M.	"
4:00 P. M.	8:15 P. M.	8:20 P. M.	9:30 P. M.	"

ON SUNDAYS.				
8:30 A. M.	12:30 P. M.	1:00 P. M.	5:00 P. M.	"

GOING SOUTH—DAILY (SUNDAYS EXCEPTED).				
Train	Trains	Trains	Trains	New World
Leave	Leave	Leave	Leave	Arrives
Marquette	Callstoga	Sacramento	S. Francisco	"
6:00 A. M.	7:30 A. M.	7:15 A. M.	10:30 A. M.	"
1:00 P. M.	2:30 P. M.	3:15 P. M.	7:30 P. M.	"

ON SUNDAYS.				
10:15 A. M.	3:00 P. M.	2:30 P. M.	7:40 P. M.	"

TICKETS for sale at 445 Montgomery street, or on board
steamer New World. R. S. MATTHEWSON, Superintendent.
N. R.—Branch office of Western Union Telegraph Com-
pany, Front and Vallejo streets wharf.
L. V. FOWLER, General Freight and Passenger Agent,
Vallejo, October 1, 1870. 15v21-y



NO FEAR OF A RELAPSE.—Thousands who suffer from
Chronic constipation, dare not take the order of purga-
tives, because the short relief they afford is followed by
still more terrible contraction and general aggravation
of the disease. For these the mild laxative, corrective,
and tonic operation of TARRANT'S EFFERVESCENT SELTZ-
ER APERIENT, is literally the one thing needful. Al-
most superceptibly, and without any gripping pain, it
restores the natural peristaltic motion of the bowels, while
it tones their muscular action, and thus prevents a
return of the contraction when the laxative action of
the agreeable and effervescent draught has subsided.

SOLD BY ALL DRUGGISTS

THE SCIENTIFIC PRESS.—To the minor and farmer we
consider the Press the most valuable publication on the
Pacific Coast. Every number contains matter of interest
to the farmer and general reader, and to the minor
the Press is a sine qua non.—Inq Independent

A New Mashing Machine for Brewers.

Hitherto mashing has been conducted by hand, by means of oars or wooden bars provided with cross-pieces at the end, or by various shaped machinery. The first method caused a too great loss of heat (as the tub was necessarily left uncovered during the process), which made the ale liable to sour, besides being inadequate for properly stirring the whole mass; the latter method obviated the first objection, but still did not effect a perfect permeation of the grain with water. Then machinery was used to mash the malt and water before it was put into the tub, but this heat the grain into a paste, destroying the pores and preventing the water from thoroughly saturating the malt and dissolving the soluble parts.

We now illustrate a new machine which has been invented for the purpose of avoiding all these troubles, and which, it is claimed, will make a thorough mash, of any required degree of consistency, without destroying the fibre of the grain, besides doing away with the aid of extraneous power.

In this machine the ground malt is placed in the hopper, A, the bottom of which is closed with a slide, F. By drawing out this slide, the malt drops down into a chamber, the bottom of which is formed by a slide, C, which has different sized openings, shown in the figures marked 2, 3 and 4, so that this regulates the flow of the malt and causes a thicker or thinner mash to be formed as may be desired. A door, D, enables the operator to watch and regulate this flow. From here malt falls on to a cone, H, which divides it equally and spreads it into a thin sheet. This falls into the space, I, where it is subjected to the action of water, discharged in small jets through holes from J and K. This water is heated to the proper temperature in a vessel on an upper floor, and introduced through the pipes, B. The mash then falls into the tub below the machine. When the malt is all through, the open slide, C, or 2, 3, 4, is replaced by a blank one, 1, the water is shut off, and the slide, F, is pushed in. Thus the escape of steam is effectually prevented. By means of the door, D, the machine can be readily cleaned.

The mixture in the tub is in the form of a perfect mash with every grain saturated and its structural character uninjured. After standing the usual time, and setting the taps, sparging only is necessary to draw off the whole of the extract, the water passing through the pores of the malt and extracting all the soluble portion in its passage, instead of forming channels and flowing down on the outside of the grain, as is usually the case. These claims seem to be well substantiated by practice.

Other important advantages are claimed. The device is self-acting and requires no expensive machinery. The extract produced is much larger in amount than that obtained by the old methods. The machine is simple, works easily, is durable and can be cleaned with the greatest ease. We understand that its use in several large breweries at the East has been attended with great success. The device was patented in July, 1870, and any further information can be obtained of John Trageser, Steam Copper Works, 447 West Twenty-Sixth St. New York City.

Notes on the State Fair.

[CONTINUED.]

The California sewing machine attracted much attention and admiration for its simplicity of construction and easy and complete operation. It is the invention of Mr. Sawdon, of Grass Valley, Nevada Co., and the right is owned by himself and Mr. Gray. Quite a number of machines have been sold to individuals acquainted with their superior worth in Grass Valley, where they are manufactured with limited facilities, and sold at a profit at prices some 30 per cent. lower than the rates for first class machines, over which this is claimed to be superior. This California invention is certainly very simple for the work it handsomely performs. It is a shuttle ma-

Huntington, Hopkins & Co., one of the heaviest hardware firms on this coast, made a creditable display, consisting of a large variety of goods typical of the character of their immense stock at No. 54 K street, Sacramento, which embodies first qualities of supplies for railways, miners, farmers and local mechanics. For the communities in the northern part of the State, this first rate house, located at the Capitol City, must be a real desideratum.

Our attention was called to the perfect cleaning and separating of the "Novelty Mill and Grain Separator," operated by R. Stone, Agent, of No. 422 Battery st., San Francisco. The perfect manner in which it separated a foul mixture of wheat and impurities, depositing the large kernels, the small and blasted berry, cheat, mustard

unnecessary, the hullion being worth more than coin.

Mr. Morgan is still experimenting and will in a short time have a working size machine from California, where the patentee is now applying his process on a large scale.

Mr. Morgan authorizes us to invite all persons interested in quartz and quartz machinery to examine this model machine, and see it work. It can be seen at How's mill in Brown's gulch. The cost of Paul's machine in St. Louis is \$1,200; weight of entire apparatus, 3 tons; capacity for twenty-four hours, 10 tons. With this machine will be necessary a five-stamp mill and one of Paul's pulverizers to reduce the ore preparatory to working in the cylinder.

We have scratched our head a many and many a day over quartz and quartz machinery, and, according to our idea, this is the process to raise us out of the "slough of despond."

Our Printed Mail List.

Subscribers will notice that their names are printed on colored paper and pasted upon each copy of the Press. This is done by machinery, to expedite the issue of our paper, the regular edition of which has become too large to be convenient to send out by the old method of writing the names. The figures found on the right of the pasted slips represent the date to which the subscriber has paid. For instance, 21st 70 shows that our patron has paid his subscription up to the 21st of September, 1870; 4j71, to the 4th of January, 1871; 4j10, to the 4th of July, 1870. The inverted letters occasionally used are marks of reference, simply for the convenience of the publishers.

In setting up the list the compositor made some few errors which have been rectified by a careful revision and comparison with the mail book. If errors in the accounts of subscribers occur at any time an early notice will secure their immediate correction.

If names, initials, or the address in any particular is wrong or incomplete we wish to be favored with a notification of the fact.

SCIENTIFIC PRESS.—We are pleased to learn that the circulation of this valuable journal is rapidly increasing in all the States and territories on the Pacific Coast. The efforts of the proprietors of the SCIENTIFIC PRESS, Messrs. Dewey & Co., to furnish a reliable paper for the miner, farmer, mechanic and inventor, are successful, and their paper has obtained an enviable reputation for ability and truthfulness. P. McCarty, travelling and corresponding agent for the SCIENTIFIC PRESS, is now in town, and has succeeded in securing a large addition to its subscription list in Nevada and Placer counties.—*Nevada Gazette*.

NEW VOLUME.—The San Francisco SCIENTIFIC PRESS has entered its 21st volume, and is one of the most valuable journals published. Containing, as it does, articles on every branch of home industry, the sciences, arts, etc., the PRESS should find its way into every hamlet in the land. The four dollars expended for a year's subscription to this journal may be repaid by the information gained by the perusal of only one number.—*Alpine Chronicle*.

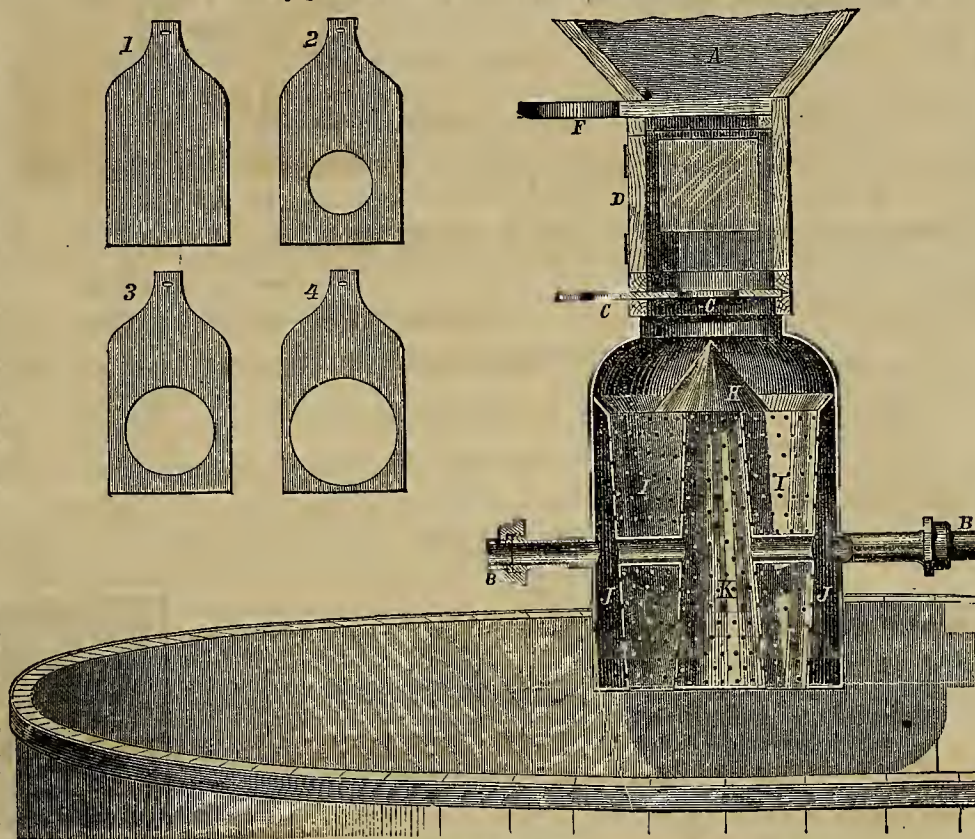
THE SCIENTIFIC PRESS.—An illustrated Pacific States weekly, devoted to mining, farming, mechanic arts and industrial progress, generally, but especially in the west. This work is published in San Francisco, at \$4 per annum. Mr. M. is here to canvass for subscribers, with specimens of the work, which we can commend to our readers the general public.—*Deseret Daily News, Salt Lake*.

TREATMENT OF REBELLIOUS SILVER ORES by Charles H. Aaron—a pamphlet of eight pages of concise reading, of practical value to parties interested in the subject. Printed and sold by Dewey & Co., at this office, for 25 cents, post paid.

TO MINERS, MILLMEN AND METALLURGISTS. Kustel's new work on the Concentration of all kinds of Ores, and the Chlorination Process, for Gold-bearing Sulphurets, Arseniurets, and Gold and Silver Ores generally, is the best and most complete work issued. It contains 120 diagrams, illustrating machinery, etc., which alone are of the greatest value. Price, \$7.50, postage paid. Published by Dewey & Co., publishers of the Scientific Press, San Francisco.

SCIENTIFIC PRESS, FROM SAN FRANCISCO. This Mining, Farming and Mechanic Arts Journal, after a most singular absence from our table, has again made its appearance and is heartily welcomed. It is the recognized mining organ of the Pacific coast, and rightly so, since it is conducted ably and honestly in all respects. It scorns bumbag and avoids all merely speculative commendations of sudden discoveries in the treatment of ores. The reliability of the Press in all matters pertaining to mines and mining news, makes it a most desirable paper for our people here. Per annum, \$4.—*Colorado Herald, July 6th*.

THE large majority of United States and Foreign Patents granted to inventors on the Pacific coast during the past few years, have been obtained through the agency of DEWEY & Co., publishers of the SCIENTIFIC PRESS. Established in the year 1860, we have an extensive patent library, with full record of cases on this coast, and can give the best and most reliable advice as to the patentability of new inventions.



HARRIS' PATENT SELF-ACTING MASHING MACHINE FOR THE USE OF BREWERS.

chine and runs with great ease, making stitches alike on both sides—similar to the Singer. The feed motion which governs the length of the stitches is regulated without stopping the work. Mr. S. is a young man who was brought up a mechanic in his father's establishment in Europe, and came to Grass Valley six months ago penniless, but with a will to work and accomplish something, which brought encouragement from those who admire willing hands and industrious minds, and the result is that a mountain town in this State now claims the commencement of a home manufacturing enterprise that promises much future benefit to the State.

The California Silk Company made an interesting exhibit of some of Mr. Shaw's paintings, from his studio in the Mercantile Library Building, S. F., which were quite admirable.

The huge, revolving, diamond-shaped, glass lottery box, [Mercantile Library (mis)fortune shaker] attracted admiration for the ingenuity of the inventor, and a good many uncomplimentary remarks for the scheme which called it into existence. The box, diamond shaped, contains various rows of iron teeth for stirrers inside, and has an almost universal rotating motion for mixing up the tickets.

Parker & Hunt, of Sacramento, exhibited Blakslee & Williams steam jet pump, an Eastern invention possessed of considerable novelty. It operates by vacuum produced by condensing steam, with very little apparatus, and we should think it very applicable for certain purposes.

seed, and the coarser foreign particles in separate receptacles was very satisfactory. We want to improve the quality of our seed grain and flour in this State, and would recommend parties who cannot examine this mill in person, to read the illustrated description given in our issue of Sept. 10th, 1870.

The Paul Process in Montana.

A Montana paper gives the following with regard to Mr. Paul's process, which has been tried at or near Nevada City, Montana:

We visited a mill a few days since, where this process is being applied on refractory ores. Although only on a small scale, still it has proven an entire success, and we are satisfied it is destined to work a complete revolution in our present system of working both gold and silver ores. Mr. Morgan, the gentleman who is experimenting with the model machine, was very kind in giving us every information in regard to the machine, and the mode of working the same, and as near as we can we will now explain to our readers.

Mr. Morgan has saved 90 per cent. of assay value of ore, by this process, (though his little machine is very imperfect); while from same ore, by old process, he was able to save but 40 per cent. and this greater saving of precious metals is not its only virtue. It delivers the gold and silver in almost a chemically pure state—say from 950:1000 to 995:1000 fine.

For instance—Mr. Morgan worked by old process, and from it obtained bullion that was only 61:1000 fine; the same ore, by the Paul process, not only returned twice as much bullion in value, but the same was also 975:1000 fine, or almost entirely free from base metals, which renders cupelling

Mining and Company Advt's.

Columbus Mining Company.—Location:
Roach Hill, Placer County, California.
Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the twenty-eighth day of September, 1870, an assessment of seventy-five (75) cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary, 419 California street, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on the second day of November, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Saturday, the nineteenth day of November, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

A. NOEL, Secretary.
Office, 419 California Street, San Francisco, Cal.

CAUTION.

Eagle Quicksilver Mining Company.—Location of Mines: Eagle Mining District, Santa Barbara County, California.

Notice is hereby given to the public not to purchase, or negotiate for the following named shares, designated by the names of the delinquent owners in the Eagle Quicksilver Mining Company, as by law, and the Articles of agreement provided, they were duly advertised and sold in full at public auction, by John Middleton & Son, Auctioneers, on Monday the 26th day of September 1870, for delinquent assessments thereon, and accruing costs of advertising and sale, and will not be transferred by said Company.

Names.	Shares Sold.
Benton, H. A.	1
Bush, A. T.	1
Brodie, James.	1
Collins, S. W.	1
Darling, A. C.	1
Kays, Thos. C. or Jasper O. Farrell.	1
Lloyd, R. H.	2
Richardson, Thos.	2
Rodda, Win. Henry.	1
Wolch, Edward.	4
Williams, S.	1

W. H. WATSON, Secretary.
of Eagle Quicksilver Mining Company, Room 5.
No. 302 Montgomery St. San Francisco California.
September 26, 1870. 14v21-1t

Latawana Mining Company.—Near Hamilton City, White Pine County, State of Nevada.

Notice.—There are delinquent upon the following described stock, on account of assessment levied on the fifteenth day of August, 1870, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No of Certif.	No of Shares.	Amount Due.
D. M. Hosmer.	6	20	3 00
D. M. Hosmer.	7	20	3 00
D. M. Hosmer.	8	20	3 00
D. M. Hosmer.	10	20	3 00
D. M. Hosmer.	12	10	1 00
D. M. Hosmer, Trustee.	150	1000	150 00
D. M. Hosmer, Trustee.	151	10	1 00
D. M. Hosmer, Trustee.	152	10	1 00
D. M. Hosmer, Trustee.	153	10	1 00
Richard Savage.	20	50	2 50
Richard Savage.	104	300	45 00
Richard Savage.	199	100	15 00
S. A. Post.	36	10	1 50
P. Conklin.	104	400	60 00
S. E. Holcombe.	127	10	1 00
M. M. Baldwin.	114	10	1 00
M. M. Baldwin.	149	490	24 50
Richard H. Savage.	115	10	1 50
John H. Wise.	126	768	115 00
R. Caulfield.	128	40	8 50
D. Walker, M. D.	129	20	3 00
A. P. Everett.	134	100	15 00
A. P. Everett.	166	50	7 50
William Krug.	137	50	7 50
William Krug.	138	50	7 50
William Krug, Trustee.	167	100	15 00
William Krug, Trustee.	197	227	34 05
William Krug, Trustee.	198	400	60 00
John Clement.	141	98	13 50
A. Martinon, Trustee.	188	4248	637 20
Quorum of Trustee.	145	2875	431 25
Chas. C. Bowman.	155	500	75 00
L. D. Simpson.	157	95	14 25
R. Cohn.	179	100	15 00
C. H. Burton.	180	328	49 20
Botts & Wise.	175	800	120 00
C. F. McDermott.	176	100	15 00
S. Haydenfeldt.	181	300	45 00
Chas. Wellington, Trustee.	182	672	100 80
Chas. Wellington, Trustee.	183	300	45 00
Chas. Wellington, Trustee.	184	100	15 00
Chas. Wellington, Trustee.	189	100	15 00
Chas. Wellington, Trustee.	191	100	15 00
John G. Ayres.	193	200	30 00
T. Aroul Charrard.	195	100	15 00
R. E. Dorin.	200	200	30 00
Geo. W. Forsyth, Trustee.	203	600	90 00

And in accordance with law and an order of the Board of Trustees, made on the fifteenth day of August, 1870, so many shares of each parcel of said stock as may be necessary will be sold at the office of the Company, 614 Merchant street, Room 26, San Francisco, California, on Monday, the third day of October, 1870, at the hour of 2 o'clock P. M., of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

A. MARTINON, Secretary
Office, 614 Merchant street, Room 26, San Francisco, California. sept-17

La Blanca Gold and Silver Mining Company.—Location of Works: District of Ures, State of Sonora, Mexico.

Notice is hereby given that the annual meeting of the Stockholders of the above named company will be held on Monday the tenth day of October 1870, at the office of the Company, No. 312 Front Street, San Francisco California, for the purpose of electing Trustees for the ensuing year, and for the transaction of any other business as shall properly come before the meeting. By order of the President,

JOS. GOLDMAN, Secretary.

CAUTION.

North America Consolidated Mining Company.—Location of Works: White Pine County, State of Nevada.

Notice is hereby given that the following named shares designated by the number of their respective Certificates in the Capital Stock of the North America Consolidated Mining Company, as by law provided, were duly advertised and sold in full at public auction by John Middleton & Son, on Wednesday, the 7th day of Sept. 1870, for delinquent assessments thereon, and accruing costs of advertising and sale, and will not be transferred by said Company.

No. Certif.	No. Shares.	No. Certif.	No. Shares.
15	665	18	668
19	665	21	666

W. H. WATSON, Secretary.
North America Consolidated Mining Co., Room 5.
No. 302 Montgomery Street, San Francisco California.
September 28, 1870. 14v21-1t

Silver Sprout Mining Company.—Location of Works and Mines: Kearnsarge District, Inyo County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 29th day of August, 1870, an assessment of twenty-five (25) cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary, at the office of the Company, No. 405 California street, San Francisco, Cal.

Any stock upon which said assessment shall remain unpaid on the eighteenth day of October, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Thursday, the first (1st) day of December, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

T. B. WINOARD, Secretary.
Office, 405 California street, San Francisco, Cal.

New Advertisements.

Every Advertisement in this journal is published throughout its entire Mining, Agricultural, Monthly and Quarterly Editions.

"CALIFORNIA" SEWING MACHINE,

SAWDON & GRAY,
MANUFACTURERS,
Corner Mill and Neal Streets,
GRASS VALLEY, CALIFORNIA.
Patent applied for.

It is the simplest, most durable, easiest understood, and strongest built, and 30 per cent. cheaper than any of the prominent ones now in the market.

Examine before purchasing elsewhere, or send for Circular.

AGENTS WANTED.
14v21-3m.

The Stetefeldt Furnace.

For information of any description respecting this process,

APPLY TO

STETEFELDT FURNACE COMPANY.
Austin, Nevada.
14v21-1y

W. B. WEST,
NURSERYMAN AND FLORIST,
Evergreens, Fruit Trees,
—AND—
GREENHOUSE PLANTS.
Wine and Table Grapes a Specialty.
Nursery and Greenhouses: one mile North of the Asylum, Stockton.
15v21-4m.

(ESTABLISHED 1820.)

WILLIAM J. YOUNG & SONS,
Mathematical Instrument Makers,
No. 43, North Seventh St. Philadelphia Pa.

Having increased their facilities, expect in future to keep on hand a full supply of Transits, Levels, Compasses, Solar Compasses &c. Manufacturers of Young's celebrated Shifting Tripod for Transits. Original manufacturers of Burt's Solar Compass. 14v21-2m

DISSOLUTION.—Notice is hereby given that the co-partnership heretofore existing between N. P. Langland and A. Cameron was dissolved by mutual agreement, September 1st, 1870.

The undersigned will continue the business of stair-building as formerly at No. 435 Brannan Street, San Francisco. N. B. LANGLAND.
13v21-4t

One Per Cent. per Month
Allowed on Six Months' Deposits by the CALIFORNIA BUILDING, LOAN AND SAVINGS BANK, California street, one door from Sansone.
THOMAS MOONEY, President.
August 2, 1869. 6v19-1m

MARAVILLA COCOA. For Breakfast.—The Globe says: "Various importers and manufacturers have attempted to attain a reputation for their prepared Cocos, but we doubt whether any thorough success has been achieved until Messrs. Taylor Brothers discovered the extraordinary qualities of 'Maravilla' Cocoa. Adapting their perfect system of preparation to this finest of all species of the Theobroma they have produced an article which surpasses every other Cocoa in the market. Entire solubility, a delicate aroma, and a rare concentration of the purest elements of nutrition, distinguish the Maravilla Cocoa above all others. For homeopaths and invalids we could not recommend a more agreeable or valuable beverage." Sold in packets only by all Grocers, of whom also may be had Taylor Brothers' Original Homoeopathic Cocoa and the Solid Soluble Chocolate. Steam Mills—Brick Lane, London. 5v20-1y

ENCOURAGING REMARKS.—One of our readers writes: "Incorporating an agricultural department into your paper has made it acceptable and really useful all over the country west of the Rocky Mountains, and probably further; and for my part I do not see how an intelligent farmer, miner or mechanic can do without it."

CONTINENTAL Life Insurance Co., 302 Montgomery street, corner of Pine.

THOS. H. SELBY & CO.

Nos. 116 and 118 California Street, San Francisco,

SHOT TOWER

AND

MANUFACTORY

OF

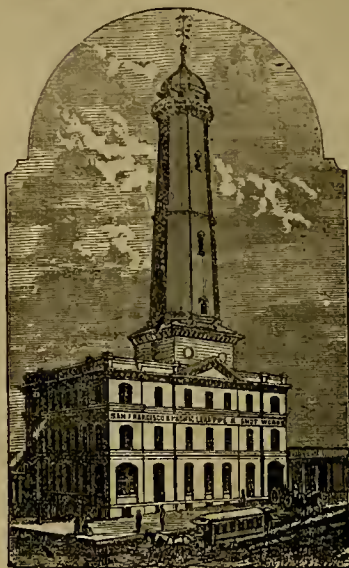
PLUMBING GOODS

OF ALL KINDS,

CORNER

HOWARD AND

FIRST STREETS,



SMEETING,

SEPARATING

AND

REFINING WORKS

FOR

SILVER

AND

LEAD,

NORTH BEACH.

IMPORTERS OF

BAR & PLATE IRON, CAST STEEL, SHEET COPPER, ZINC, AND ALL KINDS OF

Plumbing Goods, and manufacturers of Lead Pipe,

SHEET, LEAD, DROP SHOT, &c.

ALSO PROPRIETORS

Of the Selby Lead and Silver Smelting Works, of San Francisco.

Crude Lead and Silver Bars Purchased.

SPECIAL NOTICE.

THE "SELBY LEAD AND SILVER SMELTING AND REFINING COMPANY" having made large additions to their Works, are prepared to receive in any quantity, Lead Bullion containing Silver and Gold. Returns in all cases, will be made promptly in twenty days from the receipt of the bullion in San Francisco.

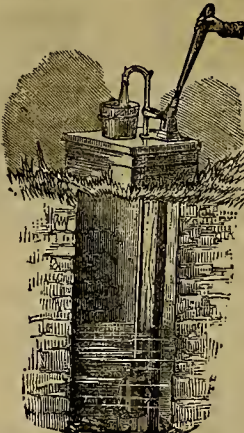
Returns from Galena ores containing Silver will be made within thirty days from delivery in San Francisco. These ores should be concentrated so as to assay fifty per cent. in Lead.

They are also increasing their Works for the reduction of rich Silver ores. This addition will be completed about the 15th of September.

Freight and shipping charges advanced on shipments to these Works, provided the amount does not exceed the net value of the shipment.

THOS. H. SELBY & CO.
Nos. 116 & 118 California Street.

THE AMERICAN SUBMERGED PUMP.



Has no leather packing, is composed entirely of metal, rendering it less liable to get out of repair than the ordinary packed pumps. It is admirably adapted for Irrigating purposes and for Watering stock.

As a Safeguard against Fire it has no Equal,

One of the medium size being capable of protecting an ordinary frame dwelling. In short it is an article that

Every Farmer should have on his Premises.

PRICE LIST.

No.	0.—Iron,	\$15 ;	Iron Galvanized,	\$17 ;	Capacity,	500.....	Gallons per Hour.
1.—	"	25 ;	"	30 ;	"	1,000 to 1,200.....	" " "
2.—	"	40 ;	"	45 ;	"	2,000 to 2,500.....	" " "
3.—	"	70 ;	"	75 ;	"	4,000.....	" " "

Larger sizes made to order of any required capacity. Hand power.

MANUFACTURED AND FOR SALE BY

PACIFIC PUMP MANUFACTURING COMPANY,

City Agents, - - - WILSON & DIXON,

Plumbers and Gas Fitters, 318 Pine Street, San Francisco.

San Francisco Metal Market.

PRICES FOR INVOICES

Jobbing prices rule from ten to fifteen per cent. higher than the following quotations.

THURSDAY, Sept. 29, 1870.

IRON.—Duty: Pig, \$9 per ton; Railroad, 60c per 100 lbs.; Bar, 1@1 1/4c per lb; Sheet, polished, 3c per lb; common, 1 1/2@2c per lb; Plate, 1 1/2c per lb; Pipe, 1 1/2c per lb; Galvanized, 2 1/2c per lb.

Scotch and Eng. Pig Iron, per ton... 29 @ \$30 00

White Pig, per ton... 26 00 @ 28 00

Refined Bar, had assortment, per lb... 03 @ —

Refined Bar, good assortment, per lb... 04 @ —

Boiler, No. 1 to 4... 04 1/2 @ —

Plate, No. 5 to 9... 04 1/2 @ 04 3/4

Sheet, No. 10 to 13... 05 @ —

Sheet, No. 14 to 20... 05 @ 05 1/2

Sheet, No. 21 to 27... 05 @ 06 1/2

COPPER.—Duty: Sheathing, 3 1/2c per lb; Pig and Bar, 2 1/2c per lb.

Sheathing, per lb... — @ — 26

Sheathing, Yellow... — @ — 21

Sheathing, Old Yellow... — @ — 11

Composition Nails... — @ — 22

Composition Bolts... — @ — 22

TR. PLATES.—Duty: 25 cent. ad valorem.

Plates, Charcoal, 1X, per box... 12 00 @ —

Plates, 10 Charcoal... 10 00 @ 10 50

Roofing Plates... 10 00 @ 10 50

Plate Tin, Sheet, per lb... — @ — 42

STEEL.—English Cast Steel, per lb... — @ — 15

QUICKSILVER.—per lb... — @ — 7

LEAD.—Pig, per lb... 7 1/2 @ — 8

Sheet... — @ — 10

Pipe... — @ — 11

Bar... — @ — 9

ZINC.—Sheets, per lb... 10 1/2 @ — 11

BORAL... — @ — 35

Machinists and Foundries.

FULTON

Foundry and Iron Works.

HINCKLEY & CO.,

MANUFACTURERS OF

STEAM ENGINES,

Quartz, Flour and Saw Mills,

Hoyes' Improved Steam Pump, Brodie's Improved Crusher, Mining Pumps, Amalgamators, and all kinds of Machinery.

N. E. corner of Tehama and Fremont streets, above Howard street, San Francisco. 3-qy

THE RISDON

Iron and Locomotive Works.

INCORPORATED.....APRIL 30, 1868.

CAPITAL.....\$1,000,000.

Corner of Beale and Howard Streets, SAN FRANCISCO.

Steam Engine Builders, Boiler Makers, Machinists, Foundrymen, and Manufacturers of Car Wheels equal to the best imported, and guaranteed equal to Eastern Wheels.

Directors: S. F. Butterworth, Wm. Norris, Lloyd Tevis, John N. Risdon, Wm. Alvord, Chas. E. McLane.

JOHN N. RISDON.....President.

JOSEPH MOORE.....Vice President and Superintendent.

LEWIS R. MEAD.....Secretary.

UNION IRON WORKS,

Sacramento.

WILLIAMS, ROOT & NEILSON,

MANUFACTURERS OF

STEAM ENGINES, BOILERS,

CROSS' PATENT BOILER FEEDER AND SEDIMENT COLLECTOR,

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Danbar's Patent Self-Adjusting Steam Piston

PACKING, for new and old Cylinders.

And all kinds of Mining Machinery.

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ALL KINDS OF Brass, Composition, Zinc, and Babbitt Metal Castings, Brass Ship Work of all kinds, Spikes, Sheathing Nails, Redder Brackets, Hinges, Ship and Steamboat Bells and Cocks of superior tone. All kinds of Cocks and Valves, Hydraulic Pipes and Nozzles, and Hose Couplings and Connections of all sizes and patterns, furnished with dispatch.

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— ALL KINDS OF —

High and Low Pressure Boilers Built.

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19v19-qy

ROOT'S PATENT FORCE BLAST ROTARY BLOWER.

MANUFACTURED BY KEEP & BARGION,

At the Globe Iron Works, Stockton, California.

Awarded the First Premium at the Paris Exposition.

Patented Nov. 1st, 1864, July 21, 1866, and Oct. 9, 1866.

ADAPTED FOR Smelting, Foundry, Mining and Steamships.

REQUIRES Fifty Per Cent. LESS POWER Than any Blower Now in use.

One of these Blowers may be seen on exhibition at W. T. Jarratt's Brass Foundry, corner of Mission and Fremont street. They are also in use at the Almaden Quicksilver Mine; Gridley's Foundry, Gold Hill, Nevada; Jena Iron Works, San Francisco, and many other places.

CAUTION.—Purchasers will find it to their advantage to apply direct to the Stockton Agency, as certain parties, not authorized to manufacture the Blower, have put in the market machines of inferior construction, which do not answer all the requirement of the genuine article.

Quartz, Saw and Grist Mill Irons, Steam Engines, Horse Powers, High and Low Pressure Steam Engines, Steamboats and Propellers, made at short notice.

For circulars and further information address

KEEP & BARGION,

Globe Iron Works, Stockton, Cal.

CAMERON'S STEAM PUMPS.

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BARTOL'S STEAM TRAP.

SURFACE CONDENSERS.

DAVID STODDART,

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NOVELTY MILL AND GRAIN SEPEARATOR.

THE undersigned having purchased of the Patente, WIRTS & SWIFT, of Hudson, Michigan, their right to this mill, Patented June 22d, 1869, for California, Oregon, Washington Territory, Montana, Utah, New Mexico and Arizona, wishes to call the attention of FARMERS, MILLERS AND GRAIN DEALERS to one of THE GREATEST IMPROVEMENTS OF THE AGE for cleaning and separating grain. While it combines all the essential qualities of a first-class FANNING MILL, it also far exceeds anything that has ever been invented for the separation of grain. It has been thoroughly tested on all the different kinds of mixed grain, separating all the different seeds in almost a magical manner, placing them in their different compartments in the mill arranged for their reception, at the same time taking out all the Mustard, Grass Seed, Barley and Oats, and making two distinct qualities of wheat if desired, thereby selecting superior, large plump and perfect kernels for SEEN WHEAT, and all the small and cut kernels, such as merchantable wheat, is deposited in another compartment. By the use of this Mill a great quantity of wheat usually sown that has been cleaned in the common mills will be saved to the farmer, as the cut or shrunken kernels will never germinate.

The above mentioned Novelty Mill is the only mill known to possess all these superior qualifications, and was exhibited and tested at the last Michigan State Fair held at Jackson, Michigan, September 21, 22, and 23, 1869, and here won the palm over some thirty other different mills from all parts of the United States, including the famous Dicky Mill of Racine, Wisconsin. All who have witnessed here the operations of the NOVELTY MILL, declare its perfection, and the most beneficial invention to the Farmers, Millers, and Grain Dealers ever introduced on the Pacific Coast. The farmers in Santa Clara County, are loud in its praise, and also in other parts of the State where it is being introduced. No. 1 Mill, complete, is capable of cleaning 25 tons of grain per day; No. 2 Mill, 15 tons; No. 3 Mill, 8 tons. A large number of recommendations and certificates of the practical working of the mill will be furnished. Circulars containing references sent free by mail. N. B. Town, County, or State Rights for sale on favorable terms. For further particulars apply to

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MANUFACTURER OF

PRACY'S IMPROVED PATENT STEAM ENGINE GOVERNOR.

These Governors are the most sensitive built, running at a high velocity and maintaining a uniform speed.

SOLE AGENT FOR

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— SUCH AS —

Lathes, Planers, Drills, Boring Mills, Milling Machines, Etc.,

Which I will offer at very low rates. Also,

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ESTABLISHED 1851.

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Steam Engines and Boilers, MARINE AND STATIONARY,

IRON AND BRASS CASTINGS,

Mining Machinery of Every Description,

And all other classes of work generally done at first-class establishments, manufactured by us at the lowest prices, and of the best quality.

Particular attention paid to Jobbing Work and Repairs.

N. B.—Sole Agents for sale of HUNTOON'S CELEBRATED PATENT GOVERNOR.

18v20-3m GODDARD & CO.

McAFEE, SPIERS & CO.,

BOILER MAKERS

AND GENERAL MACHINISTS,

Howard st, between Fremont and Beale, San Francisco.

Flue or Tubular Boilers, with plain circular or spiral courses. Upright Flue or Tubular Boilers, Locomotive and Marine Boilers, and Wrought Iron Tanks of every description.

Hydraulic Pipe supplied at reasonable rates. In order to give the quantity of water to be supplied, height of the fall, and total length of pipe, so as to enable the firm to determine the diameter of the pipe and thickness of iron to be used.

Repairs.—Boilers, Smoke Stacks, Pipes, etc., put in repair with promptness.

To Boiler Makers and Machinists in the Interior.—The firm is prepared to furnish estimates of Boilers, and put new Heads, drilled and punched, and attend to the selection and forwarding of Iron for Boilers, Pipes and other purposes.

Plans, Drawings and Specifications.—The firm is prepared to make out Plans and Specifications, receive estimates, and superintend the Erection of any Machinery that may be entrusted to their care.

To Inventors.—The firm is prepared to assist in developing the plans of those who have the ideas but not the practical experience necessary to put the same in form, by making Drawings of their inventions, giving them the benefit of their practical knowledge in the construction of Machinery, and attending to the manufacture and introduction of their inventions.

16v16f

To Those Using Steam Power.

The Gardner Automatic Stop Governor will give you perfect regularity of speed and positive insurance against all accidents, resulting from Slipping or Breaking of the Governor or driving belts. Cost less than any other FIRST-CLASS GOVERNOR.

The Dreyfuss Cylinder Lubricator

Will save 80 per cent. of Tallow, is automatic in its action and will give the Cylinder a steady supply of Tallow or Oil whenever the Engine is in motion. No wiper or leakage. Cost from \$5 to \$10, according to size.

The Nathan & Dreyfuss Patent Oil Cups

Will save 90 per cent. of Oil. They are easily applied to all Shafting and all other hearings. For further information apply to

WILKIE DARLING, General Agent,

629 Washington St., San Francisco.

15v30

New York Metal Market.

[CORRECTED WEEKLY FROM THE AMERICAN ARTISAN.]

New York City, Saturday, Sept. 17, 1870.

IRON.

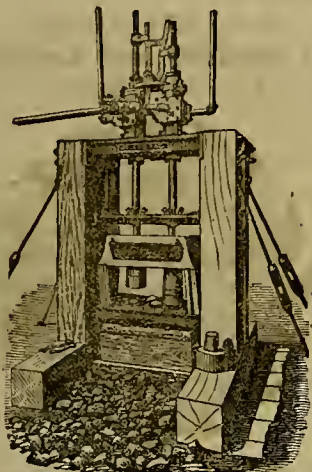
Pig, Scotch, No 1 (cash), per ton.....	\$33 00	@	\$36 50
Pig, American, No. 1 (cash).....	33 00	@	34 00
Pig, American, No. 2.....	29 00	@	31 00
Swedish, ordinary sizes.....	110 00	@	125 00
Common.....	75 00	@	80 00
Re-fined.....	77 50	@	95 00
Rods.....	85 00	@	120 00
Horse-shoe.....	95 00	@	—
Hoop.....	105 00	@	150 00
Scroll.....	97 50	@	135 00
Nail-rods, per lb.....	—	7 64	— 7 1/4
Spring.....	—	7 1/4 @	—
Tire.....	—	8 1/4 @	—

STEEL.

Bars, best cast, warranted, per lb.....	—	17 @	— 18
Sheet, best cast.....	—	18 @	—
Sheet, second quality.....	—	16 @	—
Sheet, third quality.....	—	14 @	—
Saw-plates, circular.....	—	27 @	—
Double-shear, warranted.....	—	23 @	—
Single-shear.....	—	19 @	—
Montague & Co. (cast bars).....	—	18 @	—
Machinery, round.....	—	11 @	—
German, best.....	—	11 @	—
German, goat.....	—	10 @	—
German, eagle.....	—	9 @	—
Bilster, warranted.....	—	16 @	—
Bilster, common.....	—	15 @	—
Jessop & Sons, common.....	—	17 @	—
Double-refined.....	—	26 1/2 @	—
Stone-ax shapes.....	—	28 1/2 @	—

Machinery.

THE WILSON
Patent Steam Stamp Mill.



This extraordinary Mill, now so justly popular in the East, is now offered to the miners of the Pacific Coast, having been in operation now for about two and a half years, the Company feel confident that the

WILSON STEAM STAMP MILL,
For Durability, Efficiency,
AND ECONOMY OF WORKING,
HAS NO EQUAL.

The Wilson Steam Stamp Mill is the only Steam Mill that has had the severe ordeal of practical working, and proved itself eminently successful. It is now in operation in several of the Eastern States and Territories, and gaining an evanescent popularity. The whole machine is so simple as to be readily understood by the most ordinary minds. In fact, its simplicity is its durability. The expense of crushing rock or cement with this Mill is less than one-half the expense of any other Stamp Mill, and less than one-half the cost. For further particulars inquire of

FURMAN R. WILSON,
San Francisco.

Or of THE WILSON STEAM STAMP MILL CO., 326 Walnut street, Philadelphia, Pa.

NOTICE.—All persons are hereby warned not to manufacture or use any Steam Stamp Mills that are an infringement on the Wilson Patents, as they will be prosecuted to the utmost rigor of the law.

F. R. WILSON,
207 1/2 St. W. P. S. S. M. Co., Philadelphia.

VARNEY'S
PATENT AMALGAMATOR.

These Machines Stand Unrivaled.

For rapidly pulverizing and amalgamating ores, they have no equal. No effort has been, or will be, spared to have them constructed in the most perfect manner, and of the great number now in operation, not one has ever required repairs. The constant and increasing demand for them is sufficient evidence of their merits.

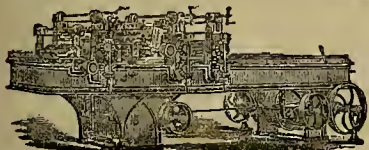
They are constructed so as to apply steam directly into the pulp, or with steam bottoms, as desired.

This Amalgamator Operates as Follows:
Thapan being filled, the motion of the miller forces the pulp to the center, where it is drawn down through the aperture and between the grinding surfaces. Thence it is drawn to the periphery into the quicksilver. The curved plates again draw it to the center, where it passes down, and to the circumference as before. Thus it is constantly passing in a regular flow between the grinding surfaces and into the quicksilver, until the ore is reduced to an impalpable powder, and the metal amalgamated.

Sellers made on the same principle excel all others. They bring the pulp so constantly and perfectly in contact with quicksilver, that the particles are rapidly and completely absorbed.

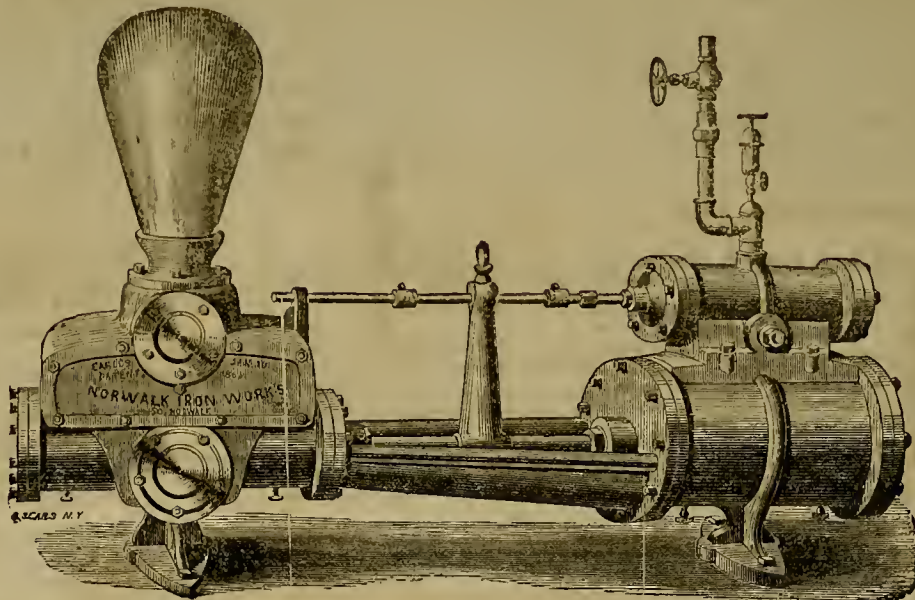
Mill men are invited to examine these pans and settlers for themselves, at the office, 229 Fremont street, San Francisco.

WOODWORTH PLANERS.



Smith's Patent Wood-working Machinery of all descriptions. Sole Agents, BERRY & PLACE,
112 and 114 California St., San Francisco.

Earle's Patent Steam Pumps.



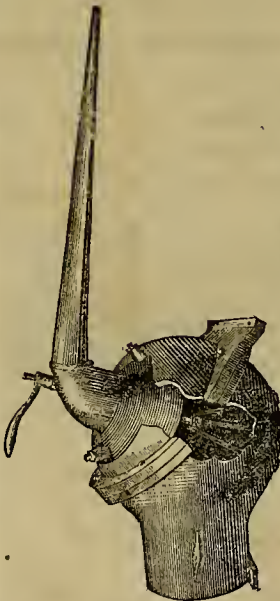
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All sizes in Store at manufacturers' cost. Send for Circular and Prices.

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Importers of all sizes of Portable Steam, Upright, and Horizontal Hoisting Engines, &c.
SAN FRANCISCO AND SACRAMENTO.

CRAIG'S PATENT



IS THE VERY BEST GLOBE
Ever offered to the public in shape of a
HYDRAULIC MACHINE.

And all parties would do well to examine it carefully, who propose to purchase a flexible metallic

NOZZLE

for mining, as it is the only one that is sure to bear its guarantee with it, and protect its purchaser from liability to infringement; it is the oldest, best and cheapest in use, and will testify who have need it.

"Buy none but the Best."

Beware of Infringements,

as we will prosecute to the utmost extent of law, all who make, sell, or use infringements upon our patents. For full particulars, address

PRESCOTT & SCHIEDELL,

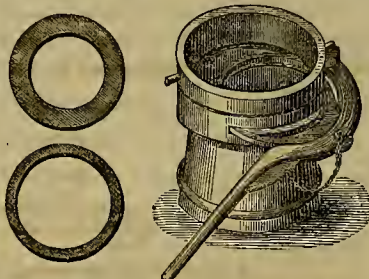
Sole manufacturers, Marysville Foundry, or
R. R. & J. CRAIG, PROPRIETORS,
Nevada City, California.

11v21-3m

QUARTZ MILL AMALGAMATING

LATHES, plated with fine silver in an improved manner, at the very lowest rates. The best American copper furnished and cut to order. Old plates bought or worked. Old plated goods, of all kinds, repaired and replated. Work guaranteed and at Eastern prices. Articles can be sent and returned by Express, by CHAS. WEST, No. 139, 3d Street, S. F. AGENTS—MORRIS & WHITE, 90, Fremont, St. S. F.

Patent Hydraulic Pipe Nozzle.



HARRIS & KLEMMER,
La Porte; Plumas Co., Cal.

HAVE ON HAND AND FOR SALE, a number of their New Hydraulic Pipe Nozzles, recently invented and patented by Mr. Harris.

The cut shows a section of the Nozzle and the lever by the action of which, the different sized rings, as shown, may be drawn and inserted to change the size of the stream instantly and without stopping it. Experienced miners have only to examine the operation of this improvement and its working effects, to become thoroughly convinced of its importance and value.

These Nozzles are used in La Porte and every mining camp in Plumas county; also the following camps in Sierra county: Morristown, Seales, Diggle, La Porte, and at Suck-er Flat in Butte county, and in every instance have given perfect satisfaction. Every miner who has seen them work pronounces them superior to any nozzle now in use.

HARRIS & KLEMMER, La Porte, Plumas County.

WE have used the above mentioned Nozzles during the present season, and hesitate not to pronounce them an entire success.

S. M. BOYCE, E. W. BOYCE, 11v21-3m

Many other testimonials and highly satisfactory references can be given.

SILVER-PLATED
AMALGAMATING PLATES

FOR SAVING FINE GOLD.

SAN FRANCISCO

Gold and Silver Plating Works.

QUARTZ MILL MEN,

Miners, Hotel-keepers and Others.

ATTENTION!

The SAN FRANCISCO PLATING WORKS are prepared to furnish and silver-plate Copper Amalgamating Plates of all sizes, and in any quantities, at the very lowest rates. FULL WEIGHT OF SILVER deposited, and satisfaction guaranteed in every respect. Particular attention given to plating goods for BUILDERS, PLUMBERS and GUNSMITHS. Old Goons of all kinds replated for hotels, restaurants, etc.

The finest quality of Sheet Copper expressly for mining purposes furnished and cut to any size at the lowest rates. Full assortment of Plated Goode and Cutlery for sale at low rates.

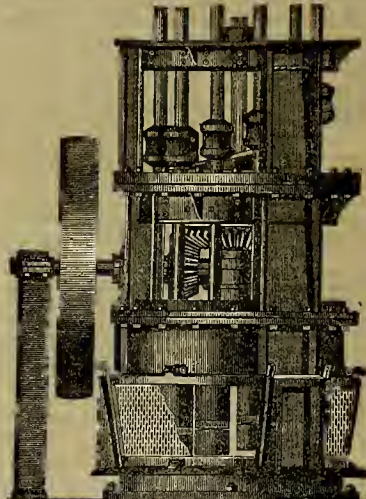
E. G. DENNISTON, Proprietor.

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All work done at the lowest prices. 1v20-3m

FROM THE WEED
\$65 Sewing Ma-
chine—The
WHOLE WORLD
being judges—they
are the BEST! Why?
Because the WEED

Machines
to work easily
and with more
VARIETY. Buy the
LATEST Sewing Ma-
chine—See S. F. Hoar, 329
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HOWLAND PATENT ROTARY BATTERY

of 12 stamps. It requires no frame to put it up. Guaranteed to crush 1 1/2 to 3 tons per day to the stamp. The best Battery ever used for amalgamating gold, or crushing silver ores, dry or wet. Can be put up on a mine in running order for one-half the price of the straight battery, and in three days after its arrival at the mine. 12-stamp battery, 20,000 pounds, with frame complete, price \$3,000; 6-stamp battery, 8,000 pounds, price \$1,300. All prices named to be paid in currency. Every mill run at shop before shipping.

California Stamp Mills.

All the various styles of Pans, Amalgamators, Separators, Settlers, Concentrators, Dry or Wet, for working Gold, Silver or Copper Ores, the same as built in California and at lower prices. SHOES AND DIES made of the best white iron. Send sizes and we will make patterns and forward Shoes and Dies at low prices. Engines, Boilers and fixtures, and other Machinery made to order. Also, Howland's Patent Rotary Valve Double or Single Engines.

Irons for the best California 10-stamp mill, straight battery, complete, \$1,600. Irons for low mortar, old style mill, much less. Send for a Circular.

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95 Liberty street, New York.

N. B.—Mr. W. H. HOWLAND, formerly of the Miners' Foundry, is now in San Francisco for a short time, and will receive orders for mining and other Machinery of Eastern manufacture at the lowest rates and most favorable terms. Orders may be left at S. W. HOWLAND & CO'S, 413 and 415 Mission street, between First and Fremont, San Francisco. 4v21-3m

SEVERANCE HOLT & CO.,

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Diamond-Pointed Drills

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Thursday Evening.

Owing to the time necessary to mail the present large edition of the SCIENTIFIC PRESS, we are obliged to go to press on Thursday evening—which is the very latest hour we can receive advertisements.

Patents and Inventions.

A Full List of Patents Issued to Pacific Coast Inventors.

[FROM OFFICIAL REPORTS TO DEWEY & CO., U. S. AND FOREIGN PATENT AGENTS, AND PUBLISHERS OF THE SCIENTIFIC PRESS.]

FOR THE WEEK ENDING SEPTEMBER 20TH.

REMOVING BURRS FROM WOOL.—Peter Casson, San Francisco, Cal.

BALANCED SLIDE-VALVE.—Orrin Collier and William Henry Masterman, Sacramento, Cal.

LUBRICATOR.—John Gates, Portland, Oregon.

GANG-PLow BEAM.—James W. Suraa, San Francisco, Cal.

CAR-COUPPLING.—William Walker, Woodside, Cal., assignor to himself and Robert O. Tripp.

PRUNING-SHEARS.—Frederick A. Will, San Francisco, Cal.

PRESERVING AND HARDENING WOOD.—Benjamin R. Nickerson, San Francisco, Cal.

NOTE.—Copies of U. S. and Foreign Patents furnished by DEWEY & CO., in the shortest time possible (by telegraph or otherwise), at the lowest rates. All patent business for Pacific coast inventors transacted with greater security and in much less time than by any other agency.

The New Patent Act.

AN ACT TO REVISE, CONSOLIDATE AND AMEND THE STATUTES RELATING TO PATENTS AND COPYRIGHTS.

APPROVED, JULY 8, 1870.

[CONTINUED FROM PAGE 223.]

SEC. 55. And be it further enacted, That all actions, suits, controversies, and cases arising under the patent laws of the United States shall be originally cognizable, as well in equity as at law, by the Circuit Courts of the United States, or any District Court having the power and jurisdiction of a Circuit Court, or by the Supreme Court of the District of Columbia or of any Territory; and the court shall have power, upon bill in equity, filed by any party aggrieved, to grant injunctions according to the course and principle of courts of equity, to prevent the violation of any right secured by patent, on such terms as the court may deem reasonable; and upon the decree being rendered in any such case for an infringement, the complainant shall be entitled to recover in addition to the profits to be accounted for by the defendant, the damages the complainant has sustained thereby, and the court shall assess the same, or cause the same to be assessed under its direction, and the court shall have the same powers to increase the same, in its discretion, that are given by said act to increase the damages found by verdicts in actions upon the case; but all actions shall be brought during the term for which the letters patent shall be granted or extended, or within six years after the expiration thereof.

SEC. 56. And be it further enacted, That a writ of error or appeal to the Supreme Court of the United States shall lie from all judgments and decrees of any Circuit Court, or of any District Court exercising the jurisdiction of a Circuit Court, or of the Supreme Court of the District of Columbia, or of any Territory, in any action, suit, controversy, or case, at law or in equity, touching patent rights, in the same manner and under the same circumstances as in other judgments and decrees of such Circuit Courts without regard to sum or value in controversy.

SEC. 57. And be it further enacted, That written or printed copies of any records, books, papers, or drawings belonging to the Patent Office, and of letters patent under the signature of the Commissioner, or acting commissioner, with the seal of office affixed, shall be competent evidence in all cases wherein the originals could be evidence, and any person making application therefor, and paying the fee required by law, shall have certified copies thereof. And copies of the specifications and drawings of foreign letters patent, of record in the Patent Office, certified in like manner, shall be prima facie evidence of the fact of the granting of such foreign letters patent, and of the date and contents thereof.

SEC. 58. And be it further enacted, That whenever there shall be interfering patents, any person interested in any one of such interfering patents, or in the working of the invention claimed under either of such patents, may have relief against the patentee and all parties interested under him by suit in equity against the owners of the interfering patent; and the court having cognizance thereof, as heretofore provided, on notice to adverse parties, and after due proceedings had, according to the course of equity, may adjudge and declare either of the patents void in whole or in part, or inoperative, or invalid in any particular part of the United States, according to the interests of the parties in the patent or invention patented. But no such judgment or adjudication shall affect the rights of any person, except the parties to the suit and those deriving title under them subsequent to the rendition of such judgment.

SEC. 59. And be it further enacted, That damages for the infringement of any patent may be recovered by action on the case in any Circuit Court of the United States, or District Court exercising the jurisdiction of a Circuit Court, or in the Supreme Court of the District of Columbia, or of any Territory, in the name of the party interested, either as patentee, assignee, or grantee. And whenever in any such action a verdict shall be rendered for the plaintiff, the Court may enter judgment thereon for any sum above the amount found by the verdict as the actual damages sustained, according to the circumstances of the case, not exceeding three times the amount of such verdict, together with the costs.

[To be continued.]

THE SCIENTIFIC PRESS is one of the most interesting of our Exchanges, and is especially devoted to giving full accounts of mines and all new inventions and improvements in mining machinery, and machinery of all kinds. It also contains a general review of mining operations in all parts of the United States, with an epitome of the latest mining news, selected from the local papers of each district. All very interesting to miners and machinists.—*Helena Gardle.*

To Eastern Readers.

We fully believe that all the leading and intelligent seeking Mechanics, Manufacturers, Farmers and Miners in the Atlantic States, who venture to subscribe for the SCIENTIFIC PRESS in its present improved standard, will feel more than paid for their \$4 investment. We are adding new names for every issue from various parts of the Union.

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BOILER FELTING SAVES twenty-five per cent. of fuel. BERRY & PLACE'S MACHINERY DEPOT, No. 114 California street. 1v21-3m

BLOCK TIN AND SOLDER WIRE, broom wire, piano covering wire, etc., manufactured by Joshua Gray, 437 Brannan street. 2v19-5m

THOMAS O'NEIL Ornamental Glass Cutter, No. 10 Stevenson street, np stairs. Stained, Ground and Ornamental Cut Glass to order on reasonable terms. 14v20

HAVING had numerous applications to purchase the right to manufacture CHAMPAGNE MEAD (the great temperance drink), we will state that we are now prepared to sell State and County Rights on reasonable terms. KENTON, GARRA & CO. San Francisco, July 10, 1870. 2v21-3m

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Publishers and Patent Agents, No. 414 Clay street below Sansome, San Francisco.

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JUST ISSUED.—Roasting of Gold and Silver Ores, and the Extraction of their Respective Metals without Quicksilver. By G. Kustel, Mining Engineer and Metallurgist; Author of "Nevada and California Processes of Silver and Gold Extraction," and "Concentration of all Kinds of Ore."

Illustrated by numerous engravings. Published and sold by Dewey & Co., proprietors SCIENTIFIC PRESS, San Francisco.

This Book contains 120 pages. Price, \$2.50, gold, or \$3 currency, postage paid.

PATENTEES

Who have failed in their efforts to dispose of their rights are invited to consult us, either personally or by mail, free of charge. Many valuable inventions are lying dormant, for want of proper management, that might realize a fortune for their owners, if placed in the hands of competent agents, and brought to the attention of capitalists. We accept only those showing decided merit, as no others can be negotiated. A candid opinion can therefore be relied upon. Commissions dependent upon success. Inclose stamp for full information.

Reference on application. E. E. ROBERTS & CO., Consulting Engineers, 15 Wall street, New York. 14v213m16p

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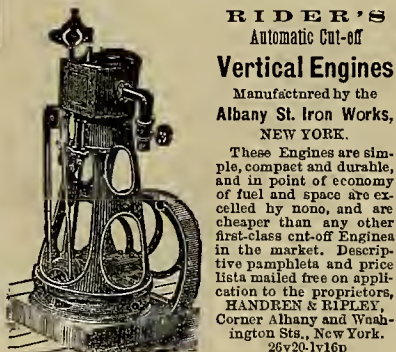
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Miner, Farming and Mechanic Arts.

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Farming Edition.

Academy of Sciences.

The regular meeting of the Academy was held on Monday evening, Dr. Blake presiding. Four gentlemen were elected resident members, and one was elected corresponding member. A number of specimens were presented to the cabinet—among them a piece of coal, resembling anthracite, from Queen Charlotte's Island; the skull of an Apache Indian; the skull of an animal found 40 feet below the surface in an asphaltum bed on Asphaltum Ranch, Los Angeles county; a package of Australian plants etc.

Dr. Blake had paid a short visit to the forest of petrified trees near Calistoga. He found no roots anywhere. He came to the idea that the trees had been swept away from their original position by a flood and deposited in this place. An examination of the argillaceous sandstone formation and of the various aspects of the locality would lead him to suppose that the waters held volcanic material, that is the debris washed from decomposed rock; that the sandstone was deposited here and the trees at the same time; that the strata had been subsequently tilted to an angle of 45°, their present angle, and thereby the trees broken very likely, and the soft parts of the rock washing away they were exposed on the new surface; that the idea might be proposed that, from the decomposed rock, considerable silicate of potash was held in the water, and this reagent had been prominent in silicifying the trees. He thought these last were dicotyledons. His examination had been, however, more superficial than he could desire, on account of want of sufficient time.

Dr. Blake remarked on the different colored strata of water which is so noticeable in our bay. He had previously thought that the clearer portions were sea water, and the muddier the water from the inflowing streams. On testing with a thermometer, he found that these strata were of different temperatures, the difference being clearly marked and amounting often to 2 or 2½ degrees (65° and 67½°). The muddy and colder water is in-coming tide, which goes up the bay, deposits its sediment, returning purer (and warmer) to the sea. This would denote a filling up of the inner bays. This non-mixing of colder and warmer streams of water has been noticed in deep-sea dredging, etc. Similar phenomena have been noticed with regard to warmer and colder currents of air existing side by side.

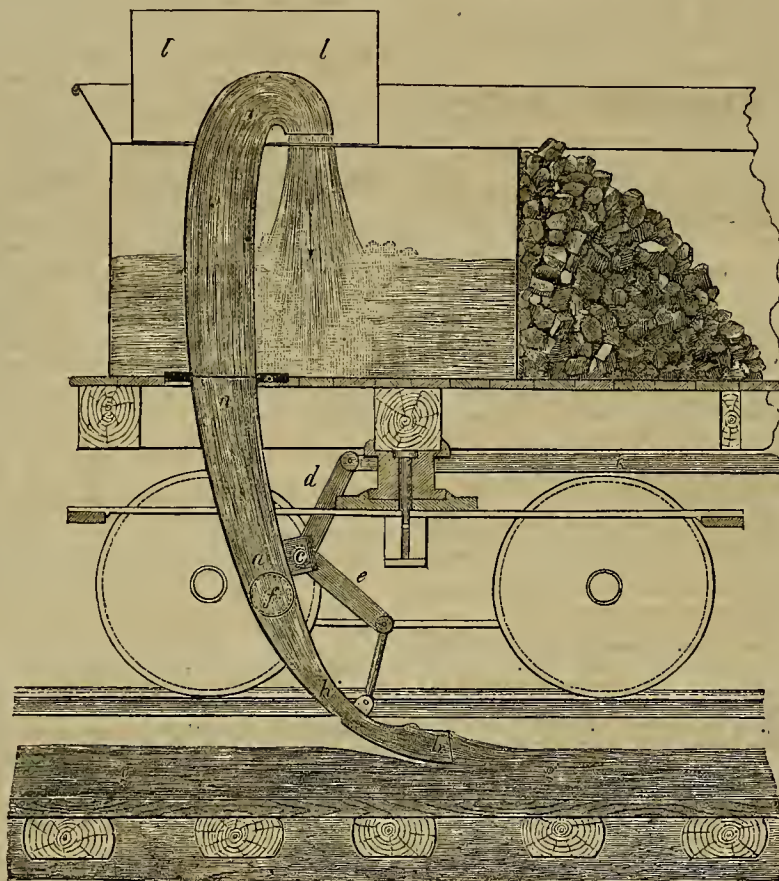
Some little discussion ensued on the the various points brought forward in these remarks.

THE STEINFELDT FURNACE and the mill recently erected at Mineral Hill were started last week and are reported as doing excellently from the start. Upwards of 1,000 tons of \$300 ore are said to be on hand.

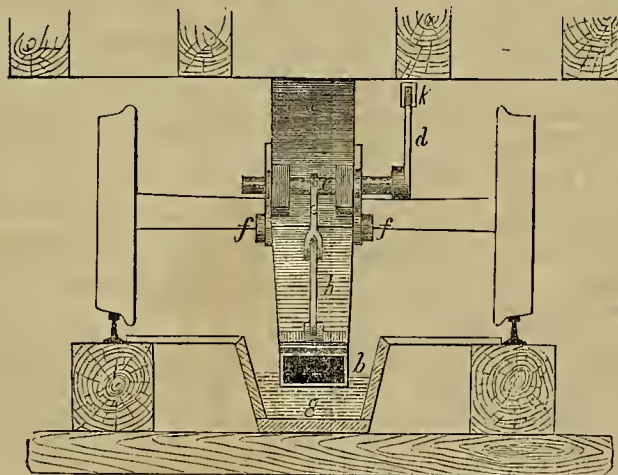
Device for Filling Locomotive Tanks.

In England, devices for filling locomotive tanks without stopping have been in

A trough, *g*, about 600 feet long, is placed between the rails on a level portion of the track, and partly filled with water. Attached to the tender is a scoop, *h*, which



"JERK WATER" FOR FILLING LOCOMOTIVE TANKS.



use for some time. Lately, the managers of the Hudson River Railroad in New York have put in use a similar device, which has been perfected and adapted to the requirements of the road by Mr. Buchanan, Superintendent of machinery of that company. The *Chicago Railroad Gazette*, one of our best exchanges, has illustrated the apparatus, which we copy in our present issue.

is provided with a joint, *f*, so that the lower part can be raised or lowered into the trough, by means of a lever (not shown in the cut) connected by a rod, *k*, to the arms, *d*, and *e*, which work on a shaft, *c*. The lower, or movable part, *h*, of the scoop is of sheet copper, and the pipe, *a*, above the joint is of cast iron. More water is carried into the tank by contracting the neck of the scoop than by having the same

sectional area all the way. Mr. Buchanan found that when the mouth of the scoop was flared or spread laterally, much more water was wasted or thrown out of the trough than when the sides of the scoop were left parallel.

Just before the train comes to a trough, the fireman unfastens the lever and is ready to drop the scoop, which dips only two inches below the surface of the water, but raises such a wave before it that its mouth 5 inches high and 10 inches wide, is entirely filled. An engine can run at a rate of thirty miles an hour and take up a thousand or twelve hundred gallons in a few seconds. When running at a high speed, very considerable muscular exertion is necessary to raise the scoop out of the water, requiring all the strength of an ordinary man. There is a long incline at each end of the trough so that there may as little damage result as possible, should the scoop not be lifted at the proper moment.

A suggestion has been made that the arrangement could be applied for supplying water to cattle which are being transported by rail.

LIGHTING MINES WITH GAS.—A new apparatus has been tried in England for supplying mines with burning gas at a much lower level than the gas holder. A steam jet is used to draw the gas into and force it down a pipe leading to the bottom of the mine. Arriving at the proper point, the stream of gas and steam is led into a proper vessel, where the steam is condensed and, as water, is taken off by a syphon pipe, while the gas is led off by a pipe at the top to the burners. According to the *London Mining Journal*, at the Darfield Main Colliery, one of the deepest in South Yorkshire, the gas was carried down 1,005 feet and supplied to three districts to an extent in each of about 300 feet in length. The entire cost of the appliances here was less than \$2,000.

NEW SMELTING WORKS.—According to the *Colorado Herald*, another attempt is to be made to establish smelting works in the neighborhood of Central City,—by whom, is not stated, except that it is a person of great knowledge and experience. It is proposed to roast the ore in kilns, and to smelt in shaft furnaces for matt, which is roasted, and smelted again to a concentrated matt. This is to be treated in "one of the various methods in use" to obtain the valuable metals. The establishment and successful operation of new works at Central, and the competition which would follow, would greatly benefit the miners there. Whether such works can succeed, however, remains to be seen.

DEPARTED.—On the 27th of September, Henry P. Comstock, the discoverer of the Comstock lode, committed suicide near Bozeman City, Montana, by shooting himself in the head while laboring, as it is supposed, under a fit of temporary insanity. He, who led to the enrichment of the world to a vast extent, was unable to make himself rich.

Communications.

IN THIS DEPARTMENT we invite the FREE DISCUSSION of all proper subjects—correspondents alone being responsible for the ideas they advance.

Notes of Travel in Nevada County.

[WRITTEN FOR THE SCIENTIFIC PRESS.]

Nevada City—its Mines, Manufactures, Etc. Nevada City, county seat of this county, contains about 5,000 inhabitants and is one of the prettiest inland cities in the State. It may be better described as a complete orchard and nursery, fruit free in every yard and going to waste. I believe that in and around this city were cradled all the hydraulic devices now in use in this State, viz: Allenwood's Goose-Neck, Craig's Globe, Jacob's Monitor, Fisher's Hydraulic Chief and Shoo Fly, Hoskin's Globe Monitor, Shaw's Gold Hunter, Mitchell's Hydraulic device and Watson's Champion—of each of which I will speak at length as I find them at work in my travels through the mines.

One of the most extensive deep channels in the State runs across the county from east of south to west of north; from Little York, on the east, through You Bet, Red Dog, Hunt's Hill, Quaker Hill, Blue Tent, Grisley Hill, North Bloomfield, and extending to and through Sierra county, on the west. It is from 50 to 500 feet deep, and the deep channel is from 500 to 1,000 feet wide. The hydraulic washings extend from 2 to 8 miles in width on the east side, and over the deep channel this belt can be traced almost across the State, through Placer, Nevada and Sierra counties. This channel passes about 5 miles to the east of Nevada City, and out of 80 miles of this lead in this county, but about one and a half miles have been worked. The poorest spot upon the lead as far as has been prospected, will pay by hydraulic process, and in the opinion of a large majority I meet, if labor was reduced (*i. e.* good labor), say to \$2 per day, employment would be given to 2,000 more men immediately to develop this one channel. I will mention a few of the many hundreds of Nevada quartz lodes.

The Star Spangled Banner,

W. S. Tisdale Superintendent, is situated about three and half miles north of Nevada City. The shaft is down 620 feet, and are now working the sixth level. The mill has 40 stamps and can crush 60 tons per day. They have 12 Cralls waltzing pans, and 3 engines—at the mill 150 horse power, at the hoisting works, two 10-inch engines. The average pay of their rock is \$18 per ton, with a vein 4 feet wide. They have also, one Varney rock-breaker, capacity 90 tons per day (10 hours). Value of improvements, \$90,000. The company own 2,000 feet of this lode; they have 30,000 cords of wood standing and cut, and have already burnt 1,600 cords.

The Pennsylvania

Is about one mile northwest of the Nevada, has been worked successfully during the years of 1865, 1866 and 1867, when it was closed down for causes unknown. The mine has been opened under the superintendence of Harvey Helm and is now doing a fine business. Ore yielding as high as \$50 per ton.

The Orleans Ledge

Is situated one mile south of Nevada, on Gold Flat. There has been considerable ore taken from this vein, yielding from \$12 to \$40 per ton. Some of the ore is now at Stile's mill for reduction. It is in a slate range a short distance from the famous Pittsburgh mine, formerly known as the Whigham mine.

The Mulbury Ledges

Is situated a short distance north of the Pittsburgh. A number of crushings have been taken from this lode, which were worked at Stile's custom mill and fine returns made, some yielding about \$19 per ton. This was the last test made. They now have an 8-horse engine, with four-inch pump and hoisting gear, and are engaged in taking out large quantities of ore.

The Manhattan Ledge

Is about three quarters of a mile east of the Pittsburgh mine, which has been mentioned at length in the Press several times, and has upon it hoisting works of about the same capacity as the Mulbury. Fine prospects have been obtained. At present it is lying idle. Among the mines that have mills upon them are the Soggs or Old Bunker Hill, the Providence, and the California. All have been worked successfully, but are now idle, as they claim, on account of the high price of labor.

The Stiles Ledge

Is situated within the city limits, and

owned and superintended by W. C. Stiles. It runs north and south and dips to the east; the vein is from ten inches to five feet wide; an incline shaft is down 70 feet; hoisting works at the top, 8-inch pump run by 17-foot water wheel. The character of this rock is a mixture of granite, slate and limestone. It is now paying well, is easily crushed, by an 8-stamp mill, owned by the same party, 1,000 yards distant, and is reached by car. The same machinery that runs this mill runs the manufacturing machinery for making sash, doors, blinds and furniture, also flooring and siding. Every new device necessary for the manufacturing of the above named articles is to be seen here. This is owned by the same party.

Omega etc.

Omega is situated nearly 21 miles north of Nevada City. The principal mines and water privileges here are owned by Messrs. Hinds, Kidd & Tully, Bankers of Nevada City, by whom they are very successfully worked. \$65,000 have lately been cleaned up from a 30-day's run. From here to Washington is three miles by trail. The principal mining here is river mining, and several companies are at work. The Milton Wells Cement mine (with 4-stamp cement mill) is owned and worked by L. Ferren and four others, is situated $\frac{1}{2}$ mile below Washington on the South Yuba, extending into the hill, and is paying well. From here to the Jim mine and through South Fork to Eureka (or Graniteville) is 11 miles up hill by trail. The territory through which you pass is called "God's Country." Its being a hard country to get to, will be my apology for not getting there in this letter. Through grace I hope to get there in my next.

L. P. Mc.

The Burro Mines Again.

EDITOR PRESS: Your article in the Press of the 27th August, in reply to one from me of a former date, has hit this moment come to my notice. The "Authority" from which your information was obtained, is certainly very unreliable. In my opinion, "Authority" was never in that country, his descriptions are very unintelligible indeed; the quotation from the *Bulletin* correspondent is in my mind correct. To "Authority," 1st, the Burro mines may be in the Pyramid Range, but, except distance, the Burro Range is as distinct from the Pyramid Range as the Rocky Mountains from the Alleghanies. Traveling eastward from Tucson, we pass through the Chirachua Range in a pass called "Apache Pass." Here Fort Bowie is situated at an elevation of 3,800 feet (approximate.) We then cross a wide plain, say thirty-five miles, through which, running to the northwest, flows the San Simon, a small stream affording water enough for a watering place. We next come to the Pyramid Range, where is situated Leidersdorff's Wells, and the place is substantially as described by the *Bulletin's* correspondent for the location of Ralston. Passing on from this well, say six miles, stop, if you please, and turn your face to the east. You may now look as far as the eye can see, and you will see nothing but a barren desert; neither mountain, timber nor water to be seen for two hundred miles. Now you face 90 degrees to the northward, and you may look with the same result as before, except that you may see the mountains in the far distance beyond the Gila river. Located within this right angle are the Burro mountains. Twenty miles further you will touch the extreme furthermost point of the Burro Range. From here the range runs North, intersecting the Magallon (pronounced Mozyon) range west of Los Pinos Altos. Fifteen miles north of this place, in the Burro Range is a place called Burro Cienega, where I had heretofore supposed the mines were. The Chirachua and Pyramid are parallel ranges and run northwest and southeast, losing themselves as you approach the Gila on the northwest of Fort Bowie and Leidersdorff's Wells-Saw Mills, (plural number) on the Mimhres, is supremely ridiculous. From this well to the crossing of the Mimhres is about fifty-five miles. The crossing is out on the open, barren plains; not a stick of timber bigger than my leg within fifteen miles, except the cottonwood growth along the banks of the stream, and then only in the direction that in my mind would preclude the building of a saw mill, as it would have to run by steam, as there is not water enough. If any saw mill has been built in that country, it must be in the neighborhood of Fort Bayard, in the Pinos Altos Mining District, thirty-five miles northwest of Camp Mimhres. At the crossing of the Mimhres the stream does not afford running water more than three months in

the year; the balance of the time water is obtained from wells. "Two stage lines run to Ralston, one by Tucson, the other by Santa Fe." From Tucson by way of Ralston to Santa Fe is 600 miles. To say a stage line runs via Santa Fe to Ralston is as meaningless as to say the Panama Steamer runs "via" New York to San Francisco. If the town of Ralston is three miles south of Leidersdorff's Wells then "the stakes of the Southern Pacific Railroad do not run through the town," for it will be up in the mountains; and with a good location for the road at the foot, it is not at all probable that it will run up there. Putting the whole together, I am well satisfied that "Authority" never saw that country. I do not see that the *Bulletin* correspondent calls it the Burro mines. TIMOTHY.

[On the individual points alluded to above, we have nothing to say. Our correspondent is, however, altogether too suspicious. It is possible that he may not have seen everything in that country. Our "Authority" was the discoverer of the mines, letters from various private parties known to us personally or by reputation, and the various country and city papers.

In addition, it may interest Timothy to learn that the *Bulletin* correspondent, whose word he seems more inclined to take, dated his letter from "Burro Mines, Virginia District, Ralston City," says that the mines are accessible, and with very little labor can be made easily approachable for heavily laden wagons; that water is abundant on the surface in the rainy season and some time there-after, and that several wells, from five to twenty-five feet deep, produce excellent water; that wood is known to abound within twenty miles, with ample cedar for firewood, within a few miles, to last for some time; etc. If Timothy had read all the accounts, he would see that the Press has certainly not published palpable "absurdities."—Eds.]

Evanston Coal, Wyoming Territory.

EDITOR PRESS:—Thinking it would interest your readers to know something in relation to the extensive coal mines at this place, and what the Rocky Mountain Coal and Iron Company are doing, and propose to do, I send you a few items kindly furnished by Mr. S. W. French, a prominent member of the company. In the Fall of 1864, a member of the company discovered the mine, but not until 1868 was it opened for commercial purposes; this being about the time the Union Pacific Railroad was completed to this point. About a mile to the west of the station, this company have a branch track something over a mile in length, crossing Bear river and connecting the railroad with their mine. From this branch road Y's have been constructed into the drifts, which are about on a level with the railroad. The hills rise from 300 to 500 feet above the mouth of the tunnel, and it is 200 feet in to where the solid unstratified coal is reached. This extends along the face of the Bear River Mountain, north and south, in nearly a horizontal direction, for about one and a half miles, and varies from 26 to 42 feet in thickness. The average of a number of analyses of this coal, made by P. Frazer Jr., shows: Water, 5.83 per cent; volatile substances, 37.49 per cent; coke (carbon), 49.50 per cent; ash, 7.46 per cent; sulphur, a trace. Total, 100.19. Specific gravity 1.341.

The coal appears to resist the atmosphere much better than, and is not nearly so friable as other tertiary coals, but fractures very much like other coal of this class, conchoidal and irregular, is black, lustre resinous. The croppings have been traced for three miles. The company have entered into an arrangement with the Central Pacific Railroad Company, whereby they are using this coal the whole length of their line. They run their coal trains over the Union Pacific road 75 miles east of the Junction at Ogden. The C. P. R. R. and R. M. Coal Companies have perfected arrangements to commence shipping this coal to San Francisco, where it is to be offered in the market at about \$11 per ton. The mine is opened for 400 tons per day, and can be increased to 1,200 tons.

The iron property is one and a half miles north of the coal bed. This is a mountain of mixed oxide and carbonate of iron; is entirely free from sulphur and phosphorus, and is inexhaustible in quantity; it assays from the surface, 30 to 35 per cent. of metallic iron and 32 per cent.

of carbonate of lime. The company propose to erect in a short time a blast furnace of the capacity of 50 tons per day. The coal is so convenient that the company expect to be able to supply San Francisco and Omaha at a much lower rate than it can be obtained from Ohio or Pennsylvania. MINER, L.

From Utah Territory.

[Written for the Scientific Press.]

Brigham City.

Brigham City is situated a short distance west of Ogden, close to the mountains, on a high bench, some 2 miles from the station. The place is quiet and pleasant, fruit trees having been extensively planted, and streams of water running through the gravelly streets. The population is from 1,500 to 2,000. The buildings are constructed principally of adobe. There is one hotel, one store (conducted by the Zion's Co-operative Institution), a tannery, saw, grist and woolen mills; of the latter, one small one is in operation and one large one being built. There are no saloons. A Tahernacle was commenced some few years ago, but the devastation of the grasshoppers has delayed its construction, and divine service is held in a building made of hushes and limbs of trees in summer, and in the court house in winter.

A large, two-story woolen mill, 84x45, is being built. The first story will be of stone, the second of adobe, the lumber coming from the Wahsatch Mts., and being good for framing and heavy work but not very nice for finishing. There will be here 4 looms and 3 carding machines, the mill having a capacity of working up about 100 lbs. of wool daily. Mr. Alanson Norton, who has been very successful in this business which he appears to understand thoroughly, will have the whole management.

A tannery, 81x26, built of stone and adobe, is situated in the lower part of the town. It contains 16 vats, 2 lime vats, etc.; capacity, 25 hides weekly. The Red Pine bark is found in the mountains near by. To get the whole strength of the bark, they have a large reservoir (8x9x4 feet) below the steaming vat. The water from the 16 vats runs into this reservoir, is then pumped into a heater, and then goes through the leaching vats and the before mentioned 16 vats. This, they say, works excellently. The tannery is managed by A. Hillam and Son. The pump referred to is the well-known American Submerged Pump, made by the Pacific Pump Manufacturing Co. of your city, and is highly praised.

Cache Valley.—General Remarks.

About 28 miles northeast of Brigham City is Cache Valley, nearly 10 miles wide and upwards of 30 miles long, where are situated many small settlements. The largest is Logan City, with 2 large flour mills, saw mills, etc.; among the others may be named Wellsville, Malad City, Hyrum, Millville, Franklin, Providence, Hyde Park, Smithfield and Richmond. The farms are irrigated by streams from the mountains, but the grasshoppers have most seriously injured the crops.

The Mormons are bound to patronize home industries, as you can see by my previous notes, and being very industrious propose to export, rather than import goods. If they keep on in the way they have begun, they will do this. The great trouble they have had of late, one which has seriously injured them, has been the annual invasion of the grasshoppers. They live, however, always in hopes of a better year. The visit this year being early, the fruit trees have not suffered so badly, and many have been able to plant corn after the visit. They have been trying to introduce the cotton and silk culture, and are anxious in many places for information concerning hops.

Corinne.

Corinne, a town of rising importance, is favorably situated on the line of the C. P. R. R., and is the depot for trans-shipment of goods and passengers to Montana and Idaho. It contains some 2,500 inhabitants, has two good hotels, churches, stores, etc. It supports a well-edited daily paper, the *Corinne Reporter*. Near by are thousands of acres which are asserted to need only irrigation to make them productive, and a company has been formed for bringing down water from the Bear River for this purpose.

There are large freight depots here. E. G. Macey & Co. have accommodations for goods for the Montana trade, as have Creighton & Munroe, forwarding and commission merchants. The firm of P. Schutler & Co., wagon makers of Chicago, are doing a flourishing business. I saw several car-loads of the different parts of their wagons, which can readily be put together. They have principally farm wagons. L. Es-penschied & Co., of St. Louis, have a lot of heavy wagons for the teamsters of the Montana trade. I saw some 15 to 20 getting loaded for the upper country. The Oriental Powder Co., of New York, has an agent here, Mr. A. W. Taylor, for the sale of their well known powder and fuse. They have a patent compound for mining purposes; also electric batteries.

Mr. H. House, who owns a saw mill at this place, erected a very large water tank to supply the city. This tank will hold nearly 800 bbls., and is pumped full every evening. The logs for the saw mills are floated down the Bear River for miles and worked up here for building purposes.

But I must shorten my letter, for I am bound to Montana, whence you will hear from me.

W. H. M.

August, 1870.

Mechanical Progress.

CUSHIONED SPIRAL SPRINGS.—The *Engineering*, for September 9th, describes the process of making Thomson's springs for railway buffers and carriage bearings, at Glasgow. We condense: "Rods of fine steel, prepared for this purpose, of about $\frac{3}{4}$ inch diameter, are cut to proper lengths and the ends subjected to a machine which rounds off the corners. The rods are then heated in a furnace of peculiar construction, which imparts a uniform temperature, drawn out at cherry-red heat, and run into a machine which immediately converts them into spirals of great uniformity. These are again heated and subjected to a tempering which produces a spring of great elasticity. They are now submitted to an extreme compressive test. The testing machine is an apparatus somewhat resembling a press, the lower table of which is constantly moving upwards and downwards at fifty strokes per minute. The tester places the spiral on the table when at the lower portion of the stroke; the spring is then suddenly compressed till its coils touch each other; he gives a screw above a slight adjustment until the compression is sufficient to lift the long arm of a weighted lever. We noted that each spiral tested raised a weight equal to 7000 pounds, without breaking or taking any 'set.' Each spring after testing is filled with a core of wool. The quantity of wool for each is accurately weighed, then compressed into the spring by powerful machinery. By this packing a harmony is attained which causes the coils of the spirals to act together, each riding the other. It may be called a column of wool within a yielding cylinder. The quick action of the spiral is modified by the wool, at the same time that the resisting power is more than doubled. The wool thus packed does not chafe in use. As a test, one of these spirals has been placed in a machine, and brought dead home 400,000 times in quick succession, without the slightest deterioration of the wool. The springs when thus finished are ready for being put into a buffer or bearing case. A test of these springs was recently made on one of the continental railways. First an engine buffer containing three spirals, was placed under a hydraulic press and its resisting power found to be upwards of twenty tons; secondly, it was placed in a machine and tested by quickly repeated strokes, for several weeks, after which the springs were examined and found as good as when put in."

A NEW ROTARY PUMP.—*Les Mondes* describes a new pump especially designed for the use of those engaged in wine or beer manufacture. It imitates in its operation the peristaltic movements of the intestines. "Revolving arms, turned by a crank, carry friction rollers, which, in rolling upon an elastic tube, press before them the liquid or gas that it contains, while the tube, regaining its form after the compression, exerts an aspiration proportioned to the elasticity of its sides. The plan is admirably adapted to all the requirements of storing or transporting wines. The wine traverses the pump without shock; an important consideration. It passes over as in a siphon."

POWER TRANSMITTED BY BELTS.—Experience demonstrated to M. Laborde that a belt $3\frac{1}{4}$ inches wide, running 533 feet per minute, transmitted one horse power of 33,000 foot-pounds, having the usual tension, and without deforming itself, when the pulleys are smooth-faced and of equal diameter, in order that the belt may embrace their semi-circumference. This is equivalent to 144.35 square feet of belt per minute per horse-power, and 19 pounds strain per inch of width. M. Carillon employs a rule based upon the following:—"A belt can transmit 1 H.P., if it have a surface velocity of 96.9 square feet per minute, providing not less than one-third of the circumference of either pulley be embraced." *Journal of Frank. Institute.*

ISOMETRICAL DRAWING.—An English draftsman has devised a drawing-board—in the form of an equilateral triangle, for isometrical drawing. An ordinary T square applied on the edges, draws tangents that meet each other at angles of 120° , and other lines drawn parallel to these radiating ones form with them angles of 60° and 120° , which are the exact angles of the apparent squares of isometrical cubes.

LOCOMOTIVE BUILDING.—Wm. S. Huntington has an article in the *Chicago Railroad Gazette* on "The Locomotive practically considered,"—from which we copy the following: "The manner in which a locomotive tire is bolted on in some shops is wonderful. The holes are drilled with a slant, so as to bring the nut to one side of the centre of the rim, thus leaving no bearing for the nut except on one corner. Sometimes no nut is used, the bolt being riveted, and the bolts are not countersunk, or tapered (which is preferable.) Tires frequently become loose in a short time after being put in use, or if the tire remains fast the bolt becomes loose, when it is necessary to taper the holes, make new bolts to fit them, and chip away the casting on the inner side of the rim to form a seat for the nut. These bolts should be tapered $2\frac{1}{2}$ or 3 inches, nicely turned to a true fit and driven home with moderate blows of the sledge, (not hard enough to strain the tire.) A nut should be screwed on a well fitted seat, and the bolt well riveted on the nut."

The writer adds in a note:—"Some mechanics prefer to fasten tire with set screws from the inner sides of the rim. The plan of bolting through the tire is not satisfactory in all respects, especially as it greatly reduces the strength of tire; but it appears to be the best plan yet devised, all things considered."

A SUSPENDED TUNNEL IN THE BOSPHORUS.—There is an immense traffic from the Stamboul to the Pera side of the Bosphorus. The existing bridges of boats are barely large enough for passengers. The very great depth of the water, the precipitous banks, and the 30 feet of mud which forms the bottom, forbid tunneling in the ordinary way. One of the chief engineers of the Turkish Government (Mr. Hadden) proposes to suspend or float a tunnel, at 35 feet below the surface, allowing passage to vessels of the largest tonnage. There is no tide in the Golden Horn. The tunnel would consist of a wrought iron tube, 10 feet in diameter, and 1,200 feet long. The tube will weigh 600 tons; maximum weight of any train 400 tons; concrete and lining, to overcome the buoyancy of the tube, 1,700 tons; water displacement, 2,700 tons. When the tunnel is not in use, there will be an upward strain of 400 tons, which is to be neutralized by holding-down chains. *The Engineer.*

INTERMITTENT ELECTRIC LIGHTS.—M. Delaurier has taken up the proposal of M. Lucas, a Government engineer, to obtain a very powerful electric light for coast service, at a comparatively small cost, by making the light intermittent, with intervals of two seconds; by this means, it is said, one ten-thousandth part of the electricity expended for a constant light will suffice. M. Delaurier suggests the following arrangement: A battery which is only in action when the circuit is open, with couples united together in masses, and the electricity passed through coils of solid iron wire; a very long copper wire, covered with silk, is wound around the iron coil, the copper being sufficiently thick not to be heated by the passage of the current. Each pole is provided with a charcoal point; when these are in contact the current passes, and when they are separated the sparks are excessively brilliant, because both the direct and the extra current are brought into action. A simple arrangement of clockwork causes the points to come into contact every two seconds, and then separates them sharply, so as to break the current instantaneously.

THE GREAT STEEL BRIDGE AT ST. LOUIS.—This is to be 2230 feet in length, and will cost about four and a half millions of dollars. The four piers will carry three arches, the central one being of 525 feet span. The *Iron Age* says:—"The best cast steel is selected as the material of these arches. Each of them will be double—that is, consisting of two concentric arches, twelve feet apart—and joined together by a network of massive steel braces. These double arches will be stretched parallel with each other, four in each span from pier to pier. Upon them there will be laid the upper structure of the bridge, in two stories, the lower of which is exclusively for railroads, and the upper for vehicles and foot passengers. Being fifty feet wide, both will afford ample accommodations for all the traffic that will cross the bridge. The structure will present no obstruction to the free navigation of the river, as the largest steamers may pass under it without difficulty."

Scientific Progress.

MOUNT HOOD.—Prof. Collier, of Pacific University sends the *Portland Oregonian* an account of the ascent recently made by himself and Prof. Powell of Salem. We quote a paragraph or two:—"Mt. Hood is an old volcano. Its eruptions were probably not liquid lavas but volcanic ashes, now in part hardened into tufa or baked into porphyry. Its old crater was what is now the summit and was from a quarter to a half a mile in diameter. This old crater was more than 500 feet deep. Its rim to the north and east still stands, but most of the southern and western portion is gone. Of the southern portion of the rim there remains a single pier of rock several hundred feet wide and very high. To the southwest a similar pier of basaltic rock, standing upon stratified rock, has slid part way down the side of the mountain. The Deschute heads in a glacier extending from the southeast of this crater, and the Sandy has a similar origin to the southwest. Both these streams run white all summer with volcanic ashes. From very many places in this old crater there issues hot sulphurous vapor in varying quantities. * * A mean of observations taken at the summit, 'gives for the height of the mercurial column, reduced to what it would have been at the freezing point of water, 20,000 inches. The mean air temperature was for the same time 42.5° F. These and similar data furnished by Mr. Wilson, of Astoria, give for the height of Mt. Hood 11,218 feet. Three years ago Col. Williamson made the altitude 11,225 feet. This is a much closer agreement than I had expected. Using observations made for me at Portland and Forest Grove the altitude is a few feet greater. I feel confident that either of these measurements does not involve an error of 100 feet."

GAIZE.—The substance known as gaize, or *Pierre morte*, is a mineral largely met with in the department of the Ardennes, where it forms a deposit of some 100 metres' thickness. Its sp. gr. is 1.48, and it consists, in 100 parts of—Soluble silica, 44.8; insoluble silica, 42.0; alumina, 5.1; peroxide of iron 2.5; lime, a trace; hygroscopic and combined water, together, 5.4. It is, on being dug up, quite soft, so that it can be cut with a knife, but becomes hard on drying, and very hard when exposed to red-heat, whereby its specific gravity is reduced to 1.44. This material is essentially a substance capable of withstanding high temperatures; and the author exhibits crucibles made from the gaize, which have been used successfully for melting iron. *Chemical News.*

FOSSILS IN MINERAL VEINS.—A paper by Chas. Moore, in the *British Association Reports* for 1869, notes numerous fossils in the lead mines of the carboniferous limestone of Great Britain, and thus remarks upon the origin of the veins:—"The chief material of all the mineral veins I find to be of marine origin; all the organic contents are fossil, and their precise geological age can be arrived at without much difficulty. Wherever they contain land shells, as on the Mendips, or freshwater shells, which occur in the veins of Alston, and are wide-spread elsewhere, they are also fossil and of contemporaneous age with the other remains. It is certain from this that the veins received their infilling when within the influence of the ocean, and before their present elevation, since which time, as I have before stated, I doubt if there could be any material alteration in their contents."

PREPARATION OF IODINE.—"The process for separating the iodine from the seaweed ashes, is very simple. The ashes are leached with water, and the various crystallizable salts of potash and soda are separated by concentration. Carbonates, sulphates, and chlorides of potash and soda are thus removed, leaving in solution sulphite, hyposulphite, and some carbonate of soda, together with the iodides and bromides. By the addition of sulphuric acid the first three salts are decomposed, and the sulphate of soda produced is removed by crystallization. The concentrated mother-liquor is acidulated with sulphuric acid, and after the addition of biniodide of manganese, the iodine and bromine distilled off."—*W. H. Chandler in Am. Chemist.*

DECIMAL MEASUREMENT OF ANGLES.—M. Villarcieu proposes to divide the circle into tenths, hundredths, and thousandths, instead of, as now, into 360 degrees. The word *tour* (turn, circumference, once around) is suggested as the unit, and its initial letter *t* as its symbol. He further proposes the same method of division in time; taking the day as the unit, and dividing it into tenths, hundredths, etc.

SOURCE OF PENNSYLVANIA PETROLEUM.—"With Drs. Newberry's leaning to the hypothesis that the Pennsylvania petroleum is a distillation, or exhalation, from the black shale formation which lies deep below the Venango county sandstones, we cannot sympathize. For why then are not the Western counties of Indiana good oil fields? If, on the other hand, we keep to the opinion that the fossil plants of the Venango sandstones themselves furnished the oil, it is easy to find a cause for the absence of the oil in Indiana in the scarcity of fossil plants, whether we explain this scarcity by distance from the Ancient Paleozoic Appalachian sea shore or in any other way. We object equally to Professor Hall's method of accounting for the absence of petroleum reservoirs in New York State. All the facts known seem to us to show that the 'anticlinal axis theory,' is quite false. In Pennsylvania and Virginia, the country which is traversed by anticlinal axes has never yielded much if any oil. On the contrary, the rich oil region of the Alleghany river, the oil region of southeastern Ohio, and most of the oil regions of the Kanawha, Gnyandotte and Sandy, are almost undisturbed; with rocks so nearly horizontal that the nicest instruments cannot measure the local dip. The oil-filled fissures cannot be ascribed to wave movements in the crust; they must be mere shrinking cracks."—*U. S. Mining Register.*

THE AIR OF IRON FACTORIES.—The following is from the *Bowdoin Scientific Review*: "Dr. George Sigerson, of Ireland, has published several interesting papers upon the microscopic examination of 'special atmospheres.' In iron factory air, Dr. S., found a black, friable dust, made up of particles of carbon, of ash and of iron. The carbon formed the largest masses, the ash-particles were reddish, or white and opaque. Some transparent pieces with a glassy fracture were noticed, and regarded as glass resulting from the fusion of sand used in the welding process. An extremely fine powder, the dust of the dust, was carefully examined for germs or spores, but it presented angular shapes and colors identical with other matters. The particles varied in size from the one five-hundred-thousandth to the one fifty-thousandth of an inch. The iron was present in the form of balls, hollow and with walls so thin that when broken they appeared translucent. These microscopic bombs were sixteen times greater in their diameter than the thickness of the shell composing them, so that the conclusion is reached that iron is translucent when it attains a tenuity of one thirty-thousandth of an inch. It will be remembered that gold-leaf one two-hundred-thousandth of an inch in thickness is said to transmit light of a dull greenish color. But among all the dust examined, no germs or spores were found, in fact no fibres save a few cotton filaments from the garments of the workmen, fibrous carbon particles and a specimen of branching metal."

PREPARATION OF SPIRITS FROM LICHENS.—Dr. Stalschmidt says that the large quantities of lichens found in many parts of Europe may be applied in this manner, and thus a saving effected in the consumption of grain. The author describes the process at length; the cellulose of the lichens or moss is converted into glucose by boiling with from 7 to 10 per cent. of the mass of hydrochloric acid (sp. gr. 1.165) by the aid of steam; the acid is saturated with chalk, and the saccharine matter brought to fermentation; 20 pounds of moss or lichen yield five litres of spirit at 50 per cent. anhydrous alcohol. *Chemical News.*

THEORY OF THE BUNSEN FLAME.—"The non-luminosity of the flame of the Bunsen gas-burner is commonly ascribed to the more complete combustion of the gas by the air which is mixed with it before it is burned. But this is an assumption entirely unproved as yet; and moreover, the positive experiments of KNAPP show that this cannot be the only cause of the phenomenon. His burner was so constructed that by means of a lateral tube, other gases beside air could be mixed with the coal-gas; and the results obtained prove that nitrogen, hydrochloric acid, or carbon dioxide gas causes the flame to burn fully as blue as is seen in the burner as ordinarily used. Knapp believes that the disappearance of the luminosity is due partly to the cooling of the flame, but principally to the dilution of the illuminating gas; and that the flame of the Bunsen burner is non-luminous from the same cause which lessens the light of a candle burned in vacuo, or at high altitudes."

AGRICULTURAL DEPARTMENT.

New Trees for California Culture.

There is a tree quite common in some parts of Spain, known as the "Carob Tree," the pods of which, when ripe contains a few drops of a substance somewhat resembling honey. It blooms twice a year—at the end of January or the first of February, and about the middle of September—and when well watered, grows to a considerable height and size, sometimes spreading to such a degree as to have a circumference of two or three hundred feet, and bearing upwards of a ton of pods. Young trees, only a year old, often have stems eight or ten inches thick, with branches ten or twelve feet long. Cattle, horses and mules devour the pods with great avidity, and if well fed upon them will become extremely fat, or in good condition to work. This tree will doubtless succeed well in many parts of California, and might possibly prove of considerable value. Attention was first called to it with the view of its introduction into the middle States. It flourishes extensively near Alicante, in Spain, and grows readily from the seed.

The Cinchona (Peruvian Bark) Tree.

The attention of the Kern County Agricultural Society has been directed to the matter of raising cinchona trees in that locality, and the Secretary, A. D. JONES has addressed a letter to Mr. CAPRON, Commissioner of Agriculture, asking his views and recommendations on the subject. He replies rather favorably towards making the experiment, and it is quite probable that some practical steps will be taken in the matter before long. Small plantations should also be set out at various other localities in the State.

There is no substitute, in the *materia medica* for the bark of this tree, the entire supply of which now comes from South America, where, owing to the reckless folly of the natives in girdling and cutting down the trees, their early and total destruction is feared. The American Medical Association has also memorialized Congress on the subject of introducing the tree into cultivation in the Atlantic States.

The memorial shows that in a period of six years, from 1865 to 1869, 1,641,876 pounds of the bark of the cinchona tree were imported into the United States, for which we paid \$1,874,112. Experience has demonstrated that this tree can be safely transplanted, England having set out a plantation of cuttings in India with complete success. Some parts of California, more particularly San Luis Obispo and San Diego counties, are believed to be well adapted to the growth of the cinchona. The American Medical Association request Congress to appoint a commission of scientific men for the purpose of taking the necessary steps for the cultivation of the tree in the United States. The Sacramento Medical Society has pledged itself to use every effort to find a proper locality for the cinchona in California.

LARGE SWEET POTATOES.—A sweet potato has been raised on the ranch of Brokas & Perkins, on the Sacramento, which is thought to be the largest ever produced. It weighs 6½ pounds and measures 12 inches in length by 18 in circumference at its largest girth.

SHEEP IN LOS ANGELES.—There are at present 447,060 sheep in Los Angeles county, the annual yield of wool from which is estimated at 12,250 pounds (6,125 tons), an average of 2½ pounds to each sheep.

FARMING PROFITS.—The *Overland* for October makes an exhibit of the average profits of farming in the Pajaro Valley, Monterey county, for the past five years, from which it appears that wheat has paid \$7 10 per acre, flax \$24 55, potatoes 46 12½, beans 19 45. Here it will be seen that all crops mentioned paid better than wheat, three to six times as much, yet the multitude will stick wheat in the ground all the time to impoverish the soil and themselves! When will people learn wisdom?

Stockton Vineyard and Nursery of West Brothers.

While attending the fair at Stockton, we improved an invitation to visit the nursery and vineyard of the West Brothers. These gentlemen settled where they are now living in 1852. Their ranch is a good one and well improved. The soil is of light and heavy adobe "in streaks." Their 50 acres of vineyard are upon both qualities of soil, and they state that there is no perceptible difference in the production or quality of the grapes. For productiveness, size, beauty and flavor, their grapes are not surpassed.

Their System of Culture.

Their system of training is the common low bush of this State. The cultivation is shallow plowing; but thorough, to kill all weeds, and leave the surface loose. They think that deep plowing among the roots is injurious.

They never summer prune at all, but give vines the advantage of a full spread of leaves to the sun. The fruit is finer and better matured than when deprived of leaf-shelter and vitality.

Sulphuring.

The vines and fruit are treated with sulphur thoroughly, twice, once as the blossoms fall and again when the grape is half grown. The sulphur insures the grape against mildew, and also increases the yield more than enough to pay the expense. They use about 100 lbs. of sulphur to the acre every season—dusting it on from a small, coarse bag.

Prolific Yield.

Last year, from three acres (about 1,800 vines, of California or Mission grapes,) they sent to market 1,105 boxes. The vines were 10 years old. Their Black Prince vines, 9 years old, yielded, at 10 cents per lb., the price last year, \$1,600 per acre.

The occasional tempered winds from the sea, and the interior valley sun and heat, appears to be just adapted to the perfect growth and richness of the grape in San Joaquin county. The West Brothers received a special premium of \$30.00 for the extra quality of grapes exhibited by them at the Mechanics' Horticultural Fair in this city. They made a larger display in Stockton—showing some 20 varieties.

Special Varieties.

The varieties that do the best with them are:—Black Prince or Rose of Peru, which they say are identically the same—the Rein de Nice or Flame Tokay; Black Hamburg; Zinfidel; White Syrian; Malaga; Black Morocco and Mission grape. They refer to the White Frontignan, Bissling and Zinfidel as very choice for wine, and remarkably fine with them. The Syrian and Black Morocco arrive at great size and perfection with them, ripening fully. The Purple Damascus and the Muscat of Alexander do not succeed here in fertilizing or "setting" as well as in some other places. These varieties appear to do the best in the driest and hottest localities.

A Worthless Variety.

The Fiher Zagos is a miserable thing. Mr. Henry Lewis, of San Joaquin county, planted 10 acres of cuttings, four years ago, which he obtained direct from Mr. Baghy. His vineyard is planted on the best of soil, but is worthless. He exhibited some of his Fiher Zagos at the fair in Stockton. They rotted in two days, although freshly gathered.

Mr. West's Nursery.

W. B. West, one of the Brothers, has a fine nursery of fruit and ornamental trees, shrubs, and green-house plants. This he keeps under a good state of cultivation, and irrigates plentifully, giving his trees a vigorous growth. In his well assorted nursery he has several thousand nut trees started. He considers the Elm the best shade timber tree for adobe soils—the loudest in a few years becomes stunted and dies.

Oranges and Lemons.

He expresses great faith in the success of orange and lemon culture. He has a fine lot growing in nursery rows which appear to flourish better in the open sun and air, than under a half shade and shelter. He says they will endure the frost also. He has obtained a few hardy varieties of oranges from the East, among which are the *Zangerine*, *Maltese Blond*, *Sweet Sicily*, *St. Michael* and *Mandaren*; also a large lemon. These he will propagate from.

We are glad to notice among nurserymen, all over the State, a growing interest as to the importance of timber, nut and orange planting. Now that they lead in example, success will surely follow.

The San Jose Fair.

The first annual exhibition of the Santa Clara Agricultural Society opened on Tuesday last.

The New and Magnificent Hall in which the exhibition is held was well filled and tastefully decorated. This hall is (we believe we are authorized in saying it) the handsomest on the coast. It is the property of S. M. Smith of San Francisco and was designed by S. C. Bugbee & Sons. The whole building is exceedingly neat and well arranged, but of this we have not time to speak now. Stating merely that it contains fine rooms, ample corridors and will be fitted up in the best style, that the rear part of the second floor is devoted to halls and their connections, and that a lecture room, 30x60 feet adjoins the main hall, we give the *Independent's* description of the one in question.

The Music Hall is 60x83 feet and 25 feet high, with ample entrances from the wide corridors. It has a carved ceiling with moulded beams above, and a fine cornice 20 feet from the floor, supported on pilasters with enriched panels; on each of these is a gas bracket. At the north end, between the two halls, is a fine stage, 25x42 feet; on each side are fluted Corinthian columns and pilasters, ornamented doorways, to ante-rooms and boxes above. By removal of the stage, which is built in sections, the two halls can be thrown into one, having a length of 134 feet. Attached to the hall are dressing rooms for ladies and gentlemen; thus every convenience has been provided to make these rooms desirable for parties; in case of a grand hall the larger one would be unsurpassed for that purpose, and the smaller one he used for a supper room. The stage will be fitted up for musical and dramatic entertainments. Scenery will be provided, and a splendid drop curtain, with foot-lights, etc. Every attention has been paid to lighting and ventilation. On the rear, at each end, an additional exit has been provided to the yards below.

The halls and corridors are wainscotted with alternate strips of pine and redwood, varnished, showing the natural grain of the wood. The ceilings and walls of both halls are frescoed. The principal ceiling will be very beautifully set off in panels; midway of the space is a large dome, in the center of which is a fine open ventilating centerpiece, from which is suspended an 18-light chandelier; in the dome are bronze medallions of Shakespeare, Dante, Milton, etc. The walls of the large hall are not yet completed, but on either side of the proscenium will be an allegorical figure representing Music and the Drama. The capitals and other ornamentations will be white, tipped with gold, and the effect of the whole when completely will be very rich.

This ample hall is divided off into appropriate departments, the center being devoted to the exhibition of fruits, flowers and shrubs, a large number of the latter being tastefully arranged in the form of two fine pyramids. Three tables, six feet in width running parallel to each other nearly the full length of the floor, fairly groan beneath the weight of fruits of every variety, from the "Gloria Mundi" apple to the delicious raisin grape, black Hamburg and Morocos and the finely tinted muscat of Alexandria.

There were on Thursday morning nine exhibitors of fruits, making a very fine showing. The season is now more timely for maturity and colour of fruit than at

the late fair in this city, so that the same exhibitors make a much better display.

We are in receipt of a lengthy communication from our special correspondent, with regard to this exhibit, which we are compelled to defer until next week.

The Upper Sacramento Fair at Chico.

The Upper Sacramento Fair opened at Chico on Tuesday of last week. This is one of the finest agricultural regions in the State, and the display was excellent. The show was not very large; but it was numerous and suggestive in kind.

The chief feature and glory of the exhibition was the show of stock, which, it is claimed, has not been excelled anywhere on the Pacific Coast. Marvels of fruit and vegetables were to be seen; and the products of the dairy also formed a very suggestive feature. Gen. John Bidwell made a very excellent display of fruit and stock.

The *Bulletin* correspondent speaking of the Fair as an entirety says:—"It was one of the honestest little Fairs I have seen of late. * * * Out in the Pavilion, rude and unsightly as it is, with plenty of cracks between the boards, there were tables laden with honest pumpkins and apples, and the rough unplanned walls were hung around with the works of noble, old-time matrons, and there were savory, dried peaches, and rolls of yellow butter, and a creditable exhibit of wheat and sacks of Graham flour; and above all things, there was no civilized padding and stuffing of merchandise, and the damnable nostrums of quacks. Never in all my travels, either among the fruit-stands of New Orleans, or beside the booths of *Bella Napoli*, have I stood among a collection of fruit so richly, so flagrantly aromatic, as here in this rude pavilion. It was remarkable. I could not have believed that a hundred miles north of Sacramento would have caused such an improvement in the aroma. The show of fruit was not large, but it was wonderfully savory to the nostrils. But, far better than all beside, were the manly bronzed farmers, (in the pavilion rather than in the park) and their homely-clad but rosy dames and maidens. The number of farmers wearing membership badges was notable. The society pays off a debt of about \$2,500 this year."

The Sonoma and Marin District Fair.

The pomological exhibition at this Fair which opened on Monday, is pronounced by good judges one of the finest which has been held this year; mammoth pumpkins, squashes and other vegetables were also well represented. Its domestic character was also especially notable. The exhibition of such articles as tend to the building up of comfortable homes and homely virtues were particularly suggestive of our early eastern fairs. Dairy products were represented here in creditable shape and quantity. Rolls of butter were exhibited which stood erect in the torrid heat of that locality, and unyielding as pillars of salt. The cheeses, one of which weighed 240 pounds, looked remarkably well.

The show of horses was very good, thoroughbred, and mixed, light roadsters, and of those heavy draft. One of the cattle, a Clydesdale weighs 2,190 pounds. There was also a fine show of Durhams, French, mixed, and others, bulls, cows and calves. Of sheep, the show was small, chiefly Cotswold and South-downs.

THE FAIR SEASON.—Mr. Greeley's "What I know of Farming," No. 38, which appears in our issue to-day, is especially opportune at this season of agricultural fairs. We commend its perusal to all managers of fairs, and to all who visit them. The hints therein given are well worth bearing in mind.

COPPER ORE FROM SAN MATEO COUNTY.—We saw at Howland's mill, this week, about ten tons of copper ore from San Mateo county. The exact locality was not given, but we are told that the mine is worked by Spaniards and that five or even ten tons can be shipped daily. The ore is said to hold some gold.

The Sacramento Beet Sugar Works.

Having read and heard much about the Sacramento Sugar Beet Factory, we took a stroll out to the works, while in attendance at the State Fair. The mill is about 2½ miles east of town, within and near the levee; while the largest portion of the 360 acres, owned by this company, is on the outside, and subject to overflows during the rainy season.

From information we had received, we were expecting to find a much more extensive and complete establishment. The building, which is of wood, and one story high, is of plain construction and apparently new. A new set of machinery has been procured, and is being set up while the old set has been carefully removed. Booth & Co., of San Francisco, who manufactured the machinery for the Alvarado mill, made this new set.

Machinery.

The engine is a 35-horse power while the boilers are large enough to supply steam for boiling and heating purposes also. They have a large washing machine where the beets will be cleaned from all dirt. The beets will be converted into pulp in a large grater, of the same size as that at the Alvarado mill, and two centrifugals, 32 inches in diameter, will be used both for extracting the juice from the pulp, and the syrup from the crystallized sugar.

From the centrifugals, the juice will run into large receivers where it will be brought to a boiling heat, and then taken by "montejuces" to the defecation pans, which are elevated to near the roof. From thence the juice will pass through leading pipes into flannel bags filled with bone charcoal, where it will be filtered, run into a receiving pan, and returned to the montejuces to be again elevated, this time, into the clarifying pans. From there, it will, by force of pressure run through two large boiler-iron filters into an evaporating pan, and then into the concentrating pan, and on again into the coolers. There are six coolers in a tight room, which will be kept at 110 degrees of heat. Here the crystallization takes place, after which the sugar is separated from the syrup in the centrifugals. It is then ready for market.

In all the several sets of pans through which the juice runs and is made to flow and settle, there are coils of steam pipe to keep the temperature at the desired degree. And there are many little particulars of workings, of material importance, not mentioned, but requiring skill and attention. It is stated that only fourteen men will be required to run this mill day and night, which will consume about 50 tons of beets per each 24 hours, and produce some four tons of sugar.

The present works appear to be constructed with an eye to rigid economy. The whole machinery cost about \$6,500, and while utility is not overlooked, there is no expense incurred for show or unnecessary convenience, either in the building or setting up the machinery.

The ranch outside of the levee is only partly reclaimed from willows, etc. There are perhaps 20 acres of beets growing, one-half of which look very well. The soil will produce good beets or almost anything else if brought under good cultivation.

A. M. O. de Gamout, an intelligent Frenchman, the present superintendent, professes to have had many years experience in the growing and manufacture of sugars, in France, India, and Australia. He anticipates no difficulty whatever, and says the beets here are remarkably fine and rich in saccharine matter. He has cleared about 75 acres from brush, leaving a few narrow strips of trees to break off the winds, and act as a shelter to the fields.

He informed us that he designed cultivating strips or belts of trees all around, and some across the land, for a shelter against winds, against the rush of water,

in overflows, and for wood and timber. He thinks it economy in every respect. We believe this step a good one, and one that might be adopted by our farmers generally with profit, and with good results.

The SCIENTIFIC PRESS has advocated this idea, not a new one, often. Of the varieties best adapted to different localities and soils, we have spoken before, and design to speak further.

The gentlemen who are stockholders in this enterprise are determined to succeed. They have already expended a good deal of money in experimenting.

Beet sugar is no experiment in Europe, where over 2,000 factories are established for its manufacture. This product there, in some sections, has driven all imported sugar from the market, and is in turn exported.

We have every reason to have faith in the success, and eventual importance of the enterprise on this coast, and we are very much gratified to see the spirit and energy exhibited that must overcome every obstacle to final success.

COTTON GROWING.—We have an interesting letter on hand on the subject of Cotton Growing in California, which will appear next week.

THE DRAUGHT OF PLOWS.—The experiments at the plowing trials under direction of the New York Agricultural Society, seemed to prove that the draught of ploughs was very little affected by different degrees of speed. This would show that a fast walking team does not work at much disadvantage.

RASPBERRIES BEARING TWICE UPON THE SAME WOOD.—It may not be generally known that there are varieties of the raspberry which give a crop of fruit twice upon the same wood. The Belle de Fontenoy, Lum's Yellow Canada, and several others yield fruit on the canes of the previous year, which ripens at the usual raspberry season, in the spring. These varieties also yield another crop of fruit, late in the fall, upon canes which have grown during the summer—the same canes which produce the next spring's crop.

CRANBERRIES ON UPLAND AGAIN.—In farther support of what we said a few weeks since about the possibility and profit of cultivating cranberries on upland, we clip the following communication found in a late issue of the *Journal of Agriculture*:—

Three or four years ago I transplanted cranberry vines from my meadow to one of my gardens, which is pine plain land. They have grown well, and they are now loaded with fruit. I had compromised with them; that if they would come and live with me on my land, I would bring them their native soil, so that they would not suffer by emigration. I dug channels two feet wide, twenty inches deep, and three feet apart. I removed the gravel, and filled the channels with muck from whence they were to be taken. I took up the cranberry plants, in small clusters, and set them deep in their natural element. They appeared to be perfectly contented with their new locality. They now occupy one square rod of ground, and they are beginning to enlarge their borders. I keep this patch clear of weeds. The expense of this cranberry square rod was about two days' labor of one man, and one day's labor of one horse. The prospect now is, that the cranberries will yearly pay expenses of their new settlement. Muck and experiments well directed, will prove successful.

HOW TO REMOVE WHITE SPOTS FROM FURNITURE.—Rub the spot with pulverized pumice stone wet with water, and then with buckskin moistened with sweet oil; or, put a piece of paper on the spot, and hold a warm iron over it, and rub with an oiled cloth.

VELVET.—The first velvet factory in the United States has been started by a French colony at Franklin, Kansas. The colony began operations last summer on the co-operative principle, and have already, besides their factory, dwelling-houses, stores, shops, and farms in excellent state of cultivation.

What I Know of Farming—38.

Agricultural Exhibitions.

I must have attended not less than fifty State or county Fairs for the exhibition (mainly) of Agricultural machines and products. From all these, I should have learned something, and presume I did; but I cannot now say what. Hence, I conclude that these Fairs are not what they might and should be. In other words, they should be improved. But how?

As the people compose much the largest and best part of these shows, the reform must begin with them. Two-thirds of them go to a Fair with no desire to learn therefrom—no belief that they there can be taught anything. Of course, not seeking, they do not find. If they could realize that a Farmer's Fair might and should teach farmers something that would serve them in their vocation, a great point would be gained. But they go in quest of entertainment, and find this mainly in horse racing. Of all human opportunities for instruction in humility and self-depreciation, the average public speaker's is the best. He hurries to a place where he has been told that his presence and utterance are earnestly and generally desired, perhaps to find that his invitation came from an insignificant and odious handful, who had some private axe to grind so repugnant to the great majority that they refuse to countenance the procedure, no matter how great the temptation. Even where there is no such feud, many have satiated their curiosity by a long stare at him, walk whistling off, without waiting or wishing to hear him. But the speaker at a Fair must compete with a thousand counter-attractions, the least of them far more popular and winning than he can hope to be. He is heard, so far as he is heard at all, in the presence of, and in competition with all the hellowing bulls, braying jacks, and squealing stallions in the country; if he holds, nevertheless, a quarter of the crowd, he does well; but let two jockeys start a huggy-race around the convenient track, and the last auditor shuts his ears and runs off to enjoy the spectacle. Decidedly, I insist that a Fair-ground is poorly adapted to the diffusion of Agricultural knowledge—that the people present, acquire very little information there, even when they get all they want.

What is Needed to Render our Annual Fairs More Instructive.

I. Each farmer in the county or township should hold himself bound to make some contribution thereto, if only a good hill of corn, a peck of potatoes, a bunch of grapes, a squash, a melon, let him send that. If he can send all of these, so much the better. There is very rarely a thrifty farmer who could not add to the attractions and merits of a Fair, if he would try.

If he could send a coop of superior fowls, a likely calf, or a first-rate cow, better yet; but nine-tenths of our farmers regard a Fair as something wherewith they have nothing to do, except as spectators. When it is half over, they lounge into it with hands in their pockets, stare about for an hour, and go home protesting that they could beat nearly everything they saw there. Then why did they not try? How can we have good Fairs, if those who might make the best display of products save themselves the trouble by not making any? The average meagerness of our Fairs, so generally and justly complained of, is not the fault of those who sent what they had; but of those who, having better, were too lazy to send anything. Until this is radically changed, and the blame fastened on those who might have contributed, but did not, our Fairs cannot help being generally meagre and poor.

II. It seems to me that there is great need of an interesting and faithful running commentary on the various articles exhibited. A competent person should be employed to give an hour's off-hand talk on the cattle and horses on hand, explaining the diverse merits and faults of the several breeds there exhibited, and of the representatives of those breeds there present. If any are peculiarly adapted to the locality, let that fact be duly set forth, with the simple object of enabling the farmers to breed more intelligently and more profitably. Then let the implements and machinery on exhibition be likewise explained and discussed, and let their superiority in whatever respect to those they have superseded or are designed to supersede, be clearly pointed out. So, if there be any new grain, vegetable, or fruit, on the tables, let it be made the subject of capable and thoroughly impartial discussion, before such only as choose to listen, and without putting the mere sight-seers to grave inconvenience. A lecture-room should always be attached to a Fair-ground, yet so

secluded as to shut out the noise inseparable from a crowded exhibition. Here meetings should be held each evening, for general discussion; every one being encouraged to state concisely the impressions made on him, and the improvements suggested to him, by what he had seen. Do let us try to reflect and consider more at these gatherings, even though at the cost of seeing less.

III. The well supported Agricultural Society of a rich and populous county must be able, or should be able to give two or three liberal premiums for general proficiency in farming. If \$100 could be proffered to the owner or manager of the best tilled farm in the county, \$50 to the owner of the best orchard, and \$50 to the boy under 18 years of age, who grew the best acre of corn or roots that year, I am confident that an impulse would thereby be given to agricultural progress. Our premiums are too numerous and too petty, because so few are willing to contribute with no expectation of personal benefit or distinction. If we had the right spirit aroused, we might dispense with most of our petty premiums, or replace them with medals of no great cost, and devote the money thus saved to higher and nobler ends.

IV. Much of the speaking at Fairs seems to me insulting to the intelligence of the farmers present, who are grossly flattered and eulogized, when they often need to be admonished and incited to mend their ways. What use or sense can there be in a lawyer, doctor, broker, or editor, talking to a crowd of farmers as if they were the most favored of mortals and their life was the noblest and happiest known to mankind? What it might be and may yet become, we all know that the average farmer's life is not what it is thus represented; for, if it were, thousands would be rushing into it where barely hundreds left it; whereas we all see that the fact is quite otherwise. No good can result from such insincere and extravagant praises of a calling which so few freely choose, and so many gladly shun. Grant that the farmer ought to be the most enviable and envied vocation, we know that in fact it is not; and agreeing that it should be, the business in hand is to make it so. There must be obstacles to surmount, mistakes to set right, impediments to overcome, before farming can be in all respects the idolized pursuit which poets are so ready to proclaim it and orators so delight to represent it. Let us struggle to make it all that fancy has ever painted it; but, so long as it is not, let us respect undeniable facts, and characterize it exactly as it is.

V. If our counties were thoroughly canvassed by township committees, and each tiller of the soil asked to pledge himself in writing to exhibit something at the next County Fair, we should soon witness a decided improvement. Many would be incited to attend who now stay away; while the very general complaint that there is nothing worth coming to see would be heard no more. As yet, a majority of farmers regard the fair much as they do a circus or traveling menagerie, taking no interest except as it may afford them entertainment for the passing hour. We must change this essentially; and the first step is to induce, by concerted solicitation, at least half the farmers in the county to pledge themselves each to exhibit something at the next annual Fair.—*Horace Greeley.*

THE LEAF THE GOVERNING ORGAN IN VEGETATION.—The leaf-bud of any root of tree or plant, if grafted or budded into another of the same family will produce the leaf of that variety, and it is a settled fact with nurserymen that the leaf gives and governs the peculiar quality and flavor of every fruit. The vitality and strength of stock, and the flavor of the sap also, make a difference in the size and excellence of fruit, but the peculiar nature of fruit is governed by the vital apparatus and principles of the leaf.

Hybridising is accomplished by mixing the sorts by fertilizing the stigma of the flower of one kind with a pollen from the anthers of another variety. The blossoms to be operated upon are usually confined in a wire or gauze netting, so as to preclude all insects that might interfere with the process. The seeds produced are then planted. The plant that grows therefrom is the new variety. In this way of crossing or hybridising, many of the best fruits and finest flowers are produced. This art is well understood by all professional gardeners; and when one new and beautiful or excellent sort is brought forth, out of hundreds of inferior ones, the achievement is duly honored.

The Advantages of Drilling over Broadcast Sowing.

Few facts are better established in the minds of the best farmers of Europe and in the Atlantic States, especially those who have fairly tried it, than that drilling wheat is decidedly preferable to broadcast sowing, whether done by hand or by machine. We have already made brief allusion to this subject, and now, as the season for putting in another crop is fast approaching, we again take it up for more full reference.

The system has already come into almost universal practice in Europe, and every year's experience in the Atlantic States is demonstrating more and more fully its numerous and decided advantages. The Agricultural Department, at Washington, is doing much in this direction in the way of collecting experimental facts and spreading them before the people. We annex a few such experiments for the benefit of our California readers, and give herewith a pictorial illustration of the relative advantages of the two methods, as deduced from actual experience.

A report was made in 1866 to the Good-hue Farmer's Club, of Minnesota, which we condense as follows:—Three fields were seeded with spring wheat of the China Tea variety.

Field No. 1.—Two bushels of seed per acre were sown with broadcast sower and cultivator combined, and covered at depths varying from one to four inches. *Result.*—Good wheat, well filled and standing thick on the ground; but *unequal in growth*—some straws being five or six feet high and others only two. When some of the heads were fully ripened others were quite green; estimated yield 20 to 25 bushels per acre. [A very correct representation of such a growth is shown in figure 2.]

Field No. 2.—One and a quarter bushels of seed sown in drills, east and west, (distance apart not given) 2½ inches deep; no after cultivation. *Result.*—Had better color during growth than No. 1, and was very even in straw and ripeness; the heads were even and of extra length. Estimated yield 30 bushels per acre. [Fig. 2 gives a very fair illustration of such a growth.]

Field No. 3.—Three pecks per acre, in drills, east and west, 2½ inches deep and 18 inches apart. Cultivated once, when one foot high, at a cost of \$1 per acre. *Result.*—Was extra at all times, with deep green color and broad leaves. Appeared like a different kind of grain from Nos. 1 and 2. Stooled out more than either; was uniform in ripeness and length of straw. Estimated yield from 35 to 40 bushels per acre! *Cultivation*, after all seems to be the need, and that can only be reached by drill culture, with quite open rows.

Mr. R. A. Gilpin, of West Chester, Pa., planted in 1866 one acre in a large field, with 3 pecks of seed, drilled in, 20 inches apart. The balance of the field was drilled 10 inches. At the proper time, a small hoe-harrow was run between the single acre, drilled wide apart; nothing being done to the rest of the field. The portion they cultivated took a rapid start and quite outgrew the rest of the field. Though tall and heavy headed, it stood the rains and winds better than the uncultivated portion, which was comparatively thin and light. The cultivated acre was much later in ripening than the balance; but it produced 23 bushels, while the balance averaged only 9 bushels to the acre! Thus cultivation, in this instance also, with wide intervals between rows, seems to have been the principal cause of increased yield—a *single harrowing*, at a cost of not more than \$1.00, producing fourteen bushels extra per acre, (worth in this market from \$11 to \$12) being an increase of 155 per cent. over ordinary culture, besides saving one half of the seed, and time spent in sowing.

A gentleman in Rock county, Wisconsin, reports the cultivation in drills, 14 inches apart, with such marked success as induced him to increase the breadth of sub culture thereafter.

Such examples might be increased indefinitely; but enough has been given to draw attention to the matter, and we trust sufficient to induce a few of the more progressive farmers on this coast, to try some experiments this fall, and report results.

One of the chief advantages claimed for

drill culture is immunity from drought. Deep and uniform planting secures a uniform and healthy start for the grain, which enables it to withstand the severest drought. There is one pre-requisite to the use of the drill, which must always be taken into the account for the proper effect to be drawn from it—the land must be plowed deep and thoroughly pulverized. The chief advantages derivable from drill culture may be summed up as follows:

The seed is covered deep and more uniformly.

The crops are better able to withstand droughts.

Concentrated manures may be placed in the drill with the seed, thereby obtaining the fullest and most immediate benefit from almost the only manures attainable by wheat growers in this State.

Weeds can be easily disposed of, at little cost, and as shown above, with great advantage to the crops.

The plants may thus receive the undivided benefit of the soil and manure, and do not have to maintain a constant struggle with weeds.

By the free admission of sun and air between the rows a stronger and healthier plant is produced and of course a heavier crop.

From 25 to 50 per cent. can be saved in the amount of seed required, while quite as large a percentage is generally added to the average yield.

Various descriptions of drilling machines are manufactured, some with and some without guano attachments. They are also adjustable for grain or grass, and for any width of rows. Any farmer, who has a desire, may experiment upon an



WHEAT SOWN IN DRILLS.—No. 1.

WHEAT SOWN BROADCAST.—No. 2.

acre, more or less; by hand drilling—using a plow, rake or hoe for opening and covering the drills, dropping the seed by hand and performing the after cultivation by hand also. It would be well, in experimenting, to test at the same time the value of manures. Eighteen to twenty inches is doubtless a good distance for the rows; although the English practice is much less—from nine to twelve inches. The soil there, however, is more thoroughly cultivated, (pulverized) and much higher dressed.

If farmers here, would experiment a little in this way, and report results, they would add vastly to the general fund of agricultural knowledge on the Pacific coast, and to the special application of such knowledge here. All human plans are liable to miscarriage, and it is possible that this system, which works so well at the East and in Europe, is not applicable here; but there is very little room for anticipating any such result. The truth, however, can be brought out only by practical experiments in the field.

AGRICULTURAL IMPLEMENTS.—Extensive arrangements are being made in anticipation of an increased demand for agricultural machinery, the coming season. Stocks are large yet prices promise to be reasonable.

PREPARING FOR LARGER CROPS.—The *Tuolumne City News* predicts that there will be more land under cultivation in Stanislaus county the coming season than ever before, and claims that the prosecution of work on the San Joaquin Valley railroad is very encouraging to farmers.

A Fruit Gathering Stand.

There have been numerous kinds of step ladders and other contrivances made on which to stand while pruning large trees and picking fruit from them, in addition to the one shown last week. Any ladder that rests at the upper end against the tree, is objectionable, from the fact that it is liable to slip, and is always breaking the timber, and bruising the bark of the trees, especially when they are small. A com-



mon step ladder, that has a hinged support, is not reliable where the ground is soft or uneven, as it always is in orchards.

What is required is something that is self supporting, stiff, strong, light to move

about, and not liable to tip over when stood upon. The annexed figure represents such a stand.

It has four standards which may be of 2x2½ stuff, about 7 feet long, with 5 feet spread at the bottom, and 2 at the top. Strips of one inch by three are nailed at the right distance, one above another, for steps on two sides, while braces of light material confine the other two sides, as may be seen. Then by solidly nailing some strong inch boards on the top, so as to make a platform about 3 feet square, the stand is finished. One may be roughly nailed together out of picked-up material, in a few minutes; the only tools required being a hatchet and saw, with a few nails. If thoroughly nailed at first, it will last two or three seasons. It may be called a California invention, and we venture the assertion that it is the handiest, cheapest and best thing that has been made for the purpose, especially for young orchards. The lower limbs may be reached while standing upon the lower steps. The platform is very convenient to set the basket or box upon, while picking fruit, and also to stand upon while reaching the upper limbs. The illustration copied last week, from the *Hearth and Home*, showed a ladder that will be found useful and convenient for trees which have branches above the reach of the stand; but for ordinary service we claim the one herewith presented, as the very best stand made.

We should more seldom take offence at each other, if we looked oftener at the why than the what.

How English Beef is Fattened.

The Englishman is proverbial in his quality and love for roast beef. No such "roasts" are found anywhere else in the world. The *modus operandi* of its best production is as follows:—A pit is dug, generally about six feet deep and ten square into which the animal to be fattened is lowered. It is then supplied with all the roots, hay and meal it can digest, and furnished with the needful quantity of water, as well as with an abundance of dry straw for litter. The droppings are trampled under foot by the animal as he moves about his narrow cell, and gradually, by their accumulation, rise to a level with the surface of the ground. When the surface is thus reached he is ready for the knife, and yields a most rich and juicy flesh, besides many tons of the best of manure firmly packed in the pit.

One great trouble with the American beef is, that the animals get too much exercise. Even our stall fed animals are allowed to roam too much. But the worst feature of all is the fact that nearly all the beef which is found in the markets of our great cities is driven thither on foot, and killed without rest or recuperation, and of course in a diseased state. The animals transported by rail are but little if any better, as the motion of the cars, even for a few hours, is extremely weakening and debilitating on an animal heavy with fat. Perfect quiet and good ventilation is essential to good beef.

When a hullock is taken from its pasture and placed in a stall or pit, it continues to grow in bone and in muscle or red flesh as well as to accumulate fat, and the fatty matter is so blended with the muscular as to make the latter tender, juicy and highly flavored.

In fattening, as a general thing, American cattle move too much and hogs too little. The hog needs more exercise while fattening, then a bullock—or at least the evil effects of driving is not so perceptible as in driving cattle. Kentucky hogs driven across the mountains into Virginia, are said to give sweeter flesh and more highly flavored hams than corn fed hogs, pen fattened in Virginia.

Don't Do It.—The *Western Farmer* quietly cautions its readers against saying, when they get home from a County or State Fair, that they have better vegetables, better grain or better stock than they saw on exhibition; and suggests a sure remedy for all such complainings, would be for each man who has anything that is considerably above the average, to do himself and his county the honor of showing it—which is sensible advice for California as for the Mississippi States.

San Francisco Market Rates.

Wholesale Prices.		
THURSDAY EVENING Oct 8, 1870.		
Flour, Extra, 48 lbs.	\$5.50	65 75
Do. Superfine, 48 lbs.	4.75	60 75
Corn Meal, 100 lbs.	2.25	2 50
Wheat, 100 lbs.	1.50	1 85
Oats, 100 lbs.	1.25	1 40
Barley, 100 lbs.	1.00	1 15
Beans, 100 lbs.	1.50	2 00
Potatoes, 100 lbs.	1.00	1 50
Hay, 100 lbs.	8.00	24 00
Live Oak Wood, 100 cords.	10.00	12 00
Seef, extra, dressed, 100 lbs.	7.00	7 10
Sheep, on foot, 100 lbs.	2.00	2 50
Hogs, dressed, 100 lbs.	7.00	8 00
GROCERIES, ETC.		
Sugar, crushed, 100 lbs.	14 1/2	14 1/2
Do. Hawaiian, 100 lbs.	8 1/2	11 1/2
Coffee, Costa Rica, 100 lbs.	20	20
Do. Rio, 100 lbs.	20	20
Tea, Japan, 100 lbs.	65	95
Do. Oolong, 100 lbs.	60	25
Hawaiian Rice, 100 lbs.	7 1/2	8
China Rice, 100 lbs.	7	7 1/2
Coal Oil, 100 lbs.	40	50 1/2
Chinese, Canton, 100 lbs.	14	14 1/2
Overland Butter, 100 lbs.	30	37 1/2
Ranch Butter, 100 lbs.	35	35
Island Butter, 100 lbs.	25	25
Lard, 100 lbs.	12	13
Eggs, 100 dozen.	11 1/2	13
Ham and Bacon, 100 lbs.	14	15
Shoulders, 100 lbs.	9	10
Retail Prices.		
Butter, California, fresh, 100 lbs.	50	60
do. pickled, 100 lbs.	30	40
do. Oregon, 100 lbs.	20	25
Cheese, 100 lbs.	20	25
Honey, 100 lbs.	25	30
Eggs, 100 dozen.	60	60
Lard, 100 lbs.	14	20
Ham and Bacon, 100 lbs.	12	13
Cranberries, 100 lbs.	1.00	1.25
Potatoes, 100 lbs.	2	3
Potatoes, sweet, 100 lbs.	14	14 1/2
Tomatoes, 100 lbs.	2	2
Onions, 100 lbs.	2	2
Apples, No. 1, 100 lbs.	4	5
Pears, 100 lbs.	10	12
Plums, dried, 100 lbs.	10	12
Peaches, dried, 100 lbs.	10	15
Oranges, 100 dozen.	10	10
Lemons, 100 dozen.	10	10
Chickens, 100 lbs.	75	1.00
Turkeys, 100 lbs.	25	25
P. Fat and C. O.	10	12 1/2
Soap, Castile, 100 lbs.	10	12 1/2

Reading for the Hour.

Thought.

[WRITTEN FOR THE SCIENTIFIC PRESS.]

Human thought is deeply spiritual in its conception and can never be lost; but onward, ever carrying and strengthening under the workings of eternal laws, it lives on, an active force, amidst the elements of mentality surrounding us.

Through the forces of our minds, we are able to unfold living thought—representative of eternal principles. Through us they have birth and start on their regenerating, creative and lawful missions—on a legitimate course, under or in harmony with the universal laws of the universe. Oh, the grandeur and glory of being!

A necessity, motive or aspiration may evolve and animate forces, exterior, and interior, to work out needed problems. As with the ages, so with thoughts, they accumulate, act and react, and by degrees reach a culminating point, and the grand creative thought is ready for form in the world. We give it birth and clothe it according to its nature; it may be a key to a more thorough knowledge of laws governing mind and matter, and requiring a venture of language, or we may suppose it a mere common-place conception, an article of furniture or a labor saving implement, something that needs a tangible existence for recognition and use; yet, be it remembered, it first had existence in a spiritual form in the mind, prior to its having birth and existence in a material form; and its spiritual birth was evolved and created by the action of great and eternal forces.

Is not the spiritual birth of any conception beautiful when viewed in the light of the great eternal forces that created them?

We are always more or less dissatisfied with the garb in which we, of necessity, must clothe our thoughts. Our physical language is only an expression of the outer garb of our spiritual conceptions, and it is but the few, who can scan beneath the vestment, not needed in their native element; but we present them in mortality, that they may become beacon-lights, guides, prophets and comforters for the needy.

Our brightest creations, generated in our spiritual enfoldment, are but seldom recognized; we have no language for them, and we know not where, or how to send them for recognition (or rarely).

Sometimes, when I feel free from the thoughts of others, unbound for the time from the world, these immortal children, will play and exult in my being, until I am fired, and all aglow with their entrancing light. I then perceive them as prophetic of a future, and by their light and revelations, I see that the key to all the forces governing mind and matter here, lie in a knowledge of the human soul and its relations to this universe.

My mind becomes exalted in this light, and I realize that by earnest, systematic, mental work, and frequent self-communings, my own being may unfold and assert itself; that in time I may become a free immortal entity. Time then seems to me a precious boon, and I pray, that when I cast aside this mortality, I can don an immortal robe of my own creation, and joyfully step on the eternal shores, not unmindful or the pilgrimage; but go forward voluntarily and consciously, by the force of my own inherent principles, gathering up the fragrance of my earth flowers for a home in my being forever.

NELLIE W. HUTCHINSON.

San Francisco, Sept. 20th, 1870.

TAKE time to put your words in cartridge shape before you fire them, and you will find increased effectiveness has amply repaid for the extra work.

Home the True Sphere of Woman.

"Florence Carlisle," a lady correspondent of the *Oakland Terminal*, expresses herself in the following beautiful and womanly manner on a much vexed question:

"Home is woman's sphere. There she suffers and grows strong. There untainted by worldly interests, she fosters those intuitive powers, which liken sentinel, sit and watch while reason sleeps high above the reach of a challenge. There she unburdens man of his wearisome cares and girds him anew for life's battles. There she weaves the mysterious leading strings for the nation, and mails the hero that he may go forth to conquer his own passions. There, from sacrifice and suffering, and passion and courage, and tenderness and trust, she fashions the delicate, impalpable network of charms, which every manly soul must realize. There she works out the maternal problem, vitalizing the law of nature with a spark of divinity. There in the same cradle she nurses self-reliance and restraint, courage and caution, heroism and humanity, tempering each by her own high intuitions, and rounding many an imperfectness into a fulness of power; then, when to her eyes the swinging lights shall have gone out, shall yet shine with a strange glory. Oh! who would then thrust woman from her sphere, of which she is the centre and sun?"

Women at the Polls.

Per contra to the above, we have clipped from the "Woman's Rights" paper of this city, (the *Pioneer*), the following:

One of the great hugenurs raised by our masculine protectors to frighten women from the ballot enterprise, is that the rowdy character at our political elections is such as will necessarily contaminate and degrade those women who should visit the polls to deposit their ballots. The friends of woman's political enfranchisement, have, however, invariably insisted that the rowdy and ruffianly manifestations that characterize our primary and official elections do not spring from the necessary corruption of politics, but from the personal exclusion of women from an equal responsibility and participation in the affairs of government. The territory of Wyoming venturing to experiment on these matters, its last Legislature invested the women within the jurisdiction, with the elective franchise. The first general election under the new law was recently held and the influence of women out and around the polling booths, on the noisy and depraved elements that heretofore operated to deter quiet and retiring citizens from depositing their ballots, demonstrated the wisdom of this measure. The *Laramie Daily Sentinel* of the 8th inst., in speaking upon this subject says:

"In every election we have known in this country, a good many peaceable, quiet citizens have been kept away from the polls on account of the quarreling, riot and rowdism which had to be encountered to get in a vote. This time we did not have any of that to contend against. Every one could go and vote as quietly as he could go to church. We did intend yesterday to say all there was to be said on this subject, as far as it concerned our election, but as Wyoming has undertaken to try the experiment and test the practicability of the theory, the world looks anxiously for the result, and is entitled to know it."

The Managing Woman.

Whatever may be thought of the two preceding paragraphs, no one can fail to admire the character portrayed below:

The managing woman is a pearl among women; she is one of the prizes in the great lottery of life, and the man who draws her may rejoice the rest of his days. Better than riches, she is a fortune in herself—a gold mine, never failing in its yield—a spring of pleasant water, whose banks are fringed with moss and flowers, when all around is bleached white with sterile sand. The managing woman can do anything and she does everything well. Perceptive and executive, of quick sight and steady hand, she always knows exactly what is wanting, and supplies the deficiency with a tact and cleverness peculiar to herself. She knows the capabilities of persons as well as things, for she has an intuitive knowledge of character. The managing woman, if not always patient, is energetic and can never be disappointed into inaction. Though she has to teach the same thing over and over again, she is never weary of her vocation of arranging and ordering, and never less than hopeful of favorable results.

A Cheap Gong for Farm and Miners Use.

A cheap and effective gong for farm or miners' use, may be made by taking a inch and-a-quarter round bar of English iron, beat into the form, of the accompanying diagram, and suspended by the loop in the center. The size should of course be made to correspond to the distance at which its sound should be heard. A good size would be one wherein the length of each arm should be about four feet. Such a gong, when struck with a hammer, or heavy piece of iron, will give out a clear ringing sound, which may be easily heard a full mile, under almost any circumstances; while with the wind it may be heard about two miles.

The particular shape herewith represented seems to be the best adapted for the production of sound; and without actual experience no one would believe how very loud and clear it was. The reader will notice that the ends are turned round into a circle of about four inches in diameter, and are gradually brought to a point, the iron towards the end being about half an inch in diameter, and the extremity rounded similar to the end of the finger.



This gong has been found exceedingly useful and may, if desired, be employed with a regular code of signals, a copy of which may be posted up near the gong, so that any person who can read may understand and employ them. For instance a particular manner of striking may be employed for calling to meals. A given number of strokes may call from any part of the works or farm, the foreman or proprietor, when wanted at the office; other numbers may be designated for calling particular persons, or to convey any other special word.

On ordinary occasions a piece of wood—short, stout and club-shaped—may be employed for every-day signals; while a piece of iron, kept always at hand may be employed for giving a general alarm, as for fire. The difference in the sound between using a wood or iron hammer is most marked and unmistakable. The cost of such an instrument is but trifling, and it will last for generations. It should be occasionally smeared with grease, to prevent rust which will deaden the sound. It should be hung by a piece of wire rather than string or rope; as the latter will greatly reduce the sound. Common iron, or that which is as free as possible from lamination, is best for this purpose, as it will be found more sonorous. Steel, of course, would be best; but that would entail useless expense. The cost of a rod of common English iron will not exceed one or two dollars, according to the size wanted; while the workmanship need not amount to any greater sum. The convenience will amply repay the outlay.

OIL WELLS IN SANTA CRUZ COUNTY.—R.

R. Whiteside has a well on his ranch which is yielding from 80 to 100 gallons per day. He tunneled into the mountain about 30 feet where he struck the main vein. The oil bubbles up like boiling soap, emitting large quantities of gas, which is sometimes so offensive as to make it difficult for the men to work. The well is about 300 yards from Chase's mill, on the Soquel Augmentation, and about half a mile from where Mr. Burrell bored a well about five years ago. This oil vein extends from Corralitos to Pescadero, and only needs capital to develop it, and receive rich returns as a reward for the labor. But we cannot expect to do much in the way of developing the vast resources of wealth which abound in our mountain range, until we bring ourselves into rapid means of communication with San Francisco.—*Santa Cruz Sentinel*.

Life Thoughts.

IT IS DARK.—It is dark when the honest and honorable man sees the result of years swept cruelly away by the knavish and heartless adversary. It is dark when he feels the clouds of sorrow gathered round, and knows that the hopes and happiness of others are fading with his own. But in that hour the memory of past integrity will be a true consolation and assure him even here on earth of gleams of light in Heaven. It is dark when the voice of that sweet child, once fondly loved, is no more heard in murmurs. Dark when the pattering feet no more resound upon the threshold, or ascend step by step, the stairs. Dark when some well known air recalls the strains once often attuned to obdildish voice now hushed in death. Darkness—but only the gloom which now heralds the day-spring of immortality and the infinite light of Heaven.

SUNSHINE AND CLOUDS.—Ah! this beautiful world! I know not what to think of it. Sometimes it is all sunshine and gladness, and heaven itself lies not far off, and then it suddenly changes, and is dark and sorrowful, and the clouds shut out the day. In the lives of the saddest of us, there are bright days like this, when we feel as if we could take the great world in our arms. Then come gloomy hours, when the fires will not burn on our hearths, and all within and without is dismal, cold and dark. Believe me, every heart has its secret sorrows which the world knows not of, and oftentimes we call a man cold when he is only sad.

GOD WORKS SILENTLY!—Drop a piece of wool on the floor. Do you hear it? No. How about the snow? Does it make great shout to tell us it is coming? Certainly not. "He giveth snow like wool." It is voiceless! And this is altogether characteristic of Divine operations. The great forces of the Universe are mute. The Sun never speaks. The Atmosphere is mute. Gravitation has no tongue!

LEARN TO LABOR AND TO WAIT.—There are two things that always pay. Working and waiting. Either is useless without the other. Both united are invincible and inevitably triumphant. He who waits without working is simply a man yielding to sloth and despair. He who works without waiting is fitful in his strivings, and misses results by impatience. He who works steadily and waits patiently, may have a long journey before him, but at its close he will find his reward.

In the voyage of life, we should imitate the ancient mariners, who, without losing sight of the earth, trusted to the heavenly signs for their guidance.

The aim of an honest man's life is not the happiness which serves only himself, but the virtue which is useful to others.

OPPORTUNITY is the flower of time, and as the stalk may remain when the flower is out off, so time may be with us when opportunity is gone forever.

EVERY parent is like a looking-glass for his children to dress themselves by. Therefore, parents should take care to keep the glass bright and clear, not dull and spotted, as their good example is a rich inheritance for the rising generation.

BE SLOW TO ANGER.—If a bee stings you, will you go to the hive to destroy it? Would not a thousand come upon you? If you receive a trifling injury, don't be anxious to avenge it. Let it drop. It is wisdom to say little respecting the injuries you have received.

FIGHT hard against a hasty temper. Anger will come, but resist it stoutly. A spark may set a house on fire. A fit of passion may give you cause to mourn all the days of your life.

WHATEVER you dislike in another, take care to correct in yourself.

DELIBERATE with caution, but act with decision, and yield with graciousness or oppose with firmness.

THE FORT YUMA ROAD.—The San Diego people seem in earnest about this road. If the trade of New Mexico is worth having, or will be valuable hereafter, and if San Francisco desires to keep control of the growing districts of the coast, it might be thought that aid would be gladly given here. In a question of the kind, and in a land which grows as rapidly as ours, we should consider not only what is to-day, but also what will be to-morrow. The distance from San Diego to Fort Yuma is 193 miles, thence to Tucson 283 miles, thence to the Burro mines 151 miles; total 627 miles.

Scientific Press.

W. B. EWER,..... SENIOR EDITOR.

DEWEY & CO., Publishers.

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	1 week.	1 month.	3 months.	1 year.
One-half inch.....	\$ 1 00	\$ 3 00	\$ 6 00	\$ 20 00
One inch.....	2 00	6 00	10 00	36 00
Two inches.....	3 75	7 00	18 00	70 00
Three inches.....	5 25	12 50	27 00	105 00
Four inches.....	6 75	16 00	36 00	140 00
One-fourth column.....	6 00	12 00	28 00	100 00
Half column.....	12 00	20 00	54 00	200 00
One column.....	20 00	40 00	100 00	400 00

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OUR FRIENDS can do much in aid of our paper and the cause of practical knowledge and science, by assisting Agents in their labors of canvassing, by lending their influence and encouraging favors. We intend to send none but worthy men.

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San Francisco:

Saturday Morning, October 8, 1870

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Notices to Correspondents.

RAILROAD FLAT.—"F. G." writes us concerning one of the mines at this place without giving his name and address.

A READER.—Give the slide valve a lead from the thickness of a sheet of paper to one-thirtieth of an inch according to speed. For ordinary speed, just about enough to see through, but not sufficient to insert the blade of a knife.

Mining Edition and Agricultural Edition.

We have recently commenced issuing two editions of the Press which differ only in the matter contained in the two reading pages—i.e., in one edition they will contain matter expressly for miners, and in the other especially for farmers. The reading and advertising matter in the other 14 pages will be precisely alike in both editions.

We have divided our mail list so as to send each edition to those we believe it to be preferable to, but as we could not be expected to know the preference of all our subscribers in this matter, we request those who do not get the edition they most desire to inform us at once by mail and we will take pains to have their names changed from one list to the other.

This new enterprise is undertaken with a desire to furnish more reading matter for each of the interests represented, and to make the Press still more popular with its ever widening circle of intelligent readers. It will be continued only in event of its success in that direction.

DIPLOMAS.—Parties entitled to diplomas from the Mechanics' Institute Horticultural and Pomological Exhibition, lately held, in this city, can obtain them by applying to the Librarian at the Institute Building on Post street.

Railroad Matters.

The Northern Pacific Railroad surveys are still being pushed. The Salmon river route is said to be a very undesirable one, according to the report of Capt. De Lacy who surveyed it. We have not seen any report as to the other routes mentioned in our previous article. At the eastern end, work is said to be going on briskly, in grading and track-laying. Maps of the line were filed some time ago, and the commissioner of the General Land Office has issued orders for the withdrawal of lands to the extent of 20 miles on each side. The line runs from Duluth on Lake Superior south to St. Paul, thence northwest through the northerly part of Dakota, along the valleys of the Yellowstone and Salmon in Montana and Idaho, to the Columbia and to its western terminus.

The Oregon and California road is being pushed forward rapidly and the second section of twenty miles was reported ready for inspection on the 23rd. of last month. Cars are expected to be running as far as Albany next month. Concerning the Southern Oregon route, the Oregon Senate and Assembly have passed a joint resolution instructing the Senators and Representatives in Congress to endeavor to secure the passage of a bill to aid a railroad connecting with the O. and C. R. R. in Rogue River Valley from the North Bend of the Humboldt River. "The entire influence of Oregon," says the Yreka Union, "is now against the Pengra scheme, and in favor of the road through on the 'Elliott survey.' We are satisfied now that the 'Pengra road' is a 'dead cock in the pit,' at least, till after the Sacramento and Willamette valleys shall have been connected by a road through Shasta, Rogue River and Umpqua Valleys."

On the Central Pacific (C. and O. Branch) work is to be resumed immediately, and the company are said to intend finishing the road through to Tehama by January, and to Red Bluff by March. The Yreka papers keep track of the surveying parties and stick to it that the Sacramento River route is the best. The Journal of Sept. 28th says that the surveyors are calculating on running the permanent survey on the west side of Mt. Shasta, the east side being objectionable on account of the winter snow. They are also endeavoring to find a route from the head of Shasta Valley out by Sheep Rock towards Butte Creek. The Union of the same date says (by a correspondent) "the survey crosses the Sacramento river—and that appears to be the final crossing—about one mile above Sweet Briar Ranch, from the west to the east side. Thence it runs up the river and crosses Soda creek near its mouth. In crossing Soda creek and the adjacent flats, trestle work will have to be used for about a quarter of a mile. The survey runs thence across a low divide between Soda creek and the river, where a tunnel of some five or six hundred feet will have to be made. F. Smith, informs us that the surveying party had made the survey to the summit of the divide between the Sacramento and Shasta rivers. They had run the line from Soda springs to the summit, on a grade of 95 feet to the mile. The line passes through Fellow's meadow. From the summit it will be easy to descend into Shasta Valley, and when once there, there will be no more serious engineering difficulties till the Siskiyou shall be reached." A Yreka telegram of the 4th inst. says the surveyors are running a line down through Shasta Valley. They proceed down the west side of the river to a point four miles east of town, where they crossed. It is said they will also run a line through town, down Yreka Creek and through to Groat's ferry on the Klamath.

The Sonoma Railroad, says the Herald-burg Flag of the 30th ult., is now in running order, seven miles north of Petaluma, and will be completed to Santa Rosa in twenty days. It will be fenced without delay, as the company advertise for proposals to have the fence completed by the 20th of January next. We are now assured we have seen our last winter of floundering through the mud between Santa Rosa and Petaluma.

The California Pacific has been doing a heavy freighting business in the way of grain. According to the Vallejo Chronicle, on the last Saturday in September, one train brought down 490 tons of wheat, and

that day the road transported 800 tons of grain. The road has had a survey made of the entire line with a view of raising and protecting it against the winter rains. The projected branch, from below Napa, through Sonoma Valley, and thence to Russian River Valley is certainly to be built, if the Chronicle is correct.

The Central Pacific are surveying a new route from Sacramento to San Francisco, via Benicia and Oakland. It is supposed that they have obtained the franchise of the Pacific Terminal Railroad, chartered to run between Oakland and the Straits of Carquinez. Another rumor is that the C. P. will take possession of the San Jose and Pajaro road next January; also that they will extend this down the Pajaro river to a point at or near Watsonville, with a branch to Santa Cruz. About half a mile of snow sheds were burned, on the night of the 4th inst., near Cisco. Origin unknown.

The San Joaquin Valley Railroad is progressing. A large force is at work on the bridge over the Stanislaus, and another is grading to the southward.... A committee of the Board of Supervisors of Los Angeles county and a similar committee from Los Angeles city are to confer with the Los Angeles and San Pedro Railroad Company, relative to propositions for aiding in the extension of the road toward San Bernardino.

At a meeting of the stockholders of the San Diego, Gila, Southern Pacific and Atlantic Railroad, held Oct. 3rd, the following Directors were chosen: Messrs. Marse, Wetmore, Carr, Rose, Gatewood, Robinson, Cleveland, Sedgwick, Mannasse, Bush, McCoy, Watfield, and Pendleton. A new organization was to take place on the next Wednesday. At a meeting of the stockholders of the Southern Transcontinental Railroad Company, held in New York, September 13th, the Company was temporarily organized with Gen. Fremont as President, M. C. Hunter as Vice-President, John D. Freres as Secretary, and Marshal O. Roberts as Treasurer.

The Virginia and Truckee R. R. have commenced laying a track from Carson to Clear Lake. Three engines have lately been received from the Baldwin Locomotive works of Philadelphia.

The completion of the Colorado Central Railroad, from Denver to Golden City, was celebrated at the latter place on the 27th ult. with appropriate ceremonies. A gold spike, presented by Gilpin & Company, and a silver spike, by the Clear Creek Company, were driven into the ground. Three or four thousand people were present. A free banquet was given by the citizens of Golden City, after which followed speeches and toasts. During the proceedings, Colonel Carter, President of the road, was presented with a gold watch.... The Kansas Pacific is in complete running condition. The regular passenger trains, with Pullman cars, leave Denver every day (except Sunday) at 9 A. M.

The Taxes Which Cease.

On the first of October, according to law, there ceased the following:—

Taxes on gross receipts;
Taxes on legacies;
Taxes on passports;
Taxes on sales, except of tobacco, spirits and wines, and those paid by stamps;

The use of stamps for promissory notes for less than \$100, for receipts, and for canned and preserved fish.

Taxes on income, including salaries, will be 2½ per cent. on incomes over \$2,000, instead of 5 per cent. on incomes over \$1,000.

Special taxes, including those on bankers, will cease May 1, 1871, excepting those connected with fermented liquors, spirits and tobacco.

VOLCANIC ACTIVITY.—The authority for the following is a telegram dated San Diego, Sept. 29th.—A party of Mexicans from Lower California, arrived to-day, and report the discovery of an extinct volcano about ten miles from San Rafael Valley, which for years has laid dormant. It has once more broken out in violent eruptions, throwing a column of dense black smoke two hundred feet high, and cinders for miles around its base. It is plainly visible from this point this evening. The whole Southern horizon is darkened with the smoke.

HORSES AND SHEEP ON ICE.—A horse breaks the ice with his foot; sheep crowd together, holding down their heads, and melt the ice with their breath.

University of California.

The Board of Regents met on Monday and took quite a number of important measures. They resolved to admit young ladies into the University on an equality in all respects with the young men; they elected professors in the medical department; abolished the Professorship of Chemistry, Mining and Metallurgy (thereby removing Prof. R. A. Fisher), and included this department in that of Agriculture and Agricultural Chemistry; elected W. T. Welcker and F. Soule Jr. Military Instructors, and adopted resolutions concerning the Fifth Class, of which Prof. George Tait was elected master. F. Bret Hart declined the office to which he was recently elected.

The following are the officers of the medical department: Professor of Surgery, Dr. H. H. Toland; Physiology, Dr. John Le Conte; Chemistry, Dr. Ezra S. Carr; Materia Medica, Dr. J. B. Stillman; Anatomy, Dr. C. F. Buckley; Clinical Medicine, Dr. J. C. Shorb; Midwifery, Dr. J. Blake; Principles and Practice of Medicine, Dr. Thomas Bennett.

It was resolved, that the students at large for special courses are not required to pass an examination for admission to the Fourth class of the University, but shall only be required to possess sufficient knowledge to prosecute the Spanish studies they desire to pursue in the classes they desire to enter.

Also, that the Committee on Instruction, after conferring with the Law Committee as to the powers of the Board in the premises, he and they are hereby directed to prepare a plan or scheme prescribing the conditions on which Fifth Classes in the University may be formed in different parts of the State.

The Committee on the competitive examination for the five free scholarships, recommended the following candidates:—T. F. Barry of San Francisco, D. E. Collins of Oakland, A. W. Jackson, S. B. Cristy and J. C. Rowell, of San Francisco. Each scholarship is worth \$300 per year for three years. The matter was referred to the Committee on Instruction.

The action with regard to Prof. Fisher was most peculiar, and one for which the public demands a reason. That gentleman knew nothing of it until he saw it in the papers. We have made inquiries as to the matter, but can get no satisfaction. It cannot be on the score of economy, while the University keeps up such expensive and unnecessary offices as that of a land agent, etc. According to all we can learn, Prof. Fisher is well fitted for his place. Why expel him in this manner without any charges, any notification? If the heads of professors are to be lopped off in this manner, we may bid goodbye to any chance to get decent men in the University. Unless the public are informed on this point, they will certainly settle down in the conclusion that some personal grudge has been allowed to act to the injury of a good man, and the Regents will expose themselves to the most unworthy suspicions. If Prof. Fisher is unworthy or unfitted to fill the chair he has been occupying, the people should know it; if not, the Regents owe to him ample restitution and to the public an apology.

BLOSSOM ROCK.—Although this obstacle to our navigation has long been removed, yet no official information of the fact by the proper parties has been forwarded to Washington, and Col. Von Schmidt must wait for his money until Prof. Davidson gets back from Oregon, and has farther surveys made to prove that the blowing up of the rock was not an optical delusion.

QUERRY.—A correspondent writes us for information concerning the "Garner Gold Mine" of California. Can anyone give us information as to the condition and locality of such a mine?

Patents and Inventions.

A Full List of Patents Issued to Pacific Coast Inventors.

[FROM OFFICIAL REPORTS TO DEWEY & CO., U. S. AND FOREIGN PATENT AGENTS AND PUBLISHERS OF THE SCIENTIFIC PRESS.]

FOR THE WEEK ENDING SEPTEMBER 27TH.

TOOL FOR CUTTING WOOD MOULDINGS.—Charles E. Bynton, San Francisco, Cal., assignor to himself and Isaac N. Vossburg, same place.

PLY.—David Fulton, St. Helena, Cal.

SASH-HOLDER.—William F. Kelle, San Francisco, Cal.

STEERING APPARATUS.—Turner C. Purington, Vallejo, Cal.

LUBRICATOR.—Ernest Von Jeinsen, San Francisco, Cal.

NOTE.—Copies of U. S. and Foreign Patents furnished by Dewey & Co., in the shortest time possible (by telegraph or otherwise), at the lowest rates. All patent business for Pacific coast inventors transacted with greater security and in much less time than by any other agency.

Notices of Recent Patents.

IMPROVEMENT IN SIDING FOR BUILDINGS.—C. Avery, San Francisco. For the

purpose of finishing houses or other buildings, after the ordinary rough boarding has been put on. Mr. Avery has a very neat plan which admits of any desired amount of ornamentation without detracting at all from its usefulness. He constructs the siding in blocks, cut in various ornamental styles, and so formed that the lower edge of any tier of blocks overlaps slightly the upper edge of the tier next below, thus preventing the entrance of rain. In the cut, B represents the rough boarding, and A, the blocks. These last are put on in tiers and have their upper and lower



edges, c and d, either beveled or cut alternately so as to overlap. To protect the vertical joints between the blocks, in the edges of each block, grooves, a, are made in a diagonal direction, and in these are placed narrow strips of zinc or other suitable substance, b. In this way, the space between this outer and the inner wall is kept dry, even if the siding should shrink considerably and leave cracks.

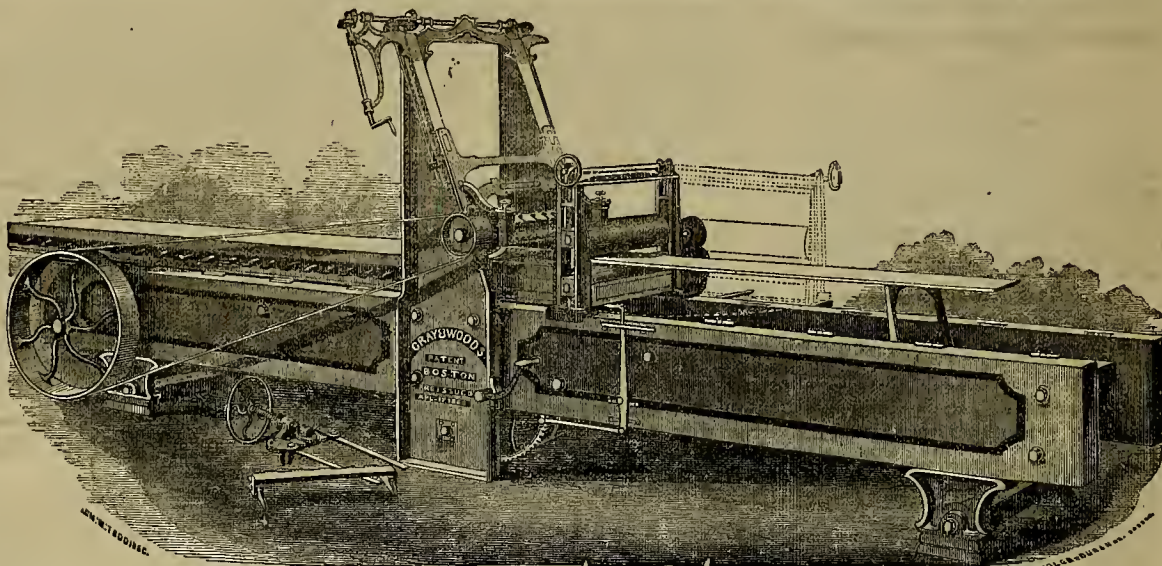
MAXILLARY COMPRESS.—C. E. Davis, St. Helena. One of the most disagreeable of operations to which civilized man is subjected is the extraction of teeth. There are a few people who apparently do not suffer much therefrom, but the majority have a great dread of it. Although not apt to be dangerous, yet it often gives rise to profuse and frequently violent hemorrhage, which in many instances can be arrested only by filling the cavity with cotton or other substance until coagulation takes place. To retain this substance in place is the object of the present invention. Small plates are made of gold, silver or other suitable material, with edges turned up to form flanges which fit on either side of the gums, and provided with suitable slots, bolts or rivets, so that the compress may be made to fit the gums at any point, and with clasps for fastening to the teeth. The cotton being placed in the cavity, this device is easily attached and remains permanently fixed as long as is necessary.

DEVICE FOR SEWING COVERS UPON SEWING MACHINES.—J. H. Mooney, S. F. In order to protect the mechanism of the sewing machine from dust, etc., when not in use, a case or cover is employed, which is frequently made in two parts and hinged together so that the portion immediately over the cloth plate can be turned back upon the other part when work is to be done. Now to secure the cover fast to the table there is attached to the cover a barrel (provided with an inclined slot) through which runs a rod, which has a pin projecting through the slot in the barrel, and a lug or projection at or near the lower end. This fits under a circular plate attached to the table, and by turning the rod, the pin, following the inclined slot in the barrel, presses the cover firmly down on the table.

Improved Combination Planer.

There are a large number of wood planers in the market; but one which has met with much favor among wood workers, is shown in the cut on this page. It is a combination of the Daniels and Woodworth Planers—the principle of either one of which forms the basis of all wood planers. This machine is so well known that it seems almost superfluous to go into a detailed description of it. It was first patented April 13th, 1852, and re-issued in 1860. Mr. S. A. Woods of Boston, the owner of the patent and the sole manufacturer, has patented a large number of improvements on the machine since then, which add very materially to its value.

It will be seen, by referring to the cut, that the feed-roll attachment is so perfected, that they can be used for surfacing boards, and with continuous feed; as they can be swung back on its hinged frame (as shown by the dotted lines) so that they lie longitudinally with the carriage, entirely out of the way, on the back side of the machine. The carriage can then be brought directly into use, and lumber dogged and planed out of wind with great rapidity.



GRAY & WOOD'S IMPROVED COMBINATION PLANNER.

The cut represents a board being planed, the end of the board being supported by a small frame, which, when not required for this purpose, is swung down between the side pieces of the machine, giving place for the carriage to run back. The end of the carriage has an iron plate made fast, on which the board slides upon being planed, while the other end of the carriage makes a table to support the board as it comes from the machine. The rolls are driven from the clutch or feed shaft, which drives the carriage when it is brought into use; the latter being driven by rack and pinion, and the former by gears arranged on the back side of the machine by a peculiar method, which renders them very durable and easy to adjust. The hinge on which the feed-roll is hung is not shown in the cut, it being on the back side of the machine.

When the machine is used for trying out stuff, the dogs (which are seen in the cut lying on the floor) are used for fastening the lumber upon the travelling carriage so that stuff can be planed straight and out of wind, varying from 1½ to 16 inches in thickness, from the fact that no pressure is allowed upon the stuff when used for this purpose; the gauge bar or roll, in the rear of the cylinder, being set exactly on a line with the cutting edge of the cutters, so that, by a combination of the dogs and travelling-bed, stuff is passed under the cutters in its crooked or warped state and reduced to a smooth and true surface. The dog is so arranged that stuff with oblique ends, or two pieces of unequal lengths, can be dogged at the same time, simply by turning the wheel, which by means of the screw, the swivel dog having the two adjustable arms attached, is forced against the lumber, holding it as firm as though the end was square, or the two pieces of equal length. The movable dog can be adjusted to any length of stuff by means of teeth or cogs, as shown on the side of the bed.

The machine can also be used for planing stuff as thin as 1-16 of an inch by removing the dogs from the carriage and placing the stuff to be planed on the carriage, and adjusting the pressure roll so as to keep the stuff firmly on the carriage, running it back and forth at pleasure. The patent cutter head, or cylinder, is of such peculiar form that it makes a complete concave cap of double iron, which is found indispensable for planing cross-grained hard wood.

A large number of these machines are in use in San Francisco and other cities in the Pacific States; and we are assured that they give universal satisfaction. For any further information, address Berry & Place, the manufacturer's agents, who keep these machines on hand at their Machinery Depot, 112 and 114 California St., San Francisco, and who will doubtless be pleased to answer all inquiries.

HOPE GRAVEL MINE.—In our mining summary last week, there appeared an item to the effect that sixty six ounces of gold had been taken out of this mine in three days. This is incorrect. The fact is that this amount was cleaned up from about two weeks run. We have received from official sources some very interesting items concerning the mine, which we publish. The item, we may state, was taken from

REVENUE LAWS.—The recent enforcement of certain provisions of the Revenue Laws bears heavily on San Diego, as it is a prohibition of its trade with Lower California, which is getting to be quite important. The San Diego Union comments on the fact, urging future action of Congress, but deprecating grumbling against the Revenue officers, who must obey their instructions. We see, by the way, that Mr. W. S. Dodge retires from, and Mr. Douglas Gunn assumes, the editorial control of the Union. If the latter gentleman gets out as good a paper as the former has done, he will do well.

HARDWARE AND METAL TRADES DIRECTORY.—This book, comprising a list of all the manufacturers, importers, wholesale and retail dealers, commission merchants, brokers, and artisans in all the base metals and all goods manufactured from them, in the United States, has just come to hand. We have previously alluded to it, and now that we have received it, are pleasantly surprised at its appearance, for the book is exceedingly cheap for its price (\$6). As it contains much valuable information for

the trade, we should imagine that it would be extensively patronized. It ought to be, at least. It is published by the enterprising firm of Wentworth & Co., of Boston, Mass., who may be addressed for copies of the book or for advertisements in the edition to be published in 1872.

The Pacific Iron Works have just turned out a large amount of machinery, for the Cariboo Mines, British Columbia. It is for pumping and hoisting works, and for driving a saw mill. The engine is nominally 60-horse power, and has two tubular boilers, with steam drum, each 44 inches by 14 feet. Two 10 inch Cornish pumps, capable of throwing 2,000 gallons per minute, and a pumping engine with 15-inch cylinder, capable of throwing 350 gallons per minute, are among the items. The whole is intended for the Lane and Kurtz Cariboo Mining Co., whose enterprise promises to be of great importance to our neighbors.

OF A HIGH CHARACTER.—We notice that the Messrs. A. and T. B. Young continue, under the name of William J. Young and Sons, the business of the late William J. Young—a business which has continued under the control of William J. Young or his Sons for almost fifty years. Thus each partner has an educational experience in the workshop, as well as the study, which is a guarantee of the excellence of the productions of the firm. Their mathematical instruments have an enviable reputation. They have enlarged their line somewhat, giving special attention to stationery and field and office equipment. Every one knows that they are at No. 43 North Seventh street, Philadelphia.

One of Davis' refrigerator cars went East this week filled with choice fruits shipped to New York.

Our Printed Mail List.

Subscribers will notice that their names are printed on colored paper and pasted upon each copy of the Press. This is done by machinery, to expedite the issue of our paper, the regular edition of which has become too large to be convenient to send out by the old method of writing the names. The figures found on the right of the pasted slips represent the date to which the subscriber has paid. For instance, 21st 70 shows that our patron has paid his subscription up to the 21st of September, 1870; 41st 71, to the 4th of January, 1871; 41st 70, to the 4th of July, 1870. The inverted letters occasionally used are marks of reference, simply for the convenience of the publishers.

In setting up the list the compositor made some few errors which have been rectified by a careful revision and comparison with the mail book. If errors in the accounts of subscribers occur at any time an early notice will secure their immediate correction.

If names, initials, or the address in any particular is wrong or incomplete wish to be favored with a notification of the fact.

OCCIDENTAL

Insurance Company

OF SAN FRANCISCO.

Cash Capital, - - - - - \$300,000

GOLD COIN

OFFICE, 436 CALIFORNIA STREET.

Fire and Marine Insurance.

All Losses paid in U. S. Gold Coin.

A. G. STILES, President.

B. ROTHSCHILD, Secretary.

Sv17

W. H. J. BROOKS,
Searcher of Records, and Examiner of

Titles,

IN ALL THE COUNTIES OF CALIFORNIA.

Abstract of Titles, examined and reported on.

HAVING DEVOTED HIS ATTENTION TO THIS BUSINESS EXCLUSIVELY during the past twelve years, he is familiar with the land and Conveyancing Laws of California, the Spanish, Mexican and American Records, and the Titles to Real Estate in San Francisco and all the Counties of California.

Persons contemplating the purchase of Real Estate in any portion of California can have the Titles thereto examined and reported on with accuracy and dispatch on reasonable terms.

Office, 316 California Street,
SAN FRANCISCO.

REFERS to the California Immigrant Union, the Real Estate Dealers, the Federal and State Judges and Legal Profession generally in California. 10v21-3m

BRIGHAM & HAWES,
Foot of Third Street, San Francisco.

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Fine Granite, Building and Street
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The trade supplied at WHOLESALE or RETAIL.

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COMMISSION.The Latest and Most Valuable Inventions can always
be found at the office of

WIESTER & CO.,

Patent Brokers,

314 Bush Street, San Francisco.

DESIGNS AND PLANS

— FOR THE —

NEW CITY HALL

— OF —

SAN FRANCISCO.

Office Board of City Hall Commissioners, southeast corner of Sacramento and Montgomery streets, San Francisco, June 22, 1870.

The Board of City Hall Commissioners hereby give notice that they will be prepared to receive at their office, on or before the FIRST DAY OF NOVEMBER NEXT, designs and plans for the new City Hall of San Francisco.

The Commissioners, in order to obtain the very best design and plan, invite the fullest competition among architects, and to this end have resolved to offer the following premiums:

First—For the design and plan selected and adopted.....\$2,500
Second—For the second best design and plan..... 2,000
Third—For the third best design and plan..... 1,500
Fourth—For the fourth best design and plan..... 1,000
Fifth—For the fifth best design and plan..... 500

The premiums payable in City Hall warrants.

As a guide to architects in the preparation of the designs and plans, the Commissioners have prepared a pamphlet containing full instructions and suggestions, as well as the terms and conditions upon which the premiums will be awarded.

Pamphlets can be had on application at the office of the Commissioners.

Any design or plan in which the requirements of the Board, as set forth in the printed instructions, have not been reasonably complied with, will be rejected from the competition.

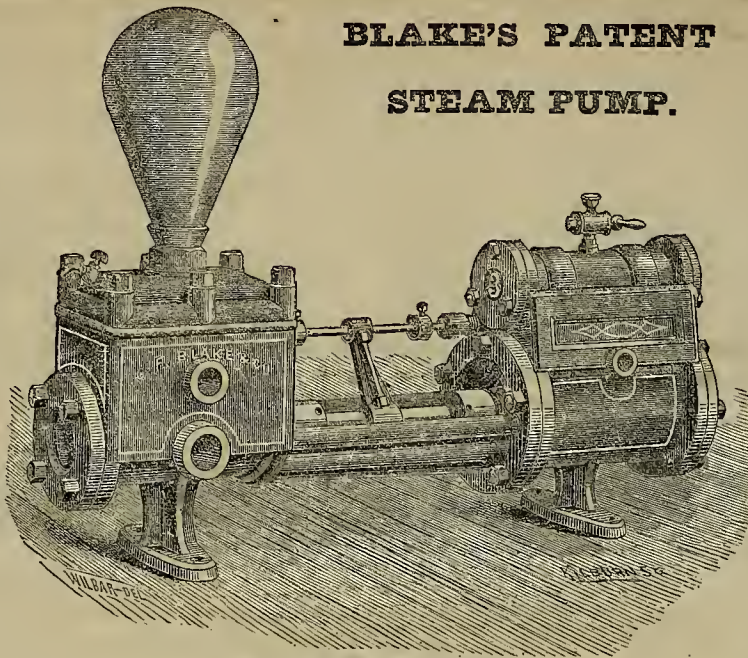
P. H. CANAVAN, Chairman,

JOS. G. EASTLAND,

CHAS. E. McLANE,

City Hall Commissioners.

26v20-4m

BLAKE'S PATENT
STEAM PUMP.

THESE PUMPS.

Have been tested, and found to be indisputably without an equal wherever tried. They are constructed in the most simple style, and built in the most thorough manner—especially calculated for SIMPLICITY, DURABILITY and POWER.

Some of the advantages of the Blake Pump may be summed up as follows:

It is POSITIVE UNDER ANY PRESSURE. May be run slow or fast as may be desired. Will discharge more water than any others of the same dimensions. Has no leaky joints, the steam part being cast in one entire piece. The steam valve is perfectly balanced, is cushioned at each end, and slides with the greatest facility, having no Cams, nor complex Rotary arrangements to get out of order. Will start at any point of the stroke, and will discharge all the water of condensation.

The Pump has no crank or fly wheel, thereby saving a considerable item of expense to the purchaser. Having no near points, it therefore needs no watching, and is consequently ready to start without using a starting bar or any hand work whatever. The Blake Pump is extensively used

On Railroads and Steamboats; in Hotels; for Mining and Fire Purposes; in Breweries, Tanneries, Sugar Houses, Factories, Mills, Laundries, and as BOILER FEEDERS, wherever steam is employed. In fact, wherever water or other liquids are desired to be raised in large or small quantities, or against heavy or light pressure, it is the

Cheapest and Best Pump that Can be Used.

It is offered to the public as the most perfect independent Steam Pump ever invented. FORTY DIFFERENT sizes are made, capable of throwing from 1,000 to 200,000 gallons an hour, and adapted to any class of work that might be required. For sale by

BERRY & PLACE.

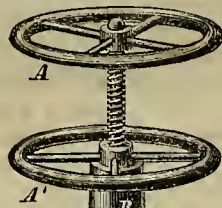
112 and 114 California Street, San Francisco.

Every pump will be warranted to perform the work required of it by the purchaser, or it may be returned and the money will be cheerfully refunded.

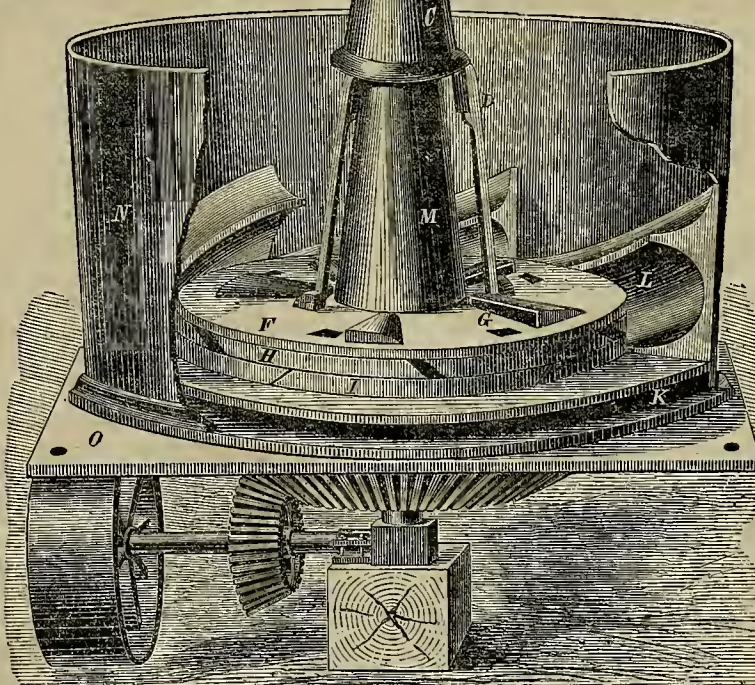
Awarded a SILVER MEDAL at last Exhibition of Mechanics' Institute, San Francisco, and State Fair at Sacramento, as being the Best Pump on Exhibition.

STEVENSON'S PATENT MOULD BOARD AMALGAMATING PAN.

This Pan is far superior to all others in several important particulars. The grinding mullers are near the center, requiring less power. The plow-shaped grooves raise the quicksilver with the pulp regularly, with less power, without violence, and with better amalgamating effect, besides admitting of a larger charge. The inclined-shaped housings of the muller plate openings efficiently force the pulp directly under the mullers.



It has been constantly running for over eight months, and has proved, in competition, to produce a higher percentage of bullion, with less power and with great saving of quicksilver, over any other pan in use. It is simple in construction and operation, and cheaper in first cost and economy in wear.



Manufactured at the Golden State Iron Works (Co-operative), 19 First street, S. F.,

Where it can be examined and further particulars be learned; or persons may apply to the inventor and patentee, Mr. C. C. STEVENSON, at the Douglas Mine, GOLD HILL, STATE OF NEVADA, where the Pans have long been in constant operation. 15v20 1mr, 1amf

Metallurgy and Ores.

A. T. GREEN,
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Agent for SAMPLING, CRUSHING, ASSAYING and SELLING OF ORES. Shipments received from miners, and the entire business transacted with promptness and accuracy. MERCHANDISE of all descriptions purchased and shipped on Commission for Country Merchants. Consignments of PROVISIONS received and sold at the highest market prices.

Refers, by permission, to Jas. Linforth, of Linforth, Kellogg & Co.; Jona. Hunt, Pres. Pacific Insurance Co.; A. J. Baisden, Sec. Pacific Insurance Co.; Jos. A. Donohoe, of Donohoe, Kelly & Co.; Falkner, Ball & Co.; Badger & Lindenberg; Taffo & Co., and J. B. Roberts, Esq. 23v20-3m

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Practical Assayers and Metallurgists,

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Metallurgical Works,
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Ores worked and Tests made with care. Also, Assays of Gold, Silver, Copper, Lead, Tin, and other Metals.

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7v21-3m

LOUIS FALKENAU,

STATE ASSAYER,

Analytical and Consulting Chemist.

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Particular attention given to the Analysis of Ores, Minerals, Metallurgical Products, Mineral Waters, Soils, Commercial Articles, etc.

One or two pupils can receive theoretical and practical instruction in Assaying, Analysis, or any particular branch of Chemistry at the laboratory. 11v21-3m.

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COMMISSION MERCHANTS,

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On all kinds of Ores, and particular attention

PAID TO

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4v16-3m

HENRY G. HANKS,

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AMALGAMATING PLATE S
FOR SAVING FINE GOLD.

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The SAN FRANCISCO PLATING WORKS are prepared to furnish silver-plate Copper Amalgamating Plates of all sizes, and in any quantities, at the very lowest rates. FULL WEIGHT OF SILVER deposited, and satisfaction guaranteed in every respect. Particular attention given to plating goods for BULLETS, PLUMBERS and GUNSMITHS. Old Goods of all kinds re-plated for hotels, restaurants, etc.

The finest quality of Sheet Copper expressly for mining purposes furnished and cut to any size at the lowest rates. Full assortment of Plated Goods and Cutlery for sale at low rates.

E. G. DENNISTON, Proprietor.

HAVILAND, HOOPER & CO., Agents, Crockery and Glassware Dealers, 335 Pine street, near Montgomery San Francisco.

All work done at the lowest prices. 1v20-3m

DISSOLUTION.

Notice is hereby given that the co-partnership heretofore existing between N. P. Langland and A. Cameron was dissolved by mutual agreement, September 1st, 1870.

The undersigned will continue the business of stair-building as formerly at No. 485 Brannan Street, San Francisco. 14v21st N. B. LANGLAND.

Business Cards.

JOHN GORMAN,
NOTARY PUBLIC.

COMMISSIONER FOR

Nevada, New York, Etc.
No. 612 MERCHANT STREET. 5v20-3mJOHN ROACH, Optician,
Has removed from 522 Montgomery street to
540 Washington street,
East of Montgomery.
Surveying Instruments made, repaired and adjusted
2v17-3mGILES H. GRAY, JAMES M. BAYAN.
GRAY & HAVEN,
ATTORNEYS AND COUNSELLORS AT LAW,
In Building of Pacific Insurance Co., N. E. corner Cal-
ifornia and Laidlaw streets,
SAN FRANCISCO.
2v16

REMOVAL.

DR. BEERS, Dentist,
Has removed from Tucker's Building to
No. 109 Montgomery street, three doors
north, opposite the Occidental.
2v20-3mDr. J. H. PAINE, Dentist,
Wadsworth House, No. 223 Bush street,
between Cosmopolitan and Occidental
Hotels, San Francisco.A. H. JORDAN,
Architect, Designer and Draughtsman,
No. 430 Montgomery Street,
SAN FRANCISCO. 16v19-2vFarmers and Mechanics
BANK OF SAVINGS,
No. 225 Sansome Street.Interest paid on Deposits. Money Loaned on Real Estate.
H. DUTTON, President.
GEO. M. CONDEE Cashier. 19v16-3m

Trades and Manufacturers.

WM. BARTLING, HENRY KIMBALL,
BARTLING & KIMBALL,
BOOKBINDERS,
Paper Rulers and Blank Book Manufacturers.
505 Clay street, (south west cor. Sansome),
15v12-3m SAN FRANCISCO.SAN FRANCISCO
PIONEER SCREEN WORKS,
JOHN W. QUICK,
No. 203 Fremont Street, near Howard.
Screen Punching of all kinds and qualities for Quartz,
Cement, Flour and Rice Mills, at Eastern prices. 10v20SAN FRANCISCO MILL.
HOBBS, GILMORE & CO.,
Manufacturers of Boxes,
Market Street, bet. Beale and Main.
For sale—Mahogany, Spanish Cedar, and other Woods.J. M. STOCKMAN,
Manufacturer of
PATTERNS AND MODELS,
(Over W. T. Garratt's Brass Foundry,
S. E. Corner of Mission and Fremont sts.,
16v14f SAN FRANCISCOTHE GIANT
POWDER COMPANY.
BANDMANN, NIELSEN & CO.,
General Agents,
No. 210 Front Street, San Francisco. 25v19THOMPSON BROTHERS,
EUREKA FOUNDRY,
and 131 Beale street, between Mission and Howard
San Francisco.LIGHT AND HEAVY CASTINGS,
of every description, manufactured 24v16gSAN FRANCISCO
CORDAGE COMPANY.Manila Rope of all sizes. Also, Bale Rope and Whole
Line constantly on hand. Mailing Ropes of any size
and length manufactured to order.
TUBBS & CO., Agents,
611 and 613 Front street.THEODORE KALLENBERG,
Machinist, and Maker of Models
for Inventors.All kinds of Dies, Stamps and Punches made. Also,
all kinds of Small Gears cut. Repetition done on very
reasonable terms, and in the best manner. No. 10
STEVENS STREET, near First, Pioneer Mills. 25v19-3mL. SCHUMANN,
PIONEER
Meerscham Pipe Manufacturer,No. 341 KEARNY STREET,
Between Bush and Pine streets, San Francisco.The first and only Manufactory on the Pacific Coast.
MEERSCHAUM MOUNTED WITH SILVER. Meerscham
Pipes Boiled and Repaired. Amber Mouth-pieces Fitted.J. F. PAGES,
SEAL ENGRAVER,
AND LETTER CUTTER.
Brass and Steel Stamps and Dies, 608 Sacramento street,
San Francisco. Orders by express promptly attended to.

The California Powder Works

No. 314 CALIFORNIA STREET.
SAN FRANCISCO.

Manufacturers and have constantly on hand

SPORTING,
MINING,
And BLASTING
POWDER,FOR SUPERIOR QUALITY, FRESH FROM THE
MILLS. It being constantly received and transported
into the interior, is delivered to the consumer within a
few days of the time of its manufacture, and is in every
way superior to any other Powder in Market.
We have been awarded successfully

Three Gold Medals

By the MECHANICS' INSTITUTE and the STATE AG-
RICULTURAL SOCIETY for the superiority of our
products over all others.
We also call attention to our

HERCULES POWDER,

Which combines all the force of other strong explosives
now in use, and the lifting force of the best blasting
powder, thus making it vastly superior to any other
compound now in use.
A circular containing a full description of this Pow-
der can be obtained on application to our Office.
16v20-3m JOHN F. LOHSE, Secretary.

HAYWARD & COLEMAN

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Illuminating, Lubricating,

PAINT OILS,

CONSISTING OF

KEROSENE, LARD, SPERM, ELEPHANT, POLAR,
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LINSEED, CASTOR AND CHINA NUT.

—ALSO—

Spirits of Turpentine and Alcohol.

Lamps and Lamp Stock!

An elegant and complete assortment.

SOLE IMPORTERS OF

Devos's Illuminating Oil,
PATENT CANS.

5v17-1f 414 Front street, San Francisco.

California Bonzest,
A CALIFORNIA PATENT, manufactured in San Fran-
cisco. A Condiment

Rare, Rich and Spicy.

Very palatable, productive of digestion and health.

An ANTI-SCORBUTIC, and sure preventive

Against Diseases incident to Sea Life.

A SPLENDID APPETISER.
TRY IT ONCE, and you will never be without it.
LABEL AND TRADE MARK COPYRIGHTED.SOLD AT No. 53 CALIFORNIA MARKET,
And by authorized Local Agents. 3v21-3m"CALIFORNIAN"
SEWING MACHINE,

SAWDON & GRAY,

MANUFACTURERS,

Corner Mill and Neal Streets,

GRASS VALLEY, CALIFORNIA.

Patent applied for.

It is the simplest, most durable, easiest understood,
and strongest built, and 30 per cent. cheaper than any
of the prominent ones now in the market.Examine before purchasing elsewhere, or send for
Circular.AGENTS WANTED.
14v21-3m.FROM THE WEED
\$65 Sewing Machine
THE WHOLE WORLD
being induced by the
are the LAST, and also
are the BEST! Who?
Because the WEED
Machines do
work
easier
and
better
than
any
other
in
the
VALLEY. Buy the
LAST! Sewing Machine
and see S. F. Howe, 379
Kearny St. S. F. Cal.

Notice.

To the Readers of the

SCIENTIFIC PRESS

Special attention is called to the

FURNITURE WAREHOUSES

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George O. Whitney & Co.,

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PINE STREET, SAN FRANCISCO.

The largest and most complete stock on the Pacific
Coast. At Wholesale and Retail. 8v213m50,000 ACRES
CHOICE FARMING AND GRAZING
LAND!
IN SIESTA VALLEY

In Tracts of 160 to 20,000 Acres.

Abundance of Rain and Running streams all the year
round—the whole valley ALWAYS covered with a rich
growth of grass.

PRICES VERY LOW—TERMS EXTREMELY EASY

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1870.

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Packing performed in the most skillful and thorough
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desired. Nurserymen and Dealers supplied on liberal
terms. Descriptive and Illustrated priced Catalogues
sent prepaid on receipt of stamps, as follows:No. 1—Fruits 10 cents.
No. 2—Ornamental Trees 10 cents.
No. 3—Greenhouse 10 cents.
No. 4—Wholesale FREE.Address,
5 2d St. ELLWANGER & BARRY,
ROCHESTER, N.Y.W. B. WEST,
NURSERYMAN AND FLORIST,
Evergreens, Fruit Trees,

—AND—

GREENHOUSE PLANTS.
Wine and Table Grapes a Specialty.
Nursery and Greenhouses: one mile North of the Asy-
lum, 15v21-4m. Stockton.This celebrated medicine has won a deservedly high
reputation as an alleviator of pain and a preserver of
health. It has become a household remedy, from the
fact that it gives immediate and permanent relief. It is
a purely vegetable preparation, made from the heat and
purest materials, safe to keep and to use in every fam-
ily. It is recommended by physicians and persons of all
classes, and to-day, after a public trial of thirty years—
the average life of man—it stands unrivalled and unex-
celled, spreading its usefulness over the wide world.
Its large and increasing sale affords positive evidence of
its enduring fame. We do not deem it necessary to say
much in its favor as one small bottle will do more to
convince you of its efficacy than all the advertisements
in the world. Give it one fair trial and you would not
be without it for ten times its cost.
Direction: accompany each bottle.
Sold by all Druggists.
Price 25 cts., 50 cts., and \$1 per bottle.MONEY
EASILY
MADE
With our Stencil and
Key-Check Outfit.
17 CIRCULARS FREE
7v21-3m

The Merchants' Exchange Bank

OF SAN FRANCISCO.

Capital, One Million Dollars.

A. N. COLEMAN.....President.
R. H. VAN BRUNT.....Cashier.

BANKERS HOUSE,

No. 415 CALIFORNIA STREET.
25v20-2v

Travellers' Guide.

Central Pacific Railroad.

Time Schedule, September 2, 1870.

EASTWARD.		Express Train Daily.	Passenger Sundays excepted.	Mixed.*
San Francisco	Leave	8:00 A.M.	1:40 P.M.	7:00 P.M.
Oakland	"	8:30 A.M.	4:30 P.M.	
San Jose	"	7:45 A.M.	4:35 P.M.	
Stockton	"	7:52 P.M.	7:33 P.M.	
Sacramento	Arrive	1:50 P.M.	5:50 P.M.	7:40 A.M.
Mariposa	Leave	2:10 P.M.		9:10 A.M.
Yuba City	Arrive	4:00 P.M.		1:15 P.M.
Colfax	Leave	5:00 P.M.		4:00 P.M.
Reno	"	1:15 A.M.		5:45 A.M.
Winnemucca	"	2:10 A.M.		6:15 A.M.
Rattle Mountain	"	12:00 P.M.		3:50 A.M.
Carlin	"	3:10 P.M.		7:15 A.M.
Elko	"	1:30 P.M.		5:00 A.M.
Kelton	"	1:30 P.M.		5:00 A.M.
Uglen	Arrive	6:10 A.M.		

WESTWARD.		Express Train Daily.	Passenger Sundays excepted.	Mixed.*
Ogden	Leave	6:00 P.M.		5:10 P.M.
Kelton	"	10:42 P.M.		1:30 A.M.
Elko	"	8:45 A.M.		7:15 P.M.
Carlin	"	10:15 A.M.		9:45 P.M.
Rattle Mountain	"	1:25 P.M.		3:55 A.M.
Winnemucca	"	4:05 P.M.		9:10 A.M.
Reno	"	1:00 A.M.		11:50 A.M.
Colfax	"	3:45 A.M.		12:50 A.M.
Chico	"	6:30 A.M.		10:30 A.M.
Mariposa	"	9:10 A.M.		2:30 P.M.
Sacramento	Arrive	11:25 A.M.		6:30 P.M.
Stockton	Leave	1:40 P.M.	7:00 A.M.	7:30 P.M.
San Jose	Arrive	5:35 P.M.	12:01 M.	
Oakland	"	5:30 P.M.	12:10 P.M.	
San Francisco	"	6:10 P.M.	12:40 P.M.	9:30 A.M.

* Sundays excepted. D To Fruit Valley only.

A. N. TOWN, Gen'l Supt. C. P. R. R.

T. H. GOODMAN, Gen'l Passenger Agent, Sacramento.



The following time will take effect

Saturday, October 1, 1870.

GOING NORTH—DAILY (SUNDAYS EXCEPTED).

New World	Leaves	Trains	Arrive at	Trains	Arrive at
S. Francisco	8:00 A.M.	12:45 A.M.	12:30 A.M.	2:15 P.M.	
8:50 A.M.	12:45 A.M.	8:30 P.M.	5:30 P.M.		

ON SUNDAYS.

GOING SOUTH—DAILY (SUNDAYS EXCEPTED).

Train	Leave	Trains	Leave	New World	Arrive at
Mariposa	6:00 A.M.	7:30 A.M.	7:15 A.M.	10:30 A.M.	
1:00 P.M.	2:30 P.M.	3:15 P.M.	5:30 P.M.	7:30 P.M.	

ON SUNDAYS.

TICKETS for sale at 114 Montgomery street, or on board

steamer New World. R. S. MATTHEWS, Superintendent.

N. B.—Branch office of Western Union Telegraph Com-

pany, from a d Vallejo street wharf.

L. F. FOWLER, General freight and Passenger Agent,
Vallejo October 1, 1870. 13v21-1vWE MUSE OUR BONES.—It would be as rational to
endeavor to repair a watch with a chisel and a sledge
hammer, as to attempt to remedy the derangements of
the delicate organs of digestion and secretion, with
drastic cathartics. In Tarrant's Seltzer Water the
ingredients are combined in the proportion, all the
ingredients required to relieve the bowels from obstruc-
tions, invigorate the stomach, regulate the quantity and
improve the quality of the gastric juice and the bile, and
neutralize any acid matter that may exist in the cir-
culation.

SOLD BY ALL DRUGGISTS

One Per Cent. per Month

Allowed on Six Months' Deposits by the CALIFORNIA
BUILDING, LOAN AND SAVINGS BANK, California
street, one door from Sansome.

August 2, 1869. THOMAS MOONEY, President. 6v19 1m

The Well-Sinker Giraud.

Monsieur Simonin, in "La Via Souteraine," tells some pretty big stories, and tells them well, although, as he says, he has been strictly excluded fiction from his pages. Here is the description of an accident to a well digger.

Falls are the kind of danger which always enter into the imagination when underground works are thought of. Nobody in France has forgotten the story of Giraud, who was excavating a well near Lyons in 1854. The poor fellow, dashed to the bottom of the hole by a fall of the ground from above, which had been perhaps insufficiently propped, beheld a sort of vault suddenly from above his head, which crushed him under its weight, and kept him prisoner together with his fellow workman. The question then was how to save these poor fellows. It was necessary to dig a new shaft near the first, and then to connect the two by means of a drift-way, which should strike it at the point where the accident had taken place. In spite of all the exertions which were made, a whole month was spent in bringing the operation to a close, for fresh falls occurred in the new workings themselves. Giraud and his comrade heard the noise of the picks, and replied to the workmen, thinking every moment that the hour of deliverance was at hand. Vain hope! The second man died. Hunger added its horrors to the sufferings of the survivor, as in the sad story of Ugo-lino.

Giraud, a person of greater energy than his companion, bore up. The corpse of his friend, which lay near him, poisoned the little air he had to breathe; but the desire to live sustained him. Neither hunger, nor this unpleasant proximity, cast down this man: he wished not to die. He carried on the contest for an entire month. Every moment it was expected that he would be reached, when some fresh accident happened, which rendered it necessary to begin the work anew. Giraud did not succumb; he replied distinctly to all the questions that were put to him. France, indeed, all Europe, watched the contest day after day, and a bulletin was published every evening of the day's progress. On the thirtieth day victory was achieved, and Giraud was saved. Pale, wan, and reduced to a skeleton, his body was a mass of sores. Gangrene had attacked all his limbs, caused by the corpse, which for three weeks had been rotting by his side. The unfortunate well-digger was carried to the hospital at Lyons, where, after lingering on for some time, he expired.

A New Cataract.

Mr. R. Brown writes to the London Times that Mr. C. B. Brown, of the Geological Survey of British Guiana, has discovered, on the Potaro river, a waterfall with a clear descent of 736 feet. The width of the river, 200 yards, above the fall, was 402 feet. The following is the description given:

As we saw the Fall I cannot imagine anything more beautiful. The central portion, which is never dry, forms a small horse shoe or retreating angle, and the water in this part preserves its consistency for a short distance from the ledge. But everywhere else, and here also at a few feet from the top, all semblance of water disappears, it breaks up, or blossoms, into fine foam or spray, which descends in the well-known rocket-like forms of the Staubbach and similar waterfalls, but multiplied a thousand times, into a small dark pool, over a semi-circular curtain of precipice deeply hollowed by the action of the spray. The cavern behind the Fall is the home of thousands of swallows, which issue from it in the morning, and may be seen returning in their multitudes at night. The Fall itself is one vast descending column of a fine, dry-looking, snow-white substance, bearing a resemblance, in color and consistency, to the snow of an avalanche, but surpassing all avalanches I have seen in size, and in the beauty of the forms taken by the material of the Fall. Rainbows of great splendor were observed, one from the front of the Fall in the morning, one from the summit in the afternoon; but this last reverted, forming a colored loop or ring, into which the whole mass seemed to precipitate itself and disappear, and dart out underneath, black and foaming, at the gorge and outlet of the pool.

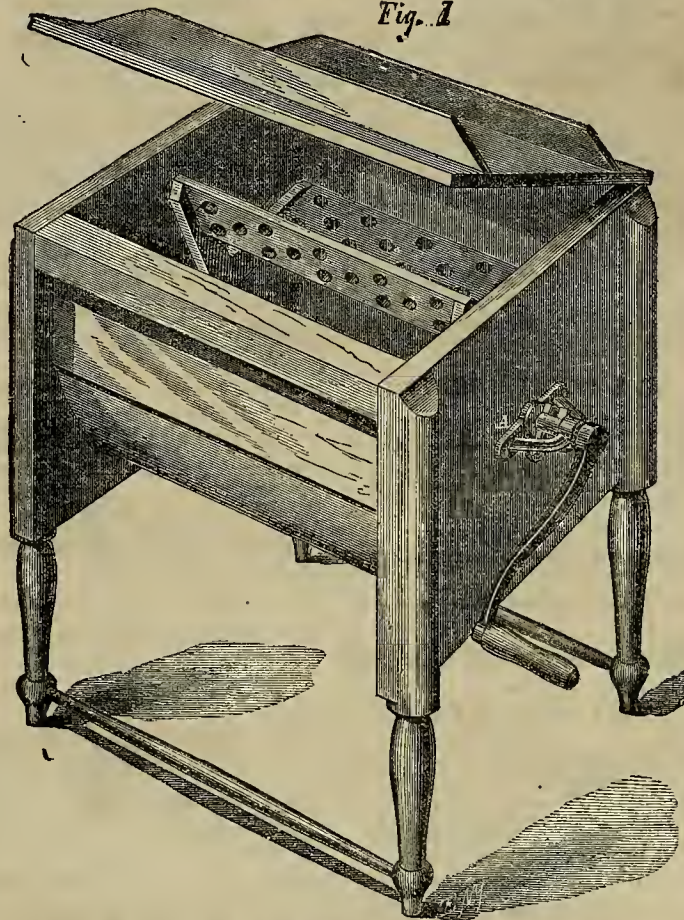
THE SHIP OF THE DESERT.—A party has left San Bernardino to visit the wreck of the ship on the Colorado Desert, near Los Palmos Station.

Churns and their Philosophy.

The various forms of churns may be classed under four divisions, as follows: 1st, those in which both the fluid and the containing vessel, with its agitators are in rotative motion; 2d, those in which the containing vessel is at rest, and the agitators in rotative motion horizontally; 3d, those in which the containing vessel is at rest and the agitators in rotative motion vertically; 4th, those in which the containing vessel is

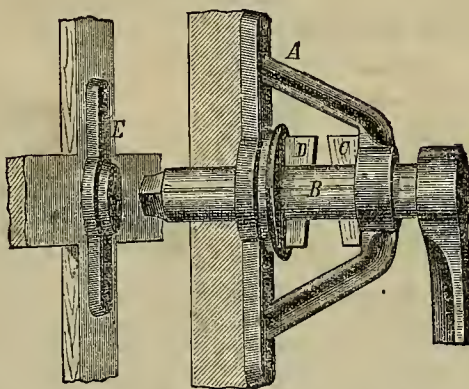
the rotative horizontal motion of the agitator. In reaching after these advantages the interior of the churn has been constructed entirely of wood, so that no corrosion may take place; it has been made smooth as possible, that the agitation may not be too violent or abrupt and that no recesses may be left, which will be difficult to clean. The dashers are four in number and perforated, so that the agitation may be perfect.

An examination of Fig. 2 will show a very



BLUST'S IMPROVED CHURN.

Fig. 2



at rest, with the agitators having a rectilinear, vertical motion.

There are various, in fact almost innumerable modifications of each of these classes or families, which like most other large families, have many "poor relations," from among which there are large opportunities for choice.

The chief point sought in agitating cream for producing butter, is the rupture of the oil or butter globules, suspended in the cream, and which, by that rupture are made to cohere in a semi-solid mass, so as to be separated from the fluid. Moreover this process must not be carried too far, as may be done by a too violent agitation, whereby the granulation of the butter will become destroyed, and an inferior article produced.

The churn herewith represented belongs to the second class, as above described, and the aim of the inventor has been to secure all possible advantages derivable from

convenient mode of adjustment of the shaft and dasher, whereby the same may be easily removed for more thorough cleaning.

The general form of the churn is shown in Fig. 1. Fig. 2 shows the mode of attaching the crank. A bracket, A, is screwed to the body of the churn, as shown in Figs. 1 and 2. This gives two bearings for the short shaft, B, Fig. 2, which is kept in place when in use by a key, C, driven through a slot in B. The annulus about the shaft is closed firmly against leakage by a rubber-faced metallic washer, kept tight by a second key, D.

The end of the short shaft, B, is squared to enter a mortise in a plate, E, screwed to the dasher arms; and by tapping out the key, C, it may be withdrawn and the dashers removed, while the churn is half full of milk, if desired.

The inventor claims that this churn breaks the cream easily and makes good butter, and that it churns with ease, so that a small child can work it; that it will churn a small or large quantity equally well; that it is very convenient for putting

in the cream and taking out the butter, and for cleaning after use; that the dasher can be removed at any time and the milk left in the churn, though it be full; and that the device combines all the merits of both the box and barrel churns, with several advantages over both.

Patented, by C. Blust, whom address for further information, at Lucas, Ohio.

Useful Receipts.

A HOME MADE PAINT FOR WORK.—Mr. J. U. Gouch, of Mokolunne Station, who has tried it, informs us of a superior composition for covering fences and other rough work, which can be made by the simple use of common whiting, lime, salt, and the mucilage of the prickly pear. The lime should be slacked, and while hot, ten pounds of whiting and five pounds of salt should be added. The mucilage is prepared by chopping up the leaves of the prickly pear, soaking them in water about twenty-four hours, and then drawing off the liquid. This liquid should be mixed with the ingredients until the whole is brought to the consistency of common paint. It adheres well to the walls of rooms, and is pronounced by our informant a very desirable article for outside use, as may be seen by examining old walls covered with it by the Spanish population of California many years ago.

CULTIVATED WILD OATS.—Michael O'Hara, of Pleasant Grove Creek, Placer county, has raised, this season, something over 1000 bushels of cultivated wild oats. These are said to be the best oats for hay and do well in the foot-hills. Mr. O'Hara has saved a lot of seed for sale.

RICHARD THREFAILL, of Stanislaus River, San Joaquin county, raised 46,000 sacks of wheat the past season. His samples exhibited at the State Fair were very good. The summer fallowed ground produced by far the most profitably. He has now 8,000 acres more summer fallowed.

HOW TO CLEAN ZINC.—Rub thoroughly with salt and vinegar. Another recommendation is to take lard and rub it on with a cloth, thoroughly; then rub dry with another cloth.

HOW TO REMOVE PLUM STAINS.—If you have a bed of tansy growing, spread the article upon same; or take a handful of tansy, tie it up in a cloth and boil with the goods. This will remove almost any stain.

FRIED BREAD.—Put into a common hieuit-pan a heaping teaspoonful of butter, and let it melt and spread over the pan; then take enough slices of bread (stale answers as well as new) to cover the bottom of the pan, and make a mixture to dip them in by beating well two eggs and pouring in milk enough to soak the bread; season it with a little pepper and salt—make the bread quite moist; then lay it in the butter and fry brown on one side, and, if too soft to turn, put them into the oven to brown on the top, and you will have a dish that serves for meat and potatoes, consisting of neither.

TO CITRONIZE GRAFFS.—Prepare clarified syrup by dissolving eight pounds of sugar with one quart of water, and then boil in this eight pounds of green Catawba or Isabella grapes until they begin to shrink, when they should be opened on dishes to cool. Keep the syrup boiling, and when approaching the usual consistency of good syrup, replace the grapes, boil about ten minutes, when they will become fit for the jars and for use during the summer and fall months. If to be kept for years, add a quarter of a pound more of sugar.

HOW TO CANDY CITRONS.—Can you, or any of the subscribers to the Press, tell me how to candy citrons? I have grown a few this season, and would like to candy some of them and save buying from the store for use in spice bread. You will understand what I mean, I hope, in saying candied citron; some people call it candied lemon.

BRETS are very nice cooked in the following manner: Slice cooked beets quite thin, put in a saucepan with some vinegar, water and a piece of butter, with sugar enough to make palatable. Any rule is impossible. Taste it, and if any ingredient is lacking, add more of it; salt a very little, and pepper; thicken the whole slightly; serve hot.

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Publishers and Patent Agents, No. 414 Clay street below Sansome, San Francisco.

Mining and Company Advt's.

Silver Sprout Mining Company.—Location of Works and Mines: Kearsarge District, Inyo County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 29th day of August, 1870, an assessment of twenty-five (25) cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary, at the office of the Company, No. 403 California street, San Francisco, Cal.

Any stock upon which said assessment shall remain unpaid on the eighteenth day of October, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Thursday, the first (1st) day of December, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

T. B. WINGARD, Secretary,
Office, 408 California street, San Francisco, Cal.

Mountain City Mining Company.—Location of Mine: Cope District, Elko County, State of Nevada.

Notice is hereby given that at a meeting of the Board of Trustees of said Company, held on the 29th day of September, 1870, an assessment of fifty cents per share was levied upon the capital stock of said Company, payable immediately in United States gold coin to the Secretary at the office of the Company, No. 206, Front Street.

Any stock upon which said assessment shall remain unpaid on the seventh day of November 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday the 28th day of Nov. 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

T. B. WINGARD, Secretary,
Office, No. 206, Front Street, San Francisco,
October 8, 41

Columbus Mining Company.—Location: Roach Hill, Placer County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the twenty-eighth day of September, 1870, an assessment of seventy-five (75) cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary, 419 California street, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on the second day of November, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Saturday, the nineteenth day of November, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

A. NOEL, Secretary,
Office, 419 California Street, San Francisco, Cal.

La Blanca Gold and Silver Mining Company.—Location of Works: District of Ures, State of Sonora, Mexico.

Notice is hereby given that the annual meeting of the Stockholders of the above named company will be held on Monday the tenth day of October 1870, at the office of the Company, No. 312 Front Street, San Francisco California, for the purpose of electing Trustees for the ensuing year, and for the transaction of such other business as shall properly come before the meeting.

By order of the President,
JOS. GOLDMAN, Secretary.

Land Purchasers' Association.

NOTICE.—At a meeting of the Board of Trustees of the Land Purchasers' Association, held Oct. 1st 1870, the following resolution was adopted by unanimous vote.

Resolved, That an assessment of ten dollars per share, gold coin, be, and the same is hereby levied, upon each and every share of the capital stock of the Land Purchasers' Association now held by subscribers thereto; being for the monthly installment falling due and payable Oct. 1st, 1870. Said assessment is payable on or before the thirty day of Oct. A. D. 1870, to JAMES F. CROSETT, Secretary, at the office of the Association, No. 304 Montgomery street, San Francisco.

Any stock upon which said assessment shall remain unpaid on the thirtieth day of October, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on the 25th day of November, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale.

J. F. CROSETT, Secretary.

GOING! GOING! GONE! Faster than the wind, a banner knocks down merchandise, neglect disposes of the teeth. Bid, therefore, for that prize of life, a perfect set, by brushing them regularly with SUGARON.

CONTINENTAL Life Insurance Co., 302 Montgomery street, corner of Pine.

U. S. A. The best Tonic known ! AMERICAN INDIAN ROOT BITTERS.



These BITTERS are extensively used in ALL first-class Saloons in the different localities where they have been introduced, and have taken the place of all others for

A Healthful Stimulant.

BEWARE OF COUNTERFEITS.

INQUIRE FOR

DR. I. H. WONSER'S

U. S. A.

American Indian Root Bitters.

None genuine without the Trade Mark "U. S. A."

PRINCIPAL DEPOT

645 Third Street, San Francisco,

WM. HAWKINS, Agent.

9v21-1am2m

Where they are manufactured.

A NEW REMEDY.

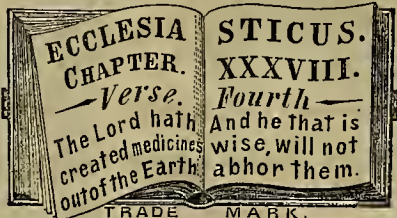
As this Preparation of these plants, lately made public (Patented June 23, 1870), but long proven in Siskiyou county, Cal., owes its efficiency entirely to its remarkable power of INCREASING THE INSENSIBLE PERSPIRATION, or, in other words, the VAPORY EXHALATIONS from the millions of minute pores of the EXTERNAL SKIN, from the crown of the head to the sole of the foot, it is all important that the direction to pass a sponge, or towel, dampened with salematus water, under the clothing, twice a week, or oftener, be attended to.

Also, that when taken by LADIES, for IMPROVING THE COMPLEXION, for which it is very successful, that it should be in half doses, often repeated; and that one of the Pills of Citrate of Iron and Gum Myrrh, which are beneath the bottom label of each bottle, be taken at night, much aiding in restoring Color in the Cheeks and Lips. To CHILDREN also, give it "little and often." It is agreeable to them in any way, but especially if sweetened a bit; and it is admirably suited to their Diseases, which generally are those of the MUCOUS MEMBRANES.

FOR the irritated throats of PUBLIC SPEAKERS, Lawyers, Ministers, Teachers, and FOR driving off threatened CONSUMPTION and Asthma, all Colds and Coughs; FOR irritated Stomachs, from Bad Liquor, Alkali Water, Strong Coffee, Saleratus Bread; FOR humors on the Skin, or MUDDY COMPLEXIONS, or, in a single sentence, FOR all Diseases of the MUCOUS MEMBRANES, the Surest, and by far the MOST PLEASANT MEDICINE yet found, in its TASTE and EFFECT, is

DR. FURBER'S CORDIAL OF MOUNTAIN BALM —AND— OREGON GRAPE, Two Plants, abounding on the base of, and on the Mountains surrounding MOUNT SHASTA, CALIFORNIA,

For all of the purposes of the various PREPARATIONS OF SASSAPARILLA, richer in quality and more efficient as a RESTORER OF GOOD BLOOD, and acting equally as surely,



and as well on the LUNGS as on the STOMACH, is superior to other COUGH MEDICINES, by bringing BOTH to bear with the stimulated action of the WHOLE SKIN in throwing off Disease of either.

FOR SALE AT SAN FRANCISCO BY
R. H. McDONALD & CO., Druggists.

INVALIDS of any of the classes named above will find this worthy of TRIAL. Its virtues, as above asserted, not being visionary, but improved from the SHASTA INDIANS' knowledge and use of these PLANTS for centuries back, made known by them to us.

Such an Invalid, residing at a distance, wishing to try it, had better procure a package of one-fourth of a dozen, which can be done by sending in letter to the above a \$5 greenback, and directing that the package should be sent by WELLS, Fargo & Co's EXPRESS to that office which is nearest to the invalid's residence, and that person will be sure to get it.

PHOTOGRAPHY.—FOR CABINET PHOTOGRAPHS, or Enamined Cards, of the very best quality, you must go to the NEW YORK GALLERY, Nos. 25 and 27 Third street, San Francisco. Every picture warranted to give satisfaction.

B. F. HOWLAND,

BOILER FELTING saves twenty-five per cent. of fuel. BERRY & PLACE'S MACHINERY DEPOT, No. 114 California street.

1v21-3m

BLOCK TIN and SOLDER WIRE, broom wire, piano covering wire, etc., manufactured by Joshua Gray, 437 Brannan street.

1v419-3m

THOMAS O'NEIL Ornamental Glass Cutter, No. 10 Stevenson street, up stairs. Stained, Ground and Ornamental Cut Glass to order on reasonable terms.

1v420

HAVING had numerous applications to purchase the right to manufacture CHAMPAGNE MEAD (the great temperance drink), we will state that we are now prepared to sell State and County Rights on reasonable terms.

San Francisco, July 10, 1870.

2v21-3m

"SPALDING'S GLUE" has now taken the place of all Cement and Mutillages.

MARAVILLA COCOA.—For Breakfast.—The Globe says: "Various imitations and manufacturers have attempted to attain a reputation for their prepared Cocoes, but we doubt whether any thorough success has been achieved until Messrs. Taylor Brothers discovered the extraordinary qualities of 'Maravilla' Cocoa. Adapting their perfect system of preparation to this finest of all species of the Theobroma they have produced an article which surpasses every other Cocoa in the market. Entire solubility, a delicate aroma, and a rare concentration of the purest elements of nutrition, distinguish the Maravilla Cocoa above all others. For homeopaths and invalids we could not recommend a more agreeable or valuable beverage." Sold in packets only by all Grocers, of whom also may be had Taylor Brothers Original Homeopathic Cocoa and Soluble Chocolate, Steam Mills—Brick Lane, London.

5v20-17

SCIENTIFIC PRESS.—We are pleased to learn that the circulation of this valuable journal is rapidly increasing in all the States and territories on the Pacific Coast. The efforts of the proprietors of the SCIENTIFIC PRESS, Messrs. Dewey & Co., to furnish a reliable paper for the miner, farmer, mechanic and inventor, are successful, and their paper has obtained an enviable reputation for ability, and truthfulness. L. P. McCarty, travelling and corresponding agent for the SCIENTIFIC PRESS, is now in town, and has succeeded in securing a large addition to its subscription list in Nevada and Placer counties.—Nevada Gazette.

New Advertisements.

Every Advertisement in this journal is published throughout its entire Mining, Agricultural, Monthly and Quarterly Editions.

Thursday Evening.

Owing to the time necessary to mail the present large edition of the SCIENTIFIC PRESS, we are obliged to go to press on Thursday evening—which is the very latest hour we can receive advertisements.

BILLIARDS.



MESSRS. PHELAN & COLLENDER,

The well-known Billiard Table Manufacturers of New York, have established at 541 Market street, this city an extensive branch of their business, where they propose to keep constantly on hand the largest and most complete assortment of Billiard Tables, Cloth, Cues, etc., on this coast. The Tables are of the latest styles and size recently adopted in the Eastern States, are manufactured in the best possible manner, and furnished with Pheban's latest improved Cushions. All goods sold will be of the best quality, and the prices fully as low as any other house in the business. The public are invited to visit our warerooms and inspect our stock.

15v213a

To Hydraulic Miners.

Last season I patented my improved discharge pipe for Hydraulic Mining. I manufactured and sold six of them. They were used by the parties whose answers to inquiries as to merits or demerits, find hereunto appended.

Holding such opinions it is not strange that Gold Run miners think the Press correspondent got things slightly mixed when he represented them as preferring Craig's Globe to the Dictator.

RECOMMENDATIONS:

Your Patent Discharge Pipe known as the Dictator exceeds my expectation. I am now using a 4-inch nozzle at 200 feet pressure and can move my pipe in any direction with one hand. I consider it a perfect success and far ahead of the Globe Joint.

H. KELSEY,
Jehosophat Co., Dutch Flat.

I fully endorse Mr. Kelsey's opinion and intend to use the one I have on my upper bench and get one of your large ones for the bottom next season.

J. PHILLIPS,
Central Co., Dutch Flat.

Your Dictator gives perfect satisfaction. Get me another ready against water comes.

W. JUDD,
Ind. Hill, Gold Run.

The Dictator is a perfect success. I shall want two for the Kearsarge Claim next season.

H. H. BROWN,
Gold Run.

Get me two Dictators of the large size ready against next season. I shall run both at Indiana Hill and lay aside the small one I have. This is sufficient answer as to how I like my pipe.

JASON REINKS,
Indiana Hill.

I pronounce the Dictator ahead of the Globe. I would perhaps use Craig's Globe if I could get nothing else. I am working at over 300 feet pressure and using a 4-inch nozzle, yet can move my pipe easily with one hand.

W. O. BROWN, foreman,
Golden Gate and Church Claims, Gold Run.

We want you to get ready for us two more of your large size Dictators for the Cedar Claim against next season.

BROGAN & CO.,
Gold Run.

These Joints being protected by letters patent dated June 1870, I will prosecute all parties infringing whether by manufacture or use.

I will guarantee against all suits for infringement by parties holding untenable patents and wishing by tactics of law to secure by intimidation a monopoly for an inferior article. For particulars apply to

R. HOSKINS, Dutch Flat, Placer Co.
15v212a

SHORT DAYS ! LONG NIGHTS !

Gentlemen Residing in the County, who

desire to have the comfort and pleasure of a

BRILLIANT AND SAFE LIGHT IN THEIR HOUSES

during the winter months, and store and saloon keepers to whom LIGHT will bring business, should at once avail themselves of the automatic domestic works of the

PACIFIC PNEUMATIC GAS COMPANY.

Send for pamphlet with full Description, plate, Home and Scientific Testimonials and Price List.

Office, 206 Sansome Street, San Francisco.
15v21-3m

Wentworth's American Hardware

AND

METAL TRADE DIRECTORY.

Embracing a complete list of the Manufacturers and Dealers in IRON, STEEL, HANNAWARE, AGRICULTURAL IMPLEMENTS, BLACKSMITH, BRONZE &c. in the United States, and all goods manufactured wholly or in part from the BASE METALS. A work of nearly 500 quarto pages, printed on tinted paper, and handsomely bound in green and gilt. Just published. A few copies for sale. Sent to any address charges paid on receipt of price, \$6.00. Extra binding \$8.00. Every Manufacturer and Dealer in Iron, Steel and Hardware, interests, and every Iron Founder and Machinist in the United States should have this valuable work. Address,

WENTWORTH & CO., Publishers.

19 Central Street, Boston Mass.
P. O. Box 4278.
15v21-2a

San Francisco Metal Market.

PRICES FOR INVOICES

Jobbing prices rule from ten to fifteen per cent. higher than the following quotations.

THURSDAY, Oct. 6, 1870.

Iron.—Duty: Pig, \$9 per ton; Railroad, 60c per 100 lbs.; Bar, 1 1/4c per lb; Sheet, polished, 3c per lb; common, 1 1/2c per lb; Plate, 1 1/2c per lb; Pipe, 1 1/2c per lb; Galvanized, 2 1/2c per lb.

Scotch and Eng. Pig Iron, per ton... 28 @ \$30 00

White Pig, per ton... 26 00 @ 28 00

Refined Bar, had assortment, per lb... 03 @ —

Refined Bar, good assortment, per lb... 04 @ —

Boiler, No. 1 to 4... 04 1/2 @ —

Plate, No. 5 to 9... 04 1/2 @ —

Sheet, No. 10 to 13... 04 1/2 @ —

Sheet, No. 14 to 20... 05 @ —

Sheet, No. 24 to 27... 05 @ —

Copper.—Duty: Sheathing, 3 1/2c per lb; Pig and Bar, 2 1/2c per lb.

Sheathing, per lb... 26 @ —

Sheathing, Yellow, per lb... 20 @ —

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Composition Nails... 21 @ —

Composition Bolts... 21 @ —

Tr. Plates.—Duty: 25 per cent. ad valorem.

Plates, Charcoal, 1X, per box... 12 00 @ —

Plates, 1 1/2 Charcoal... 10 00 @ 10 50

Roading Plates... 10 00 @ 10 50

Bacon Tin, Slabs, per lb... 04 @ —

STEEL.—English Cast Steel, per lb... 15 @ —

QUICKSILVER.—per lb... 70 @ —

LEAD.—Pig, per lb... 7 1/2 @ —

Sheet... 10 @ —

Pipe... 11 @ —

Bar... 9 @ —

ZINC.—Sheet, per lb... 10 1/2 @ —

BORAX... 35 @ —

Machinists and Foundries.

FULTON

Foundry and Iron Works.

HINCKLEY & CO.,

MANUFACTURERS OF

STEAM ENGINES,

Quartz, Flour and Saw Mills,

Hayes' Improved Steam Pump, Brodie's Improved Crusher, Mining Pumps, Amalgamators, and all kinds of Machinery.

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Iron and Locomotive Works.

INCORPORATED.....APRIL 30, 1868.

CAPITAL.....\$1,000,000.

Corner of Beale and Howard Streets, SAN FRANCISCO.

Steam Engine Builders, Hoiler Makers, Machinists, Foundrymen, and Manufacturers of Car Wheels equal to the best imported, and guaranteed equal to Eastern Wheels.

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24-17-97

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CROSS' PATENT BOILER FEEDER AND SEDIMENT COLLECTOR,

WILCOX'S PATENT WATER LIFTERS,

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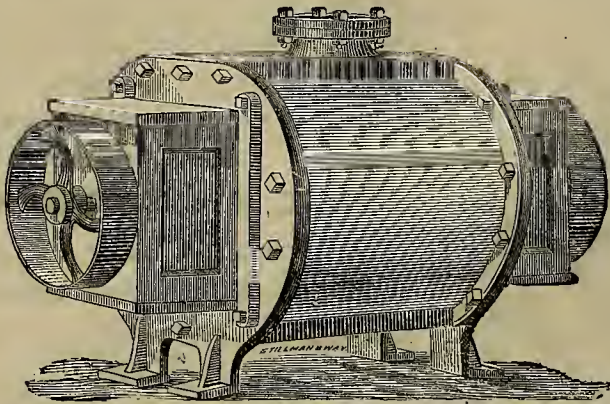
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MANUFACTURED BY KEEP & BARGION,

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Patented Nov. 1st, 1864; July 24, 1866; and Oct. 9, 1868.

Awarded the First Premium at the Paris Exposition.



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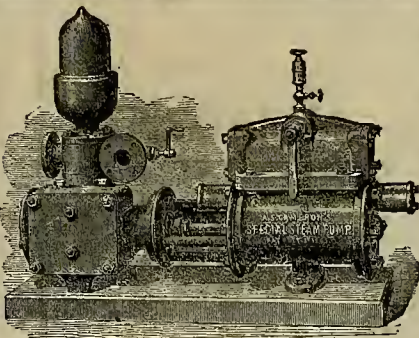
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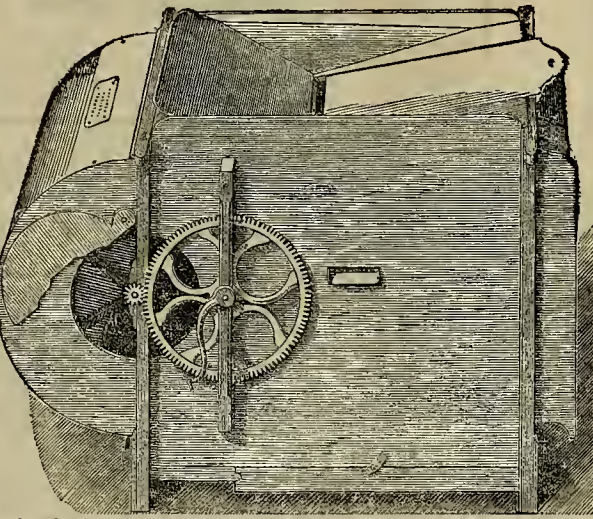
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THE undersigned having purchased of the Patentes, WIRTS & SWIFT, of Hudson, Michigan, their right to this mill, Patented June 23d, 1869, for California, Oregon, Washington Territory, Montana, Utah, New Mexico and Arizona, wishes to call the attention of FARMERS, MILLERS AND GRAIN DEALERS to one of THE GREATEST IMPROVEMENTS OF THE AGE for cleaning and separating grain. While it combines all the essential qualities of a first-class FANNING MILL, it also far exceeds anything that has ever been invented for the separation of grain. It has been thoroughly tested on all the different kinds of mixed grain, separating all the different seeds in almost a magical manner, placing them in their different compartments in the mill arranged for their reception, at the same time taking out all the Mustard, Grass Seed, Barley and Oats, and making two distinct qualities of wheat if desired, thereby selecting superior, large plump and perfect kernels for SEEN WHEAT, and all the small and cut kernels, such as merchantable wheat, is deposited in another compartment. By the use of this mill a great quantity of wheat usually sown that has been cleaned in the common mills will be saved to the farmer, as the cut or shrunken kernels will never germinate.

The above mentioned Novelty Mill is the only mill known to possess all these superior qualifications, and was exhibited and tested at the last Michigan State Fair held at Jackson, Michigan, September 21, 22, and 23, 1869, and bore away the palm over some thirty other different mills from all parts of the United States, including the famous Dickey Mill of Racine, Wisconsin. All who have witnessed here the operations of the NOVELTY MILL, declare it perfection, and the most beneficial invention to the Farmers, Millers, and Grain Dealers ever introduced on the Pacific Coast. The farmers in Santa Clara County, are loud in its praise, and also in other parts of the State where it is being introduced. No. 1 Mill, complete, is capable of cleaning 25 tons of grain per day; No. 2 Mill, 16 tons; No. 3 Mill, 8 tons. A large number of recommendations and certificates of the practical working of the mill will be furnished. Circulars containing references sent free by mail. N. B. Town, County, or State Rights for saloon favorable terms. For further particulars apply to

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GREATLY REDUCED RATES.

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MARINE AND STATIONARY,

IRON AND BRASS CASTINGS,

Mining Machinery of Every Description,

And all other classes of work generally done at first-class establishments, manufactured by us at the lowest prices, and of the best quality.

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The Gardner Automatic Stop Governor will give you perfect regularity of speed and positive insurance against all accidents, resulting from Slipping or Breaking of the Governor or driving helts. Cost less than any other FIRST-CLASS GOVERNOR.

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Will save 80 per cent. of Tallow, is automatic in its action and will give the Cylinder a steady supply of Tallow or Oil whenever the Engine is in motion. No writer or leakage. Cost from \$5 to \$40, according to size.

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Will save 90 per cent. of Oil. They are easily applied to all Shafting and all other hearings. For further information apply to

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New York Metal Market.

[CORRECTED WEEKLY FROM THE AMERICAN ARTISAN.]

[New York City, Saturday, Sept. 24, 1870.

IRON.

Pig, Scotch, No. 1 (cash), per ton...	\$33 00	@	\$35 50
Pig, American, No. 1 (cash).....	33 00	@	34 00
Pig, American, No. 2.....	29 00	@	31 00
Swedish, ordinary sizes.....	110 00	@	125 00
Common.....	75 00	@	80 00
Refined.....	77 50	@	95 00
Rods.....	85 00	@	120 00
Horse-shoe.....	55 00	@	—
Hoop.....	105 00	@	150 00
Scroll.....	97 50	@	135 00
Nail-rods, per lb.....	7 00	@	7 1/4
Spring.....	7 1/4	@	—
Tire.....	8 1/4	@	—

STEEL.

Bars, best cast, warranted, per lb....	17 00	@	18 00
Sheet, best cast.....	18 00	@	—
Sheet, second quality.....	16 00	@	—
Sheet, third quality.....	14 00	@	—
Saw-plates, circular.....	27 00	@	—
Double-shear, warranted.....	23 00	@	—
Single-shear.....	19 00	@	—
Montague & Co. (cast bars).....	18 00	@	—
Machinery, round.....	11 00	@	—
German, best.....	11 00	@	—
German, goat.....	10 00	@	—
German, eagle.....	16 00	@	—
Blister, warranted.....	16 00	@	—
Blister, common.....	15 00	@	—
Jessop & Sons', common.....	17 00	@	—
Double-refined.....	26 1/2	@	—
Stone-ax shapes.....	26 1/2	@	—

Machinery.

THE WILSON

Patent Steam Stamp Mill.

This extraordinary Mill, now so justly popular in the East, is now offered to the miners of the Pacific Coast. Having been in operation now for about two and a half years, the Company feel confident that the

WILSON STEAM STAMP MILL,

For Durability, Efficiency,

AND ECONOMY OF WORKING,

HAS NO EQUAL.

The Wilson Steam Stamp Mill is the only Steam Mill that has had the severe ordeal of practical working, and proved itself eminently successful. It is now in operation in several of the Eastern States and Territories, and gaining an enviable popularity. The whole machine is so simple as to be readily understood by the most ordinary minds. In fact, its simplicity is its durability. The expense of crushing rock or cement with this Mill is less than one-half the expense of any other Stamp Mill, and less than one-half the cost. For further particulars inquire of

FURMAN R. WILSON,

San Francisco.

Or of THE WILSON STEAM STAMP MILL CO., 326 Walnut street, Philadelphia, Pa.

Notice.—All persons are hereby warned not to manufacture or use any Steam Stamp Mills that are an infringement on the Wilson Patents, as they will be prosecuted to the utmost rigor of the law.

F. R. WILSON,

20919-11 Supt. W. P. S. S. M. Co., Philadelphia.

VARNEY'S

PATENT AMALGAMATOR

These Machines Stand Unrivaled.

For rapidity pulverizing and amalgamating ores, they have no equal. No effort has been, or will be spared, to have them constructed in the most perfect manner, and of the great number now in operation, not one has ever required repairs. The constant and increasing demand for them is sufficient evidence of their merits. They are constructed so as to apply steam directly into the pulp, or with steam bottoms, as desired.

This Amalgamator Operates as Follows.

The pan being filled, the motion of the muller forces the pulp to the center, where it is drawn down through the aperture and between the grinding surfaces. Thence it is thrown to the periphery into the quicksilver. The curved plates again draw it to the center, where it passes down, and to the circumference as before. Thus it is constantly passing a regular flow between the grinding surfaces and into the quicksilver, until the ore is reduced to an impalpable powder, and the metal amalgamated.

Settlers made on the same principle excel all others. They bring the pulp so constantly and perfectly in contact with quicksilver, that the particles are rapidly and completely absorbed.

Millmen are invited to examine these pans and settlers for themselves, at the office, 229 Fremont Street, San Francisco.

SCIENTIFIC PRESS.—This paper comes to us this week with a full double sheet extra. It contains a full map of California, a map of the San Joaquin valley, with a brief description and statement of the productions of each county, besides the usual mining, agricultural and economic intelligence. It is a paper that should be in the hands of every farmer, miner and manufacturer on this coast.—New Transcript.

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FOR MINING OR FIRE ENGINES.

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for mining, as it is the only one that is sure to bear its guarantee with it, and protect its purchaser from liability to infringement suits; it is the oldest, best and cheapest in use, as all will testify who have used it.

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of 12 stamps. It requires no frame to put it up. Guaranteed to crush 1 1/2 to 3 tons per day to the stamp. The best Battery ever used for amalgamating gold, or crushing silver ores, dry or wet. Can be put up on a mine in running order for one-half the price of the straight battery, and in three days after its arrival at the mine. 12-stamp battery, 20,000 pounds, with frame complete, price \$3,000; 6-stamp battery, 8,000 pounds, price \$1,800. All prices named to be paid in currency. Every mill run at shop before shipping.

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All the various styles of Pans, Amalgamators, Separators, Settlers, Concentrators, Dry or Wet for working Gold, Silver or Copper Ores, the same as built in California and at lower prices. SHOES and DIES made of the best white iron. Send sizes and we will make patterns and forward Shoes and Dies at low prices. Engines, Boilers and fixtures, and other Machinery made to order. Also, Howland's Patent Rotary Valve Double or Single Engines.

Irons for the best California 10-stamp mill, straight battery, complete, \$1,600. Irons for low mortar, old style mill, much less. Send for a Circular.

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[ESTABLISHED 1820.]

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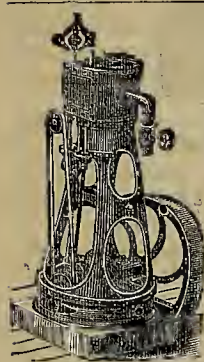
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For ores assay.	We pay on ing per ton.	For ores a-say.	We pay on ing per ton.
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\$50.....	30 "	\$250.....	70 "
\$60.....	35 "	\$300.....	75 "
\$70.....	40 "	\$350.....	80 "
\$80.....	45 "	\$400.....	85 "
\$90.....	50 "	\$450.....	90 "
\$100.....	55 "	\$500.....	95 "
\$110.....	60 "	\$550.....	100 "
\$120.....	65 "	\$600.....	105 "
\$130.....	70 "	\$650.....	110 "
\$140.....	75 "	\$700.....	115 "
\$150.....	80 "	\$750.....	120 "
\$160.....	85 "	\$800.....	125 "
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J. J. DUNNE, Manager.
Reno, Oct. 1st, 1870.



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RAILROAD AND OTHER IRON
—AND—
Every Variety of Shafting,

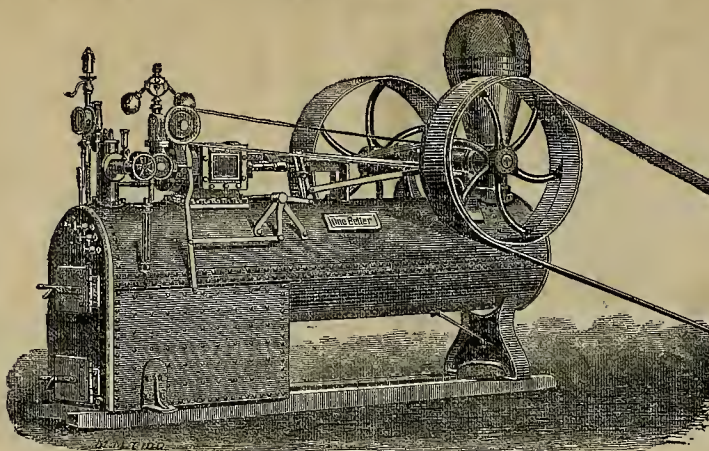
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Of every description and size.
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3 to 20 Horse Power on Carriages and Beds.

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TREADWELL & CO., Sole Agents,

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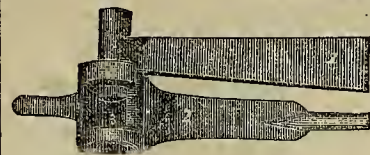
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WIESTER & CO., PATENT BROKERS,

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This coupling can be attached in a few minutes and it is absolutely certain that it will not release itself while the horse is attached. It is durable, noiseless, in good taste, and in short, a perfect Thill Coupling in every respect. The best recommendation that we can send out is the Coupling itself. A full set will be sent to any one for \$5, and the money will be returned if they are not liked. Shop Rights for sale.

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Mining, Farming and Mechanic Arts.

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VOLUME XXI.
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Illustrated Reading.

An Hydraulic Improvement.

There are many practical difficulties experienced in hydraulic mining (as well as in other business) which trouble the operator a long time, and to obviate which various more or less complicated expedients are resorted to, until some one hits on an idea so simple that every one knows of it before, of course, only no one had happened to think of it.

Our correspondent, L. P. Mc., in one of his interesting letters about the hydraulic mines in Nevada county, gave a description of a little device which we think will interest many of our readers. The expansion and contraction of long pipes are so great that, when the lengths are firmly fastened together, the pipe twists and bends and often breaks. Now, in many localities, to get around this difficulty, the miners lay



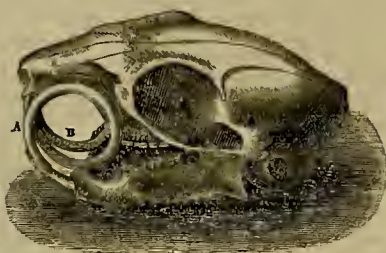
the pipe in wavy lines, so that it forms curves, and thus has a chance to contract and expand without altering the position of the two ends of the whole pipe or causing serious trouble. But some bright miner (we have not his name) invented the device (here illustrated) for connecting the lengths of the pipe, and this our correspondent pronounces "the neatest and simplest device for the purpose in the country."

The two pieces, A A, of pipe to be connected are placed from four to eight inches apart and carefully enveloped with a piece of heavy duck, B, wrapped once and a half times around. Over this is wrapped a piece of sheet iron, from eight inches to two feet wide, provided with from one to three clasps, D, so constructed as to form a sloping key-hole fastened by a wedge-shaped key. In the cut one clasp is shown. The pipe-lengths can close up or open out inside of this device without doing injury or leaking. By introducing this connection every fifty or one hundred feet no trouble will be experienced from the contraction and expansion of the pipe.

RAILWAYS AND THE WAR.—The N. Y. Tribune correspondent says that more is expected of steam in this campaign than it will accomplish. The Eastern Railway used almost superhuman efforts to carry 400,000 men to Strasburg and Metz. It occupied fourteen days. A train can not convey more than one battalion, one squadron or a single battery at a time, or as a mean term, 500 men with their equipment. This would require 800 trains for a total of 400,000 men. It has demanded extraordinary efforts to convey this "food for cannon" to the frontier, and but for them four months would have been consumed in concentrating them there from Paris alone.

Curious Teeth.

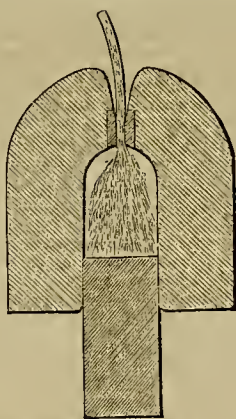
Mr. George W. Thompson recently shot a ground squirrel on his ranch, three miles north of Brooklyn, Alameda county, whose mouth presented a queer sight. The two upper front teeth were elongated and curved



in a curious manner. One of them had grown in a complete circle, extending around about one and a quarter times, on one side of the head, while the other had curved up through the roof of the mouth and broken through the skull on one side of the nose. Mr. Thompson preserved the skull, which he brought to the office of the SCIENTIFIC PRESS, and an excellent representation of which our engraver's skill enables us to give to our readers.

The probability is that these did not

FIG. 1.



APPARATUS FOR SQUIRTING SOLID METALS.

originally fit with the lower teeth in the ordinary way and hence, not being exposed to the usual wear and tear, continued to grow until they assumed their present curious shape. Similar instances of the kind are by no means unknown, but we do not remember seeing any case quite as remarkable as this. Such instances are, however, extremely interesting and the specimen is worthy of a prominent place in any cabinet.

At the Colorado Fair, the first premium for the best collection of gold ore was taken by Boltail ore, and the second by Cons. Gregory, both at Central City. The first premium for silver ore went to the Cariboo mines.

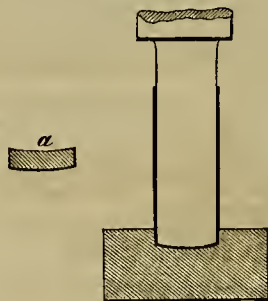
JOSHUA E. CLAYTON has succeeded W. P. Holmes as Superintendent of the Original Hidden Treasure.

Malleability and Ductility of Metals.

LECTURE BY JOHN ANDERSON, O. E.

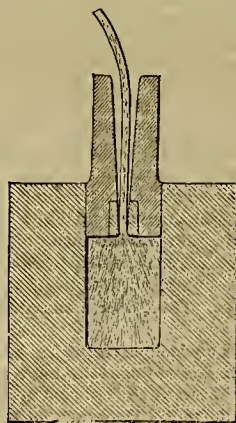
In order readily to understand the two remarkable properties of malleability and ductility, which are now turned to such good account in almost every branch of the mechanical arts, it will be convenient to think of the malleable or ductile metals, such as lead, tin, copper, wrought iron, and steel, as substances that can be moved about like dough, that can be spread out as with a roller, that can be elongated by drawing out with the hands, that can be squirt-

FIG. 3.



ed through a hole by pressure like macaroni, or even that the dough can be pushed or gathered back again into its original mass of dough—that is, if proper means

FIG. 2.



are employed to perform the operation gently, and this may be done without breaking the continuity of the particles of which the mass is composed. Such a statement may well seem fabulous, but it will be my province now to enumerate many things in connection with metal much more wonderful than what I have said regarding the dough, and even more strange than the change in dough when overtaken by the biscuit state from the baking process.

It is difficult to understand the possibility of the malleable and ductile properties without fully realizing that their particles are fluid, in a certain sense, and that this is due to the molecular arrangement, not so fluid as water, tar, or bitumen, but still a fluid which will flow in obedience to sufficient pressure; and just as those fluids require time when acted upon by gravity, so the metals require greater time and more

force than gravity, the rate of flow being determined by the nature of the metal, the softer metals requiring less pressure and flowing faster than the harder; and in the case of steel the flow is extremely slow, but with pressure, time and patience, it also may be overcome and made to flow gently into any shape or form while in the solid condition.

For a number of years the flowing property of the softer solid metals, such as lead and tin, has been taken advantage of very extensively, in the squirting of pipes and otherwise; and for thousands of years, the malleable and ductile metals have been under treatment by man, and a vast number of facts have thus accumulated; but it is due to M. Tresca, of Paris, to say that he has done more, perhaps, than any other man in regard to the investigation of the natural laws by which the flow of solids is governed under varying circumstances; and the most interesting point of all is the great similarity that exists between the flow of the solid metal and that of the flow of water, that in the flow of solids from an orifice there are the same converging currents, eddies, and that the quantity of metal issuing is dependent on the same conditions as water when issuing from orifices of different arrangement, and only differs in degree.

From time immemorial man has been familiar with gold as a flowing metal, both as malleable and ductile. It is in consequence of these properties that gold may be beaten into leaves so thin that it takes two hundred and ninety thousand to make one inch in thickness, or it can be drawn into a wire so fine that an ounce weight would extend a distance of fifty miles.—The flowing action which takes place in coining a sovereign or other coin is very apparent. This process is not the mere stamping which is generally considered to be, but the particles of the gold have really to flow in the same manner as a liquid, from one part of the die to another, in order to fill up the deeper recesses of the die from the shallow part of the space, and so form the perfect coin from the rush of gold penetrating everywhere. As, however, gold is not one of the most common metals of applied mechanics, its presence in the workshop is less seldom met with than some of the others which have been already enumerated.

The metals lead and tin are both malleable and ductile, but their malleability, or spreading out property, is much greater than their ductility, or drawing property; and both being soft, and having the flowing property in a pre-eminent degree, they can thus be squirted or rolled to any extent, or into any form of pipe or sheet, so that the want of ductility is scarcely felt.

The diagram (Fig. 1.) will explain the nature of apparatus which is employed to squirt these metals when in the solid state. It is a powerful syringe filled with solid metal, with pressure on the piston varying according to the dimensions; in some the force required is two thousand tons. In

(CONTINUED ON PAGE 276.)

Communications.

IN THIS DEPARTMENT we invite the FREE DISCUSSION of all proper subjects—correspondents alone being responsible for the ideas they advance.

Notes of Travel in Nevada County.

[WRITTEN FOR THE SCIENTIFIC PRESS.]

God's Country.

God's Country, so called by the miners, probably got the name from its lofty elevation, and the difficulty experienced in getting to it(?) It consists of that portion of the country lying between Washington and South Fork, the highest elevation of which is from 6,000 to 7,000 feet above the level of the sea, and is approached only (from either direction eight miles around) by grade of from 300 to 400 feet to the mile. In this section is the Jim mine and mill, owned by Loyd & Finley, of Grass Valley, and J. D. Lord, of Sacramento, and superintended by Thos. Loyd. They have been running a 5-stamp mill steadily for two years, crushing an average of 13 tons of rock every 24 hours; they employ about 20 men, have a well defined ledge from 2 to 4 feet thick, and have taken out an average of \$5,000 per month since they commenced, 50 per cent. of which is *net*. They have two short tunnels, but are now running one which, when done, will be 1,000 feet long, and will cost from \$3,000 to \$5,000. This will drain the mine for 150 feet below its working, and keep it dry for the next five years.

South Fork, once a very prosperous mining camp, is now almost deserted. The Birchville mine, at this place, has just completed new hoisting works, and will likely make it lively here this winter.

Eureka South.

Eureka South or Graniteville, as the place is also called, has in its neighborhood several mines which are yielding handsome returns to their owners. This district, once famous for its rich gravel mines, has been dormant for several years, but the existence of paying quartz ledges has made quite a stir there, and all that is needed to develop the claims is a few energetic and sagacious men with moderate capital.

The old Dillon mine, about 2 miles from Eureka South, was first located and worked about ten years ago, and quartz paying about \$24 per ton taken out. Notwithstanding, the owners fell in debt and the mine was not worked for a long time. About 2 years ago it came into other hands and work was recommenced, and the mine is now so well and thoroughly opened, a depth of about 170 feet being reached, that the value of the claim can easily be ascertained. Recently the further sinking was stopped as the owners intend to put up hoisting works which would reduce the expense of working the mine very materially. Messrs. Bandman & Neilson, agents of the Giant Powder Co. of San Francisco, are the proprietors, and L. Stuart is Superintendent.

The Norfolk and Mohawk mine near here, owned by San Francisco capitalists, and superintended by L. Stuart, has fine hoisting works, an incline shaft down 155 feet, and a ledge 4 ft. thick that pays \$12 per ton, and has paid as high as \$30. At present it is lying idle, but the company expect daily to proceed with the work.

The Rocky Glen Quartz mine, owned by Black & Irwin, M. W. Irwin, Supt., is situated 1½ miles south of Graniteville, and at present working 30 men. They have two tunnels, the longest of which is 1,025 feet, and strikes the mine at a depth of 220 feet. They have a 10-stamp mill, with which they crush 25 tons per day (24 hours); the rock averages \$8 per ton; the vein is 2 to 7 feet wide. There are many more mines here, all of which are considered valuable, awaiting the erection of mills.

Eureka South (Graniteville P. O.) although an important mining camp for the last 15 years, has never had the U. S. Mail brought there by the Government; the nearest point was Moore's Flat. I believe at the last session of Congress a bill was passed allowing them a tri-weekly mail, which will soon be let. Hon. A. A. Sargent has the credit of the bill.

Moore's Flat.

Moore's Flat is in Eureka Township, 8 miles south of Graniteville and 20 miles north of Nevada City. It was almost entirely burnt down in July, 1869, previous to which time it contained over 500 inhabitants. Now not half that number reside here. Several smaller camps surround it,—Orleans Flat and Snow Point on the north, and Woolsey's Flat and Jerico on the south, none of which is more than 1½ miles distant. The deep channel known as the North Bloomfield Channel, first makes its appearance at Suow Point, and from there extends through a dozen thriving mining camps. Jerico is a small camp just started midway between Woolsey's and Moore's Flat, and is destined to be a place to hail from, and not be sent to. The

principal claims here are the Illinois, Keegan Williams & Co., proprietors; Eagle, Mowrey & Co., proprietors; Paradise, Knotwell & Atwater, proprietors. The last named was once a drift claim, now worked by hydraulic process, but just at present is lying idle for lack of capital to put the proper machinery upon it. Several other claims have been temporarily suspended, awaiting the decision of the law suit pending in reference to Monitor infringements.

Marks & Co., bankers at this place, buy nearly all the gold dust, and ship about \$25,000 monthly. I am informed that, a few years ago, this same house shipped from here over a million dollars annually. This ridge is the best watered of any in the State. The Eureka Lake Consolidated Water Co.'s ditch cost \$2,000,000. The head office is in New York. The North Bloomfield Water & Mining Co. (of which I will write in my next) has spent something like \$800,000.

Relief Hill.

Relief Hill, distant three miles southeast of North Bloomfield, and seven miles from Moore's Flat, is a thriving mining district, with a deep gravel deposit mined by hydraulic process. The proprietors of the mines of this locality are deserving of great credit for the energy and perseverance which has characterized their labor for the past few years, giving them deep bed-rock tunnels, which now furnish sufficient fall for the successful working of the mines. The principal mining companies here located are as follows:

Union Company, B. E. Reasoner, foreman, employs ten men in drift and hydraulic diggings, and yields about one ounce daily to the man employed.

Situated next above the Union, is the Eagle Company, Thomas Conn, foreman, giving employment to ten men. This company have the longest tunnel in the hill, the same being 1,500 feet in length, 80 feet below the bank of gravel now washed. But they expect better yield of gold further back in the hill, as they are not now over the main channel. Hope they may strike it big.

The What Cheer company's mine is above the Eagle. This company employs about 15 men, and has run drifts further into the hill than any other company, and found such prospects, as to guarantee the purchase, a few months since, of adjoining ground, paying therefor \$12,000.

The North Star mine, belongs to the Eureka Lake Ditch Company, is situated on the same channel, next above the What Cheer, and is said to be paying well.

It is the writer's opinion that the mines in this locality are good, and will return first-class dividends in the future. L. P. Mc.

Bull Run District.

[WRITTEN FOR THE SCIENTIFIC PRESS.]

Editors Press:—Our district is progressing satisfactorily. The population is increasing, two coming to one who goes out. Improvements have been made in many respects. A town has been laid out and a number of lots have been sold. This camp has many advantages. In ascending White Rock Canyon, which is on the west side of Bull Run Mountain, you follow up a good stream which affords about 500 inches of water, and on each side of which abundance of timber is to be found. Up about two miles, you come to the town of White Rock (as yet a small mining camp, but growing rapidly) where there is a flat of about 160 acres with good accommodations for a mill. Almost all the principal mines are on the west side of the mountain with a down grade to the mill site. The stream continues up to within a mile of the highest peak, which is nearly 11,000 feet above the sea. The Porter mine is 9,000 feet up.

The mines are looking better than ever. The Blue Jacket has a tunnel in 100 feet, and a shaft down 54 feet on the vein and in good milling ore all the way. The width of the ledge has not yet been determined, but appears to be at least 25 feet wide. Ore shipped hence to Reno nets \$140 per ton. The Johnson mine lately struck a rich streak which assays all the way from \$1,000 to \$18,000. This streak is 4 inches wide and grows wider as it descends. The mineral is almost pure black sulphuret of silver. The streak is on the lower part of the ledge, which is 4 feet wide and is of the same general character, only not so rich. Some average rock yielded \$26 gold and \$77 silver, or \$103 in all, per ton.

The long-felt want of the district is now about to be supplied in the line of mills. Mr. P. F. Davis (formerly of the Utica mill) is about to erect a 5-stamp mill here, and a Mr. Crosby, of Chicago, is preparing to erect a 20-stamp mill. We have plenty of mines to keep these running constantly. The only drawback is that the miners generally are poor men, without sufficient capital to carry on operations until they can get returns from their ores. The mills, however, will render it possible to push things on a larger scale. The ores will require roasting; but still, with the mills in operation, we shall be able to demonstrate to capitalists that there is a good field open for their inspection. BULL RUN MINER.

September, 1870.

All About Montana.

[WRITTEN FOR THE SCIENTIFIC PRESS.]

Ens. Press:—Having business in Montana, I thought it would be well to keep your readers posted as to what I might see and hear while passing through the various mining camps of the New North West. I last wrote you from Corinne, and now am writing from Helena.

The Stage Line.

I came on by the line of Gilmer and Saulsbury, making the distance of 462 miles in 4 days and 3 nights. This used to be the old Overland Stage Company's line, and Wells, Fargo and Co., had it, but the present proprietors purchased it of the latter firm in 1869. Mr. Gilmer was formerly a stage-driver on the route, but distinguished himself so much as to get to be a division agent, being intelligent and capable. The good quality of the road surprised me. There are 42 stations between Corinne and Helena, and 500 horses are at work daily, 50 extra ones being kept for changes, etc. The number of agents, drivers and stock tenders on the main road amounts to 70. The company carry Wells, Fargo's mail, and have contracts for carrying the U. S. mails over some 1,500 miles. They also run a line to Fort Benton (140 miles) three times a week, employing here 100 horses; likewise a branch road to Virginia City from Moies station (on the main road), a distance of 28 miles; and a line, 25 miles long, to Bannock, a flourishing mining place. Their division agents are D. W. Robbins (from Corinne to Ryan's station), E. M. Pollinger (from Ryan's station through Helena to Fort Benton), and W. H. Taylor (from Helena to the Cedar Creek mines), all of whom I found careful and competent men. On this line are the best stables of the kind which I have seen, with good accommodations for hostlers and horses. The road was well stocked, the time made was good, and the treatment I received was excellent.

Helena.

In July, 1864, John Cowan discovered the Last Chance Gulch, one of the most remarkable in the Territory, in which this town is situated. Numbers flocked to the place, which had a population estimated at 8,000 in September, 1866. But other excitements have drawn people away, although the mines here are still worked, and the census now allows the place 3,713 inhabitants. Some two years ago the city suffered terribly from a large fire which destroyed the business portion of the town, but the energy and enterprise of the people were quickened thereby, and the town was soon rebuilt with substantial buildings of brick and stone. There are now two fine large hotels, the International and the St. Louis, a large Court House, a theatre, a National Bank and three others doing a large business, etc. Considerable is done in the line of manufacturing jewelers, and I have seen some beautiful work with moss agates, which are so abundant in the Territory.

A most creditable thing for the city is the Helena Library Association, which has a cabinet of curiosities, keeps a complete file of weekly papers from different quarters, etc., etc. That such an institution should be sustained, speaks well for the people here.

The foundry and machine shop of Hendrie & Co., manufactures all kinds of quartz mill machinery, does job work of varied description, and is a well conducted affair. It is well arranged and turns out good work, better probably than you think down in your city, for the managers understand their business and take a pride in their work. Business is not particularly brisk just now, but people hope for livelier times soon.

There are two well-established journals published in this place. The *Daily Rocky Mountain Gazette*, published by Wilkinson, Ronan & Co., is ably edited by E. S. Wilkinson and M. Maginnis. It is an enterprising sheet, as is shown by the fact that the proprietors have just bought a fine steam engine and will hereafter print their paper by steam power. This is the first steam printing press in the territory, and the first sheet printed thereon was sold, at auction, for the sum of \$105, to Mr. G. E. McKiernan of the city. The driving shaft, pulleys, etc., of the 10-horse engine were constructed by Mr. Bateman at Hendrie's foundry. Mr. Sam Richardson started the first steam press in California and Nevada, and also in this territory. The other paper is the *Daily and Weekly Herald* and is edited by Mr. R. C. Fisk. The proprietors intend to keep up with the progress of the times, and have already purchased the engine and machinery in order to quickly follow the lead of their neighbor.

The Fair Association.

A most important body is the Montana Agricultural, Mineral and Mechanical Association, organized for the purpose of "acquiring, holding and improving grounds in the vicinity of Helena, upon which to hold Territorial Fairs, and for other purposes." The officers are J. F. Forbis, President; C. Hedges, Vice President; E. W. Carpenter, Secretary; and D. C. Corbin, Treasurer. The first annual fair will be held towards the end of September, when some \$10,000 are offered in premiums. The fair grounds are on the Patterson Ranch, 3 miles north east of the city, and comprise some 80 acres, with trees and water, forming, I understand, a beautiful place for the purpose. I hope it will be a success. Such associations, under proper management, stimulate to renewed exertion by showing what has been done, what is done, and much of what probably can be done. Success to the fair!

Mining—Shipments.

Mining near the city is somewhat limited, but few claims being worked at present. Water has been very scarce and this has stopped work to a great extent. But the "Park Ditch" is being constructed, and it is hoped that next season the gulches will be supplied with water. Holtis & Brothers have now a mill at work sawing lumber near the line of the ditch, and its speedy completion is to be hoped for.

I visited the claims of Taylor, Thompson & Co., near the city. Here some 60 men are employed night and day and the deposit is worked down some 22 feet. In order to get the necessary fall, the gravel must be hauled up (two) inclines, 300 feet long, and thence dumped into the sluice boxes. The engine is 15-horse. The claims are very remunerative, as I am given to understand.

The next claim visited was that of Getchell Bros., about a quarter of a mile below the one just spoken of. Here 45 men work day and night, and bed rock has been found at a depth of 25 feet. The gravel is hauled up inclines for washing, as just mentioned. Near this is another large claim where no work is being done.

From this centre (Helena) large shipments are made. One day last week S. H. Bohm & Co., one of the principal banking houses here which does a large business and has branches in various parts of the territory, shipped one brick valued at \$41,859. During the month of July, the shipments of this one firm amounted in the aggregate to \$248,730. E. H. Wilson & Co. have just made a shipment from California of 75,000 lbs. of rice, beans, groceries, provisions and wines. These are but single items; but Helena does a large trade and is a commercial centre for the territory. Freight charges I may add, from San Francisco to Corinne are 1½ cents per lb., and from Corinne to Helena, 3 to 3½ cents. Most of the goods, however, come from the East.

Unionville.

This is a small town located about 4 miles south of Helena. The most prominent lode is known as the Whitlatch Union vein, running almost at right angles with, and crossing near the heads of the placer gulches in the immediate neighborhood of Helena. This was discovered in the winter of 1864 and has produced more gold than any other in the territory. The country rock is granite, and a short distance to the north is a belt of limestone. The width varies from 2 to 11 feet. The ore is a splendid looking quartz containing gold holding a small percentage of silver. Iron and copper pyrites occur and tellurite of gold has been found in considerable quantities.

The Columbia M. Co. have 35 men at work and are taking out 30 tons daily. They have 2,500 tons on the dump. Labor being higher in summer than winter, operations are apt to be on a larger scale during the winter months. They have a fine 30-stamp mill running day and night and working an average of 1½ tons to the stamp in 24 hours; but only 20 stamps are crushing at present. There is considerable difficulty in getting a sufficient supply of water. There are 3 pair of Hungerford's pans and 2 settlers. Eleven men are employed. The tailings assay \$40 and yield \$25 in the pans. The bullion averages 75 per ct. gold, 20 per ct. silver and 5 per ct. copper. The hills are heavily timbered and wood costs \$4 to \$5 per cord delivered at the mill. I give (as an example) the result of 9½ days run: Date of clean-up, Feb. 21, 1870. No. tons crushed, 217; per day 22.9. Weight of bullion before melting, 696.34 oz. Troy; after melting, 636.18. Fineness, 767½. Value of gold, \$10,093.41. Yield per ton, \$46.51. A 7½-days run, ending Aug. 11th, of 200 tons yielded \$4,470.85 or \$22.35 per ton. The General Superintendent is B. H. Tatten, and the Assistant Superintendent is M. S. Seip.

The National Mining and Exploring Co., of New York, are putting up large hoisting and pumping works, their mine being full of water. They have an 8-inch Double Plunger Lifting Pump, and two portable engines of 8 and 15 horse power. The building is of stone. Their mill, about the first built in this section, has 20 stamps with copper plates and no pans. They have a compound engine of 25-horse power. The mill is not going at present. Mr. Allen Danforth is General Superintendent.

C. Hendrie and Co. have a location on this same lode and are at work, with 20 men, in ore averaging \$15 to \$20 per ton, after having gone through 200 feet of poor rock. They have to raise 1,000 gallons of water daily and the amount increases as they go down. They have a 20-stamp mill, run by a 20-horse power engine, the machinery having been made at Hendrie's foundry, of which I have previously spoken. I believe that they are making money. Mr. Hendrie has been engaged in business in former years in Colorado and Montana, and is a Pioneer here. He is noted for his energy, perseverance and ability, and as he generally makes a thing go when he has put his shoulder to the wheel, I have no doubt but what he will be successful here. He certainly deserves to be.

Grizzly Gulch.

At Grizzly Gulch, one mile west of Unionville, are several quartz mills, idle at present, but probably to be at work in the winter. The I. X. L. Co. have a shaft down 330 feet, and a 20-stamp mill, with over 1,800 cords of wood on hand. The Diamond City mill, situated in the same canyon, is also idle at present. S. S. Harvey is the Superintendent.

About the famous Cedar Creek mines, whither I am now going, I shall shortly have something to say. W. H. M.

Helena, September, 1870.

Mechanical Progress.

NON-RIGID SUPPORTS FOR CYLINDRICAL BOILERS.—We find in *Engineering*, a paper prepared by Jeremiah Head for discussion at the Iron and Steel Institute, in which is described a method of obviating one of the chief objections to cylindrical boilers viz. the liability to "break their backs." We quote:—"It consists in so arranging the supports of the boiler, that they follow it through each change of form without materially increasing or relaxing their hold. The cast iron hearers are retained, also the suspension rods, but the latter are lengthened; and the ends upon them, instead of resting upon the hearers, rest each upon a volute spring encircling the suspension rod, and seated upon the bearer. The boiler rests upon 9 volute springs, each carrying 1½ tons, with a compression of 1½ in., and is entirely free of other support. Except upon yielding supports, it is quite impossible to support long structures subject to great alterations of heat, without ultimate damage. Only two difficulties occurred in carrying out this plan in practice. The first was, how to prevent breakage of the various connexions with the mains. Inasmuch as the boiler was now free to rise and fall, and change its form according to circumstances, the steam, feed, and sludge branches connected with their respective mains might be expected to snap off. But this difficulty was met by simply adopting circumferential instead of direct connexions. The second difficulty was this. It is obvious that if 1½ tons each were resting upon the volute springs, each one must be exerting constantly an upward force to that extent. But at the end of the week, when the water constituting ¾ of the whole weight was allowed to run off, the springs would certainly lift the boiler so lightened out of its position to a proportionate extent. The boiler lifted, the brickwork would be loosened, and leaky flues would be the result. But this danger was overcome by inserting between each bearer and the top of the boiler, and fixed to the latter, two adjustable set bolts, called *gags*, which permit a certain rise, and then come in contact with the bearer, stopping further lifting by the springs."

A NEW HORSE SHOE MACHINE.—The Providence Journal of Sept. 23d gives these notes of a machine invented by a mechanic of that city. "The iron of which the shoes are made is rolled to required dimensions for the several sizes in bars about twelve feet long, with indentures for the nails, each bar divided into ten shoe shapes. These bars are heated in a long furnace to a white heat, and passed directly to the machine, which works two bars at a time, requiring two men to feed the bars to the machine with iron tongs. The process of cutting off, thickening the heels, forming the shape around the dies, and making the concave on the back of the shoe, is rapidly and perfectly performed by one operation of the machine, and the shoe drops into an iron receptacle completed, with the exception of punching the nail holes, which is performed afterward by machines specially adapted to that purpose. The new machine above described weighs five tons, requires four horse-power to run it when in full operation, and has the capacity of making one ton of horse shoes per hour."

IMPROVED CAR WHEEL.—The Philadelphia correspondent of the *Iron Age*, Sept. 29th, thus describes a car wheel recently patented: "The wheel is cast in three parts—the hub, the web, and a plate to which the hub is bolted. Between the axle and the hub is a ring of solid rubber, three inches wide and one inch thick. The effect of this arrangement is that a sudden blow on the web is communicated to the rubber, and thence to the axle. For this wheel it is claimed that it is cheaper, safer, and more comfortable. It reduces the jar to a minimum. In rounding curves the oscillation is scarcely noticeable, and the noise is deadened."

A NEW GOVERNOR.—*Engineering*, of London, illustrates Bourne's Spherical Governor. It consists essentially of an elastic hollow ball, made of brass 1-16 of an inch thick, in segments, and so arranged that when the engine begins to "race," the centrifugal force causes the ball to take the form of an oblate spheroid. As the lower pole is fixed, the motion takes place at the upper, depressing the spindle and closing the valve in proportion to the increased speed.

THE MISTAKE OF THE STEEL MAKERS.—W. Mattieu Williams says, in *Nature*, that the advocates of steel making processes have acted upon the idea that all that is necessary is to have a certain percentage of carbon in the product. Bessemer himself, at first, expected to stop the decarbonization at the proper moment, leaving the necessary proportion of carbon to make steel of the pig iron. In this way he failed to make good steel; and the failure was attributed to the difficulty of determining the right moment to stop the "blow." For this reason it was, that the plan of first completely eliminating the carbon, and then adding a known percentage of it by means of spiegeleisen, was adopted. The fact really is, however, that the carbon must be wholly removed, from English pig-iron, in order that the other impurities may be got rid of. If any phosphorus, sulphur, or silicon remain, the product is unfit for steel purposes. Not even Dr. Percy alludes to the necessity of complete decarbonization as a means of removing the silicon. It is not the superior skill of the Swedish steel makers that enables them to produce steel directly by the Bessemer process; but the fact that they have a different material to start with.

ELLERSHAUSEN.—Of this American puddling process, which was sometime since described in the Press, London *Engineering* remarks as follows, while noting a recent trial of it at the Dowlais Iron Works, in presence of the members of the Iron and Steel Institute:—"The difficulties which present themselves under the actual conditions of work carried on upon a large scale are very considerable. It is not possible to select materials so as to be under perfect control, and properly proportioned to each other in quantities and qualities of all the different elements and compounds which must be simultaneously acted upon in order to produce the desired result. The temperature of the liquid iron is not favorable to the reduction of the powdered ore, and the presence of a considerable quantity of silica which will be found in the majority of the richer iron ores in this country will materially affect the wished-for results in the subsequent processes, and it is more than probable that the ultimate results will be the production of a large amount of black cinder or slag, being a rich silicate of iron, and containing probably all the iron belonging to the ore, and some further addition of iron which must have been abstracted from the pig iron itself in a complicated manner. * * In any case the process is still in its first stages of experimental progress, and cannot aspire to be ranked among the practical realities of iron metallurgy, so far, at least, as its application in this country is concerned."

HOT BLAST FOR BLOW-PIPE USE.—W. Skey has experimented with the hot blast in place of the usual cold one, in the production of the blow-pipe flame. The effect was remarkable. He gives some results in the *Chemical News*, from which we quote: "The temperature of the blast was approximately, 500° Fah.; the diameter of the jet, regulating its issue, was one-thirtieth of an inch; the combustible for receiving the blast was acetone. This flame manifested a very marked superiority over the common blow-pipe flame; substances difficult to fuse in the latter, magnetite, potash-felapar, mica, readily yielded under these circumstances; while thick glass tubes, half an inch in diameter, and hard German glass tubes were tractable to an eminent degree. Carrying my test experiments still further I found several substances for the fusion of which the oxyhydrogen flame or some equivalent of it in heating power is said to be indispensable, also yielded before the blow-pipe flame thus urged; for instance, platinum, pipe clay, fire clay, agate, opal, flint. Several samples of each were tried, and always with the same results; it could not well be, therefore, that the fusibility of any of these substances was due to the accidental presence of foreign matter in more than usual quantity. * * The results of these experiments urge me to recommend for trial the substitution of heated air for oxygen in most of those cases where this gas is now employed in conjunction with hydrogen or other combustible matter as a generator of heat or light; for instance: 1st. In the metallurgy of platinum that part of it where the metal has to be fused; also in soldering platinum stills for sulphuric acid works. 2d. The fusion of alumina in the manufacture of certain gems. 3d. In the production of the Drummond and Bude lights."

Scientific Progress.

THE EXTINCT ELEPHANT ON THE YUKON.—The following is from W. H. Dall's new book on Alaska:—"I picked up near the village a large portion of the skull of the extinct elephant (*Elephas primigenius*). These bones are not so common as the teeth and tusk, being found on the surface only, and usually much decayed; while the bones of the musk-ox and fossil buffalo found in the same situations are much better preserved, and sometimes retain some of the animal matter in the bone. The natives have no tradition of any other large animal than the reindeer and moose, and regard the elephant and musk-ox bones as the remains of dead 'devils.' The tusks are not so well preserved as those found in Siberia, which are usually buried in the earth."

MAGNETISM AND SURFACE ACTION.—The following experiment is described by Prof. A. M. Meyer in an article entitled "Researches in Electro-Magnetism" published in the *Am. Journal of Science and Arts*, for September:—"About 200 1-20 inch wires were pressed together as tightly as could be by binding them in a bundle with silken cord, and the deflection they caused in the needle, when magnetized in the helix, noted; they were now taken apart and bound as tightly as before around a wooden cylinder about 1 inch diameter; and being magnetized again in the helix with same strength of current, the bundle caused a far greater deflection in the needle than when it acted without the central wooden cylinder. I consider this experiment as very conclusive of the surface action of magnetism, for in the two measures we used one and the same mass of metal, subjected to exactly the same magnetizing influence, and only differing in the extent of exterior surface existing during the two experiments."

PREHISTORIC ARCHEOLOGY IN GREECE.—A letter from George Finlay, LL.D., at Athens, is given in *Silliman's Journal* for September. The writer has made explorations in many parts of Greece, and the Archipelago, and found everywhere chips of obsidian, similar to those which have been picked up on the tumulus at Marathon, and supposed to be Persian arrow-heads. He has at various times published notices of these; and he has since collected several specimens of stone implements, such as axes, chisels, etc., similar to those found in the Swiss lake dwellings. He suggests the importance of explorations for traces of the lake dwellings described by Herodotus as existing in Macedonia. We quote the concluding paragraph of the letter:—"The stone period has been divided into a paleolithic and neolithic period. In western Europe, particularly in France and England, numerous remains of stone implements of the paleolithic period have been found in strata with the bones of the mammoth and other extinct animals. But I am not aware that any stone implements that can be attributed with any certainty to this period, have yet been discovered in Greece, though bones of these animals have been found in several places in great quantities both in Attica, Euboea and Arcadia. All the stone implements that have fallen under my notice consist of specimens that belong to the neolithic or polished-stone period, and many display considerable skill in their workmanship, being composed of the hardest stones."

ATOMIC WEIGHTS OF THE EARTHLY METALS.—The University of Göttingen offers a prize of 500 thalers, until Aug. 31st, 1872, for the best essay containing a "new and exact determination" of the above. A critical revision of previous investigations in this direction is required at the same time. "Theories upon the constitution of matter have yielded no lasting results. An induction from the results of many exact investigations is needed, in order to answer the question, so important for philosophical interests of the most diverse character, whether the known chemical elements are to be regarded as originally different substances, or as derived in some manner from the same fundamental material, and how, in both cases, the formulae which would express their characteristic properties are to be arranged as members of a series. The most important preface to this induction is the exact determination of the atomic weights of these elements."

THE CRITICAL TEMPERATURE OF GASES.—The following, upon a subject to which we have before alluded in the Press, is from the opening address of Prof. Roscoe, F.R.S., before Section B, of the British Association on the 15th ult:—"No opinion would appear to have been more firmly established than that of the existence of three separate states or conditions of matter, viz., the solid, the liquid, and the gaseous. A body capable of existing in two or more of these states was thought to pass suddenly from one to the other by absorption or emission of heat, or by alteration of the superincumbent pressure. Dr. Andrews has shown us how false are our views on this fundamental property of matter, for he has proved that a large number of, and probably all, easily condensable gases or vapors possess a critical point of temperature at and above which no increase of pressure can be made to effect a change into what we call the liquid state, the body remaining as a homogeneous fluid; whilst below this critical temperature certain increase of pressure always effects a separation into two layers of liquid and gaseous matter. Thus with carbonic acid, the point of critical temperature is 30.92 deg. Cent., and with each given substance this point is a specific one, each vapor exhibiting rapid changes of volume and flickering movements when the temperature or pressure was changed, but showing no separation into two layers. Under these circumstances it is impossible to say that the body exists either in the state of a gas or a liquid; it appears to be in a condition intermediate between the two. Thus carbonic acid under the pressure of 108 atmospheres, and at 35.5 deg. Cent., is reduced to the 1.430th of the volume which it occupies at one atmosphere, it has undergone a regular and unbroken contraction, and it is a uniform fluid; if we now reduce the temperature below 31 deg. Cent. the liquid condition is assumed without any sudden change of volume or any abrupt evolution of heat."

CORRESPONDING FORMS OF SELENIUM AND SULPHUR.—Rathke places the insoluble black selenium with the rhombic variety of sulphur, and the red amorphous selenium with the insoluble amorphous form of sulphur. As in the case of sulphur, the latter variety of selenium is produced by the decomposition of selenidionates (solutions of selenium in alkaline sulphites) by acids; by the action of water on selenium chlorid; and by the sudden cooling of fused selenium. So on the other hand, by the slow decomposition of a solution of potassium selenid, distinct crystals of black selenium are produced, precisely as when by the similar decomposition of alkaline sulphides, large rhombic crystals of sulphur separate. Though red selenium is more stable than the corresponding form of sulphur, yet, like this, it passes into the other variety on raising the temperature to 100° C., with a distinct evolution of heat. The specific gravity of selenium in these forms, is as follows: For the black variety, 4.80 to 4.81; the red, crystallized from carbon disulphid, (and corresponding to monoclinic sulphur), 4.46 to 4.51; the red, amorphous, 4.26. Agreeing here, also, with the corresponding forms of sulphur.—*Ann. Ch. Pharm.*

THE LAURENTIAN GRAPHITE OF ORGANIC ORIGIN.—Dr. Dawson thus concludes a paper upon this subject:—"We may sum up these facts and considerations in the following statements:—First, that somewhat obscure traces of organic structure can be detected in the Laurentian graphite; secondly, that the general arrangement and microscopic structure of the substance corresponds with that of the carbonaceous and bituminous matters in marine formations of more modern date; thirdly, that if the Laurentian graphite has been derived from vegetable matter, it has only undergone a metamorphosis similar in kind to that which organic matter in metamorphosed sediment of later age has experienced; fourthly, that the association of the graphitic matter with organic limestone, beds of iron ore, and metallic sulphides greatly strengthens the probability of its vegetable origin; fifthly, that when we consider the immense thickness and extent of the Eozoic and graphitic limestones and iron-ore deposits of the Laurentian, if we admit the organic origin of the limestone and graphite, we must be prepared to believe that the life of that early period, though it may have existed under low forms, was most copiously developed, and that it equalled, perhaps surpassed, in its results, in the way of geological accumulation, that of any subsequent period."

Mining Summary.

The following information is gleaned mostly from journals published in the interior, in close proximity to the mines mentioned.

California.

ALPINE COUNTY.

ITEMS.—*Miner*, Oct. 1st: The casing of the Tarsbish lode has been struck in Silver Glance tunnel.... Ore of low grade still encountered in Monitor No. 3. As great depth is being attained, the grade it is thought will improve soon.... Active operations are soon to begin on the Globe, and on a mill therefor. Mr. White, the inventor of the new chloridizing furnace, is expected in a few days with the President.

BUTTE COUNTY.

GOOD CLEAN UP.—*Oroville Record*, Oct. 8th: Gaskill & Bowers made a clean up on Ohio Flat, Friday last, which netted \$16,000. They have been running a tunnel for some time, and this is their second clean up.

LAST LOAD.—The last load of iron pipe for the Spring Valley Water Co., at Cherokee, will be placed on the wagons at the depot this morning. The work of laying will probably be completed in a week or two.

RIVER.—The river claim of Russ Johnson & Co., on the North Fork, is being worked, with rich dirt in depth from 8 to 20 feet. J. & Co., flume the North Fork every Summer.

EL DORADO COUNTY.

GOLD DUST.—*Placerville Democrat*, 8th: There was shipped through Wells, Fargo & Co., during the first week in this month, gold dust to the amount of \$11,715.

INYO COUNTY.

KEARSARGE MINE.—*Independent* Oct. 3d: This is upon the almost vertical face of the mountain, giving it the best position for working to great depths through short tunnels, obviating all need for boisting works. The tunnel from which came the main portion of the rich ore that has been worked, is near the summit of the ridge and at an elevation of 4,000 feet above the valley. The lowest of the three tunnels, a thousand feet below this, was in 250 feet, when recently a 3-foot ledge was struck which is all milling ore assaying from \$100 to \$2000 per ton. The ore from the upper tunnels is loaded on mules from the dump at the middle one, and packed down a two-mile trail to the mill 2000 feet below in the canyon. The mine is in good shape. The shipment of fine bullion per Express last week, was 3,720 ounces.

CERRO GORDO.—The new reduction works of Mr. Beaudry, started up Thursday. The furnaces have been steadily running since, and are producing 80 to 100 bars per day.

BELSHAW.—There have been hauled from Belshaw furnace 1,800 bars of lead down to the lake, for loading down ward-bound teams. There are about 1,000 more at the works, and the number is increasing at the rate of 100 each day.

KERN COUNTY.

HAVILAH.—*Cor. of Tulare Times*, Oct. 8th: The Jo, Walker never looked so well as at present. The new shaft is now 300 feet below the surface, and fifteen or twenty below the old works. In the bottom is a ledge, seven feet in width, of pay rock which exceeds in richness anything yet taken from the mine. The St. John's mine, at Sage-land, has been steadily paying for some time. A steam pump is needed and measures have been taken to procure one. The Esmeralda mill is still idle for want of water. At Kernville, one mill is running on surface rock from the Big Blue which yields only three dollars per ton, but the ledge is enormous, and is being worked by an open cut sixty to one hundred feet in width. The gold is so generally diffused through the mass that there is no waste rock. McKidney has returned to take charge of his works near Havilah. This property was sold to Dalton two years ago on conditions which were never complied with.

NEVADA COUNTY.

PINGREY MINE.—*Transcript*, Oct. 5th:—This is at the mouth of Canyon Creek. The ledge is eight to fifteen feet thick, and is opened up 55 feet. The rock by mill process has prospected \$200, and selected rock \$1,200 to \$1,500 per ton. Messrs. Pingrey & Boshow have 60 tons ready for crushing. They have purchased the five-stamp mill, on Orleans ledge.

SOUTH YUBA GRAVEL CO.—Same of 7th: This Co., having found prospects in their shaft as high as \$150 to the pan, will begin immediately to run drifts in different directions into the gravel.

ALISON RANCH.—Captain J. D. Woodworth, now superintendent, has started in to thoroughly open the mine to the depth

of 800 feet below the surface. The work is to be done by contract. A cross cut is being run as a starter. Captain W. is putting in a 15-inch plunger and will take out all the pumps now used except the 16-inch pump. The mine is looking first rate. A complete survey and map are to be made.

KANSAS.—Same of 8th: This Co. has found excellent prospects in the gravel at the bottom of the works. Jerry Brown washed from one pan 75 cents. The ground contains boulders, and they are prospecting for clearer ground.

EUREKA TOWNSHIP.—Same of 11th: We learn that in the flat just above Orleans, indications for rich gravel mines more promising than ever, have been found recently.

THE RIDGE.—*Gazette*, 3d: Recent prospecting by the South Yuba and Filibuster companies prove that a very large gravel channel runs directly up and down the ridge, at and above Hennefauth's. On each side the bed rock rises high, pitches into the hill, and encloses the channel. The South Yuba Co., on the north side found bed rock 95 feet from the surface with a prospect of four bits to the pan from the gravel, at a distance of 400 feet up the ridge from the rim; the Filibuster struck the bed rock also, and obtained as good a prospect from the gravel at the bottom. The Lower stratum is three to eight feet thick, and can only be worked by drifting. The volcanic deposit over the channel in some places must be four or five hundred feet in depth. The channel can be tapped and worked by tunnels from the north side. The Filibuster already have a tunnel in 240 feet, and 100 more will carry them to the channel. The South Yuba, estimate that 400 feet will reach the lower gravel in their claims.

SURVEY.—Same of 6th: J. Currier, has made a survey for a bed rock tunnel for the North Bloomfield Gravel Co., to be 4,800 feet in length, and strike the claims 200 feet below their present level. The estimated cost is \$150,000, and the time necessary three to five years.

SALE.—Same of 7th: The Sailor Flat gravel claims at Blue Tent, owned by Felton & Tomer, have been sold to Peck & Co. for \$5,300. The claims have been worked since 1855, and will last twenty-five years.

GOOD RUN.—*Grass Valley Union*, Oct. 8th: The North Star mine yesterday gave a second melting for its month's run. Gold to the value of about \$13,500 was put into bars. The under ledge is evidently the main gold bearer.

EMPIRE MINE.—Same of 9th:—We have authorized information that the hoisting works will be immediately put in repair, and the machinery will commence to run at a very early day.

WEBSTER & CO.'S CLAIMS.—The gravel is looking well. The Co. are running in bed rock, and leaving the gravel over-bed. A washing of the bed rock taken up has been made, and considerable gold was taken out. We saw a chipa weighing 12 dw. which came out Friday.

DROMEDARY MINE.—Same of 11th: The ledge in the bottom of the shaft is 2½ feet thick and full of sulphurets, with an occasional sprinkle of free gold.

EUREKA MINE.—About \$18,000 were cleaned up for last week. This on the first week of its sixth year, while settlements were being made. Under-ground, everything looks well.

PLACER COUNTY.

COLFAX.—*Cor. of Stars and Stripes*, Oct. 6th: The Rising Sun claim has a 5-stamp mill, a shaft 300 feet deep, and several tunnels on the ledge at different levels. From the eastern drift of the 300-foot level, rock of high grade is now being taken. The ledge is at that point from 18 to 24 inches thick. Since operations commenced, in the spring of '68, some \$65,000 has been taken out, which with the assessments makes the amount expended \$96,500. At regularly alternating and about equal intervals, they have had quartz of great richness—ranging from one hundred to five hundred dollars per ton—but between these the rock is almost absolutely barren. The Montana claim is on a ledge 300 yards from the Rising Sun mill. The Co. has bought the Mountain Co.'s mill at Forest Hill, and will put it up at once on their ledge, which is 4 feet thick.

SAN BERNARDINO COUNTY.

FOR CLARKE DISTRICT.—*Guardian*, Oct. 1st: A large number of strangers have been in town during the past week, on their way to these mines. Many have left, and others follow in a few days. The news is enticing.

SHASTA COUNTY.

SOUTH FORK.—*Courier*, Oct. 8th: Several parties from the lower country have visited the South Fork mines within the last few days, and may shortly obtain interests in one or more of the prominent ledges.

TRINITY COUNTY.

THE SHAFT.—*Journal*, Oct. 1st: The prospect shaft is down one hundred feet. The last forty feet has been sunk through a blue gravel, sometimes cemented.

QUARTZ MILL.—Silcox, of Indian Creek, has succeeded in making arrangements with parties at French Gulch to put him up a five-stamp mill, to be run by water. It is said that the rock now being taken from the ledge he intends working, will pay upwards of \$1,000 to the ton.

TRINITY RIVER FLUME.—A company of Chinese have put in a flume in the canyon below North Fork, that carries the whole of Trinity river. Three pumps are required. The Chinese say that the pay dirt prospects six bits to the bucket. White men who are posted say there is dirt that will pay one hundred dollars to the pan. The flume is twenty feet wide and four hundred feet long. The company numbers eighteen but they employ eighty more.

JUNCTION CITY.—During a recent visit, we noticed that the miners were all preparing for winter. Scarcity of water has been a great drawback to that section, so the boys are doing their best to get ready in time.

YUBA COUNTY.

BURNED.—The Grass Valley Union of 11th says: The quartz mill and surrounding buildings belonging to J. McKinstry Smith and Co., at Long's Bar, were burned on Wednesday last. The mill had not been running for some time, and it was no doubt the work of an incendiary.

SISKIYOU COUNTY.

A Yreka telegram of 12th says: Keating Leonard & Dean, on the Klamath, below the mouth of Scott River, on Saturday before last, took out one hundred ounces of gold, and have been taking out large quantities ever since. Mining on the river bed of Klamath heretofore has not paid very well. Near the mouth of Humburg some claims are paying well. The company at Virginia Bar took out seventeen ounces last week.

Nevada.

COPE DISTRICT.

BALD MOUNTAIN.—*Elko Chronicle*, Oct. 2d: The Blue Bell has only been prospected to a depth of four feet, where the ledge is three feet wide and carries a vein rich in silver and copper. The Bailey shows similar ore with less copper. This mine is only eighteen inches wide, but rich. The Winona is eight feet wide; is down between twenty and thirty feet, and assays \$44 in silver and 46 per cent. copper. The Bismark has been explored only ten feet; the shaft is altogether in metal, no walls yet found.

COPE.—*Elko Independent*, 8th: We learn that the two new mills are about ready to start, and the prospects for an inexhaustible supply of ore certain.

BULL RUN.—*Cor. of same*: The Blue Jacket promises to be the Comstock of Northern Nevada. The ledge has been developed by shaft 45 feet and by drift 75 feet. The vein is from 12 to 20 feet wide, and contains a large percentage of free milling ore, besides quantities more or less base. An offer for it of \$30,000, coin, by Colonel Fogus, of Silver City, has been refused.

ESMERALDA.

AURORA.—*Cor. Inyo Independent*: The Wide West mill has been running for some time, and worked small lots of ore from the principal ledges, with results, none of which seem to have come up to expectations. The mill will continue running, provided sufficient ore can be obtained.

CASTLE PEAK.—Parties report that the mill in course of erection by Mr. Dagne will be running by the 15th of next month. A large quantity of ore is already on the dump, and the work in the tunnel running into the Dunderberg mine, near the mill, is still going on. In the south drift they have struck a large body of ore, richer than any yet discovered, and almost free from sulphurets.

REESE RIVER.

MAMMOTH DISTRICT.—*Reveille*, Oct. 6th: We learn that the Mammoth are erecting a Stetefeldt furnace, to be in operation before the end of fall. The mill has ten stamps.

MOREY.—Same of 8th: On Thursday twenty-six tons of ore were brought to this city from Morey district, for reduction at the Manhattan mill. The lot is estimated to yield largely of silver. A previous shipment yielded \$500 per ton.

HOT CREEK.—Last evening Wells, Fargo & Co. shipped seven bars of bullion valued at \$5,900, produced at Hot Creek district, Nye county.

The *White Pine News* learns that there is an excitement at Hot Creek about a new discovery called the 'Two G's.' It is 12

miles south of Hot Creek, and appears to be a ledge 4 to 8 feet wide; has been stripped for 900 feet, and an incline sunk 20 feet. The ledge contains good smelting ore and chlorides, averaging \$100 per ton. At Belmont the El Dorado South is looking better than ever. At a depth of 200 feet, a new level has been started. The ledge is 9 to 11 feet wide. Ore from this level, sent to the Manhattan mill, yielded \$800 per ton. The R. B. Canfield mine is being opened out in good shape.

MINERAL HILL.—*Cor. of Eureka Sentinel*, 6th: The new ten stamp mill is in successful operation, and all round may be seen numbers of chlorides, with their piles of ore in sacks, averaging three tons to the pile. A few of the old miners have at the mill quantities of ore that will work from \$150 to \$300 per ton. There have been of late a number of rich strikes. The best is the Big Sandy, now producing the richest ore on the Hill. The owners are Robinson, May & Co.

The *Reveille* of 3d learns from E. N. Riotte, who returned from Mineral Hill yesterday that there was upwards of a thousand tons of ore on hand that would average \$300 per ton.

WASHOE.

YELLOW JACKET.—*Enterprise*, Oct. 9th: Daily yield, 170 tons tons, from the 800, 900 and 1,000-foot levels. The drift north at the last is within 20 feet of the winze from above. On last month's work the mine is \$50,000 to \$60,000 ahead.

HALE AND NORCROSS.—On the seventh level the ore in the breasts is of very superior quality, and the quantity is sufficient to insure the payment of dividends for months. The daily yield from this level is 170 tons.

OPHIR.—It is expected that the main south-west drift will reach the point where the deposit of gray ore was found on the old 900-foot level, in 75 or 100 feet.

GOULD AND CURRY.—The mine is yielding 70 to 80 tons per day of good milling ore, and there will be no more 'Irish dividends' for some time.

CHOLLAR-POTOSI.—*Gold Hill News*, 8th: Daily yield 260 tons. The ore breast south at the Potosi tunnel level has given out.

CROWN POINT.—Daily yield between 45 and 50 tons, from the upper levels. The ore shows considerable improvement. The incline is down 70 feet below the 1,100-foot level, the bottom showing hard, lively white quartz.

OVERMAN.—Daily yield 70 tons, principally from the Lambert tunnel and the lower tunnel, car samples showing an average assay of \$40 per ton.

GOULD AND CURRY.—Daily yield seventy tons, all second class ore, yielding an average assay of \$58, with the exception of one ton per day of first class, from the Potosi section.

SACRAMENTO AND MEREDITH.—The new mill has been running at an extra lively rate this week on ore from the upper part. Considerable free gold specimen ore is met with.

VIRGINIA CONSOLIDATED.—Ross & Co. are pushing the 500-foot level drift further west under a new contract. They are in 645 feet from the shaft.

BULLION.—The drift at the 130-foot foot level is continued to the north line, and promising quartz encountered.

BELCHER.—The pay streak at the north end of the 200-foot level continues looking well. It is four feet wide, and car samples show \$60 per ton.

CALEDONIA.—This mine looks promising and is yielding excellently. About 50 tons of ore per day worked at the Piute mill.

OCCIDENTAL.—Mill running steadily, on ore from the lower tunnel, which is being continued north.

SIERRA NEVADA.—Nothing new except the resumption of dividends. Both mine and mill running.

SAVAGE.—Daily yield, 90 tons, mostly from the 8th level.

HOPE.—Both mills running; yield, 46 tons per day of \$25 ore.

IMPERIAL MINE.—The 1,300-foot station being opened.

WHITE PINE.

MATTESON.—*News*, Oct. 4th: Yesterday we paid a visit to these works and found everything running like clock-work. During September, the works shipped 80 tons of base bullion valued at \$25,600. By the end of this week furnace No. 3 will be in blast, and work on the separating and refining works will be pushed with despatch.

ORIGINAL HIDDEN TREASURE.—Same of 5th:—Joshua E. Clayton supersedes W. P. Holmes as Superintendent.

LEASD.—7th: Chicago Mill and Mining Co., has leased the Consolidated Combination and Wilson mines, on Chloride Flat, and is taking out good ore. The mill will start up next week.

EBERHARDT.—Same of 8th: There are 15 men employed. A part of the force is at work 50 feet west of the Keystone shaft, where a vein of exceedingly rich ore has been struck. We saw there some of the old original genuine chlorides. We next came to the large chamber. Horn silver, chlorides, etc., are still there, and are being taken out as of yore. All the ore which is being taken out now will average \$100 per ton, and is being worked at the Oasis mill, Shermantown, also owned by this company.

The *Elko Chronicle* of 6th says H. M. Bordwell, Superintendent of Construction for the Eberhardt's new mill, is in town attending to

the shipment of the machinery. It adds that this is to be the most complete mill in the United States. "Every improvement known to mill men will be made use of regardless of expense, in order to make it the best quartz mill in the world."

ITEMS.—*Inland Empire.* Rich and extensive body of ore struck in the Maryland mine, Pinto District, on the 2d. inst. . . . Ruthburn furnace turns out 95 bars daily from Jenny A. ore. . . . Earl mine started up on the 2d. Wm. Roberts, Supt., says the ore will mill on an average \$100 per ton. . . . Seven bars bullion from Meadow Valley Co., Pioche, received on the 5th by stage. Weight, 553 lbs.; value \$9,203. . . . The Stanford mill is again running.

REVELLE DISTRICT.—*News.* 6th: The mill started up on the 21st ult., with 400 tons first class ore on the dumps, and 20 tons coming in daily. The Co. have 75 men at work. The Mediterranean and Atlantic mines, belonging to the Co., are capable of producing ore enough to furnish the mill.

The assaying department is conducted by R. R. Hawkins, graduate of Freiberg.

FREIDEN DISTRICT.—On the Shonte claim, an incline has been sunk 40 feet, on a ledge six feet wide, assaying from \$100 to \$500 in silver and 50 per cent in lead. They are shipping to San Francisco 30 tons per month. The Trident shows a ledge eight feet wide—bearing the same character of ore as the Shonte.

EUREKA.—*Sentinel.* 9th: The Liebenau furnace, at the Eureka Consolidated, works to perfection. The ore, flux, and coal, are all so placed that by simply pulling a rope, they fall into the furnace, and become so thoroughly mixed, that already a saving of 30 per cent. has been effected over the two old furnaces, and no noxious vapors annoy the feeder. From four to five tons of bullion are turned out daily. The McCoy furnace, is working well. The ores smelted this week have been from the Goben and Simot mines, and assay \$300 to the ton. The Jackson works started up this time with two furnaces and new 30 horse power engine. Everything runs smoothly. The Buttercup under Colonel Robbins, is to start up to-morrow with all supplies sufficient to run during the winter.

Eureka wants a mill. A man with capital could make the property clear in six months. The *Sentinel* is authorized to say that a site and water would be donated to a man who means business.

Arizona.

BRADSHAW.—*Prescott Miner.* Oct. 1st: The Del Pasco are getting out and crushing ore in arastras, which they estimate will pay from \$250 to \$300 per ton. The Co. propose to grind twenty-five tons before cleaning up. A large number of locations have been made on veins discovered since the rich strike on the Del Pasco. New Era sunk a shaft sixteen feet deep and found eight feet in width of ore that will pay \$40 per ton.

ITEMS.—Water in Big Bug and Lynx creeks has given out. At the Big Bug mill repairs are being made. At the Eureka mill all hands have been discharged. M. Ravena, the owner of the Conquistador mine, near La Paz, lately sent some specimens of the ore from the mine, to Prescott. It is much decomposed and very rich. No placer miners are working in this vicinity except a few on Lynx creek and the Hassayampa. Alters, May and others, have contracted with Geo. Lomnt to construct a ditch a mile and a half in length to carry water from the Hassayampa to their claims. Levi Rashford, has had some work done on his location on the Vernon lode. Below Rashford's claim, towards the creek, Mitchell has found the vein and sunk on it eight or ten feet, finding the lode three feet wide with a streak of pay ore eighteen inches thick, very rich. Brooks and Mitchell are types.

Colorado.

ITEMS.—*Central City Herald.* Oct. 5th: On the Kansas lode, B. C. Waterman is running 52 stamps, 32 in the Kansas-Colorado mill, and 20 in that of Eureka gulch. They are supplied with ore from his claims on the Kansas, Camp Grove and Flack leads, Waterman's claims on the Gardiner supply ore for the Philadelphia twenty-five stamp mill. Potter & Holley run their own and the "New Bedford" on custom ore. Clayton and Hardisty are each running without cessation, the latter on "Barroughs." Lewis at the Gilpin County mill is supplied with ore from the same lode. The Whitcomb mill is also running day and night. Mr. Beach is working the Illinois mill and is getting out considerable ore. Altogether there are more stamps in motion in Nevada than at any time in our recollection—twelve mills with 208 stamps (including the Eureka and Lexington.) The Prize lode continues to yield a large quantity of very rich quartz.

SUMMIT COUNTY.—We learn that preparations are being made for more extensive work in placer mining in Summit county next year than ever before. An immense number of claims are being taken up. Ira Clark & Co. have sold their claim on the Blue to Greenleaf for \$2,000. John Sanderson, who owns one-half the claim of the Boston Co. is making a handsome revenue. Week before last their claim yielded 37 ounces (with six men employed.) Last week they took out 11 pounds of amalgam, containing probably 68 ounces of gold. John Sanderson is getting out a dollar to the pan from ground sluiced down from the bank, which did not wash into the flume.

GRAND ISLAND.—This district is largely increasing its product and the shipments of ore are daily more extensive. The Cariboo the richest in Colorado, employs 60 men. An im-

mense quantity of rich ore is sent to Hill's. The Ohio mine, of which John Baker owns one-half, is being energetically worked. He will put up a mill next spring. It has every indication of being extremely rich. He is taking out some ore for shipment to Hill, which runs \$500 to the ton. The crevice is about three feet in width.

NEVADA DISTRICT.—Hingle & Co's claim on the Flack lode is leased by several Cornishmen. O'Donnell, Mackey and Collins on the Keystone lode have struck very rich pay. The crevice is nearly six feet in width, three feet of which yields ore so rich that it is sold to Hill without sorting. They are 320 feet down, and have 80 feet of quartz in sight.

The *Register* has a "special" from Denver, dated Sept. 28th, as follows: The First National Bank of Denver, has to-day on exhibition, the largest bar of gold ever run at one time, in the world. It measures 12½ inches in length, 6½ in width, and 4½ in height. It weighs 2,348½ ounces. Finesness of gold, 792; of silver 193. Value, \$50,000.

GEORGETOWN.—*Miner.* Sept. 29th: The Brown Co. ship two masses of silver this week, one weighing 400 and the other 1,141 pounds, making a total of 1,541 pounds, Troy. The total product of the Brown mine to date is \$166,554.55, coin value. Greatest depth from the surface obtained is two hundred feet. The total product of the Terrible mine to date is \$270,000 coin value.

MARSHALL TUNNEL.—The tunnel has been driven into Leavenworth Mountain eight hundred and fifty feet, and cut six well defined true fissure silver veins. The last vein cut shows a large body of good looking ore.

Idaho.

THE NEW ARASTRA.—*Avananche.* Oct. 8th: Last Wednesday we paid a visit to Martin, Hay & Co's new arastra, in Sinker gulch, one of the most complete ever constructed. The main building is 28x40 feet, besides the wheel house, etc. There are pans, vats and settlers. The propelling power is an overshot wheel 35 feet in diameter. Steam for heating the pans, is generated in a furnace, the smoke of which will circulate in the wheel house during the winter. The arastra is 8½ feet in diameter. Two more will be added soon.

OWYHEE BULLION.—Wells, Fargo & Co. shipped this week 14 bars of bullion, valued at \$31,000.

Lower California.

RICH QUARTZ.—*San Diego Union.* Sept 24th: Mr. I. K. Fisher, just returned from San Rafael Valley, says that the first ledge was struck by a Mexican company. Another ledge subsequently discovered south of this, is owned by Wm. Off-hand and others of this place, and Governor Rojo, of Lower California. The first is very rich. Mr. Fisher says that one of the owners has pounded out with a hammer on a flat rock from one to three pounds of gold daily. A small piece shown to us was at least half gold. He says this is the richest quartz claim he has seen during fourteen years' experience in the mines of this coast. The ledge is from 12 to 18 inches in width. As fast as the quartz is taken out it is sacked and divided between the partners, each of whom pounds up his own rock. * * * Mr. Lowinsky, and Mr. Reinhold have also just returned from San Rafael camp and confirm Mr. Fisher's statement. The dirt all pans out well. Pockets of quartz are found which contain as much gold as rock. These gentlemen witnessed the pounding of some rock from which nearly half a pound of gold was obtained. Mr. Lowinsky brought up two nuggets worth about \$50 each.

Montana.

TEN-MILE CREEK.—*Cor.* of Helena *Herald* Oct. 6th: Sairs & Co., have closed for the season and gone to Canyon Creek. Simpson & Hesse will make their last clean-up in ten days, and from the looks it will run up into the thousands. They calculate on drifting night and day, this winter. The Alpha Sluicing Co. are driving ahead, as also the Ophir. Anderson & Co. are still ground-slucing, with good pay. On Monitor gulch everyone is in good spirits, and there will be three more flumes in next Spring. In Try Again, everything is prosperous, with two more companies at work.

WASHINGTON GULCH. *Cor.* of same: Some work is being done on the quartz lodes in and around Sterling. Five or six arastras are on the whirl, and the Hobart mill is running pretty steadily. The placers here are turning out better than ever. Parkinson, James & Co's ground paid last week \$24.60 per day to the hand. S. C. Mining Co.'s yielded an ounce per day to the hand.

THE DITCHES.—*Deer Lodge Independent.* Oct. 1st: The completion of Race Track ditch to Uncle Ben's gulch and Campbell's ditch from Lost Creek to adjacent bars, has enabled a number of companies to open their mines. So far, all have done well.

New Mexico.

MINING PRODUCT FOR THE WEEK.—*Cimarron News.* Oct. 1st: Aztec mines, for eight days, ending Sept. 25, 1870, 29 ounces of gold. Pollock's claim, Grouse Gulch, Moreno mines; seven days, 24 hours per day, eighteen men employed, one hundred inches of water, product, 55 ounces of gold. Result of last run of New Orleans Co., on New Orleans Flat, in the Moreno mines; 7 days, 4 men, gold produced, 25 oz. 6 dwt. Result of last run of Last Chance claim, belonging to the Maxwell Land Grant and Railroad Co. in Moreno mines; 9 days, 2 men, gold produced, 12 ozs. 8 dwt.

The New Patent Act.

AN ACT TO REVISE, CONSOLIDATE AND AMEND THE STATUTES RELATING TO PATENTS AND COPYRIGHTS.

APPROVED, JULY 8, 1870.

[CONCLUDED FROM PAGE 263.]

Sec. 67. And be it further enacted, That the benefit of the extension of a patent shall extend to the assignees and grantees of the right to use the thing patented to the extent of their interest therein.

Sec. 68. And be it further enacted, That the following shall be the rates for patent fees:

On filing each original application for a patent, fifteen dollars.

On filing each original patent, twenty dollars.

On filing each caveat, ten dollars.

On every application for the release of a patent, thirty dollars.

On filing each disclaimer, ten dollars.

On every application for the extension of a patent, fifty dollars.

On the granting of every extension of a patent, fifty dollars.

On an appeal for the first time from the primary examiners to the examiners in-chief, ten dollars.

On every appeal from the examiners in-chief to the Commissioner, twenty dollars.

For certified copies of patents and other papers, ten cents per hundred words.

For recording every assignment, agreement, power of attorney, or other paper, of three hundred words or under, one dollar; of over three hundred and under one thousand words, two dollars; of over one thousand words, three dollars.

For copies of drawings, the reasonable cost of making them.

Sec. 69. And be it further enacted, That patent fees may be paid to the Commissioner, or to the Treasurer or any of the assistant treasurers of the United States, or to any of the designated depositaries, national banks, or receivers of public money, designated by the Secretary of the Treasury for that purpose who shall give the depositor a receipt or certificate of deposit therefor. And all money received at the Patent office, for any purpose, or, from any source whatever, shall be paid into the treasury as received, without any deduction whatever; and all disbursements for said office shall be made by the disbursing clerk of the Interior Department.

Sec. 70. And be it further enacted, That the Treasurer of the United States is authorized to pay back any sum of money to any person who shall have paid the same into the treasury or to any receiver or depositary, to the credit of the Treasurer, as for fees accruing at the Patent Office through mistake, certificate thereof being made to said Treasurer by the Commissioner of Patents.

DESIGNS.

Sec. 71. And be it further enacted, That any person who by his own industry, genius, efforts and expense, has invented or produced any new and original design for a manufacture, build, statue, alto-relievo, or bas-relief; or any new and original design for the printing of wools, silk, cotton, or other fabrics; any new and original impression, ornament, pattern, print, or picture, to be printed, painted, cast, or otherwise placed on or worked into any article of manufacture; or any new, useful, and original shape or configuration of any article of manufacture, the same not having been known or used by others before his invention or production thereof, or patented or described in any publication, may, upon payment of the duty required by law, and other due proceedings, obtain a patent therefor.

Sec. 72. And be it further enacted, That the Commissioner may dispense with models of designs when the design can be sufficiently represented by drawings or photographs.

Sec. 73. And be it further enacted, That patents for designs may be granted for the term of three years and six months, or for seven years, or for fourteen years, as the applicant may in his application elect.

Sec. 74. And be it further enacted, That patentees of designs issued prior to March two, eighteen hundred and sixty-one, shall be entitled to the extension of their respective patents for the term of seven years, in the same manner and under the same restrictions as are provided for the extension of patents for inventions or discoveries, issued prior to the second day of March, eighteen hundred and sixty-one.

Sec. 75. And be it further enacted, That the following shall be the rates of fees in design cases:

For three years and six months, ten dollars.

For seven years, fifteen dollars.

For fourteen years, thirty dollars.

For all other cases in which fees are required, the same rates as in cases of inventions or discoveries.

Sec. 76. And be it further enacted, That all the regulations and provisions which apply to the obtaining or protection of patents for inventions or discoveries, not inconsistent with the provisions of this act, shall apply to patents for designs.

KUSTEL'S NEW BOOK, on the Roasting of Ore and their Treatment without Quicksilver, is favorably noticed at great length by the London Mining Journal, of Sept. 10, 1870. No better authority can be quoted. Its able review of the work closes with following paragraph:

Although the book contains less than 150 pages, it will afford all the information likely to be required upon the subject, and the illustrations of furnaces, implements, and working apparatus are excellent. It gives a condensation of most that has already been published either in German or English with reference to the extraction of the precious metals, and contains much that is new in the way of descriptions of inventions to which the experience gained in the extensive mining operations carried on in the Pacific States have given rise. The merit of the work is beyond question, and as it is certainly as cheap a half guinea's worth as could be purchased by those for whom it was intended, the prediction of the author—that its chances of doing much good are far better than the probabilities of its repaying its author and publishers—is one which happily is not likely to prove true; it will doubtless find an ample number of patrons, both in the Old World and in the New.

Printed and sold by Dewey & Co., Scientific Press Office. Price, \$2.50 gold, or \$3.00 currency—post paid.

New Incorporations.

The following have filed certificates with the County Clerk, San Francisco:

S. F. STARCH WORKS.—Sept. 24. Capital stock, \$50,000 in 500 shares. Trustees: E. S. Clark, A. J. Gove, Wm. Gray, J. Q. Baker, and James B. Lavery.

HIDDEN GRAVEL CO., Alta Hill, Grass Valley.—Sept. 24. Capital stock, \$300,000 in 3,000 shares.

BRADSHAW S. M. CO., Nye County, Nevada.—Sept. 26. Capital stock, \$1,630,000. Trustees: Wm. H. Sharp, Wm. Steubart, and W. Solberg.

LANE AND KUTZ CARANO M. CO., William's Creek Meadows, British Columbia.—Sept. 26. Capital stock, \$500,000 in 5,000 shares. Trustees: A. H. Rose, J. Kutz, I. P. Rankin, I. T. Milliken, and T. W. Moore.

GERMAN SAVING AND BUILDING ASSOCIATION.—Sept. 28. Trustees: L. Goetz (President), J. Taupphauser (Vice President), L. Simons, F. Wickenhauser, C. Schaffer, A. Hafstrom, J. Shober, J. W. Hahn, W. Kappman, H. Habermehl, J. F. Law, and H. Pfersdorf, Secretary.

AUSTRIAN BENEVOLENT SOCIETY.—Trustees: Vandro, Leeds, Drohag, Galavina, Voght, Micollich, Zamlich, N. Viaretti, and Cosmo.

EAOLE REAL ESTATE CO.—Capital stock, \$50,000 in 50 shares. Trustees: Schmidt, Snider, W. A. Janko, Vm. Ross, Schuler, Cantos, and Thiesch.

MINERVA HILL M. CO., Elko county, Nevada.—Capital stock, \$50,000 in 500 shares. Trustees: M. Lent, G. D. Roberts, G. Hearst, McDonald, and Currier.

PACIFIC COAST WHECKING CO.—Oct. 5. Capital stock, \$15,000 in 150 shares. Trustees: H. B. Platt, D. Beaudland, S. P. Taylor.

The following have been recorded in the Secretary of State's office, Sacramento:

BURNIAN HILL R. R. CO. S. F.—Sept. 24. Capital stock \$250,000 in 2,500 shares. Directors: A. Bonheday, B. S. Brooks, P. Kimball, A. Parker and K. Porter.

BANK OF MENDOCINO.—Sept. 26. Directors: W. Heeser, Augustus Heeser, S. B. Ford, C. W. Denlow, J. E. Chalant, T. Reeves, J. Townsend and J. P. Carrell.

D. SPATCH PUBLISHING ASSOCIATION, Mendocino.—Sept. 26. Capital stock, \$1,500 in 30 shares. Trustees: J. E. Carlson, J. D. Murray, Mat. Lynch, D. W. Callum, J. B. Ford, J. E. Chalant, R. Reeves and W. Heeser.

NEW YORK G. AND S. M. CO., Sacramento County.—Sept. 28. Capital stock, \$30,000. Trustees: J. B. Stone, L. Brooke and H. McCullen.

REDWOOD CITY WATER CO.—Oct. 1. Capital stock \$50,000 in 50 shares. Trustees: J. V. Diller, H. Kincaid and T. W. Lathrop.

BIO BASIN CANAL CO., San Mateo.—Oct. 7. Capital stock, \$15,000. Trustees: H. Templeton, J. Bowley and A. Teague.

PERCADERO CANAL CO.—Oct. 7. Capital stock, \$50,000. Trustees: H. Templeton, J. Bowley, and A. Teague.

SAN JOAQUIN GAS CO.—Oct. 10. Capital stock \$75,000. Trustees: J. H. Kelsey, E. Moore, J. Jackson, G. B. Claborn, and L. C. Ellis.

SAN DIEGO GAS CO.—Oct. 10. Capital stock, \$72,000. Trustees: W. H. Perry, C. P. Taggart, W. Woodworth, J. Gallon, and J. B. Boyd.

ALTA G. AND M. CO. No. 3, Grass Valley.—Oct. 10. Capital stock, \$600,000 in 6,000 shares. Trustees: Silverton, Locke, E. R. West, R. Clarke, and Burnett.

Meetings, Elections, Etc.

LAND RECLAMATION CO.—Sept. 27. Trustees: J. B. Haggin (President), G. D. Roberts (Treasurer), W. Doan (Secretary), J. J. Hagar (Vice President), S. Heydenfeldt, F. Zelle and C. H. Burton.

OSCEOLA G. AND S. M. CO.—Sept. 30. Trustees: J. F. Smith, G. McLane and L. Reynolds.

MEADOW VALLEY EXTENSION M. CO.—Trustees: Trustees: H. Jenin, L. Mayna and A. J. Bowie, Jr.

NORTH STAR G. AND S. M. CO.—A. K. E. Harmon (President), W. C. Harmon (Treasurer), D. Jennings (Secretary), and D. Hoyt, Superintendent.

SEGREGATED BELCHER.—Oct. 4. Trustees: A. K. Harmon (President), J. A. Pritchard, J. Marks, J. Gillig and J. P. Jones.

BANK OF CALIFORNIA.—Oct. 4. Trustees: D. O. Mills (President), W. C. Ralston (Cashier), D. J. Hall, John G. Earl, Louis Sachs, A. Haywa, W. E. Barron, Thomas Bell, Louis McLane, Nicholas Lanning and William Norris.

OCCIDENTAL M. CO. Virginia City.—Oct. 10. Trustees: J. P. Smith (President), M. Strouse (Vice President), J. Kapp, L. W. Newell and R. T. Smith C. M. Mayer, Secretary.

Mining Shareholders' Directory—Meetings, Assessments and Dividends.

[Compiled weekly from advertisements in the SCIENTIFIC PRESS and other San Francisco journals.]

NAME, LOCATION, AMOUNT AND DATE OF ASSESSMENT.	DAY	DAY
	DELINQUENCY.	OF SALE.
Belcher, G. H., Sept. 6, \$2,000,000	Oct. 10	Oct. 20
Burns Creek, Sierra Co., Aug. 6, \$250	Sept. 9	Sept. 22
Columbia, Cope Dist., Sept. 24, 25c	Oct. 29	Nov. 22
Columbus, Placer co., Sept. 28, 75c	Nov. 2	Nov. 15
Cherokee Flat, Butte co., Sept. 10, \$5	Oct. 14	Oct. 31
Cons. Virginia, Storey, July 6, \$1	Aug. 10	Sept. 3
Gold Hill, G. H., Sept. 8, \$10	Oct. 13	Oct. 31
Ida Elmore, Idaho Terr., Sept. 10, \$5	Oct. 15	Oct. 17
Ketchikan, G. H., Aug. 27, \$5	Sept. 29	Oct. 17
Mountain City, Elko co., Sept. 29, 50c	Nov. 7	Nov. 28
Meadow Valley Ex., Sept. 19, 50c	Oct. 25	Nov. 21
N. Bloomfield, Nevada co., Sept. 22, \$4	Oct. 25	Nov. 11
Nevada L. & M. W. P., Aug. 11, 2c	Sept. 14	Oct. 3
Ophir, Virginia City, Sept. 3, \$3	Oct. 13	Nov. 2
Hidden Treasure, W. F., Aug. 27, \$2	Sept. 30	Oct. 20
Silver Spout, Inyo Co., Aug. 29, 2c	Oct. 18	Dec. 1
Segregated Belcher, W. H., Aug. 26, \$1.50	Sept. 28	Oct. 18
Wheeler, Esmeralda co., Nev., Aug. 25, 50c	Sept. 28	Oct. 20
MEETINGS TO BE HELD.		
Eureka	Special Meeting, Oct. 20	
Independent Coal	Annual Meeting, Nov. 9	
LATEST DIVIDENDS.—(Within Three Months)		
Eureka, div. \$7.50	Payable August, 1870	
Hale & Norcross, div. \$5	Payable Sept., 10, 1870	
Sierra Nevada, div. 60c	Payable Sept. 16, 1870	
Union, div. \$1	Payable Aug. 5, 1870	
*Advertised in this journal		

QUARTZ MILL FOR SALE.—Messrs. Prescott & Schiedel, proprietors of the Marysville Foundry, offer a quartz mill for sale on favorable terms, some particulars of which can be had by referring to our advertising columns. During the past season an unusual number of idle mills have been purchased and put in operation in this State and Nevada, showing a disposition to economize on the part of mining managers.

CONTINENTAL Life Insurance Co., 302 Montgomery street, corner of Pine.

Household Reading.

How to Make Cuttings Grow.

Alluding to the manner of propagating cuttings, the *New England Farmer* says that it has been ascertained that a cutting will develop roots much sooner in moist sand than in rich soil. But the sand cannot maintain its growth for any length of time. To prepare pots for raising cuttings they should be filled nearly to the brim with rich garden loam, dark and porous, not clayey and soggy; then pour in one inch in depth of scouring sand; sea sand will do as well as the yellow sand. Wet this thoroughly, and place the cuttings, from which all but three or four upper leaves have been removed, close to the side of the pot; the contact of the ware against the stem of the cutting promotes its growth. Press the wet sand firmly around the tiny stem. A great deal of your chance for success in raising slips or cuttings depends upon this.

Plant as many cuttings as the pot will hold, from six to a dozen, according to the size of your pot; when they are firmly set in the sand, two or three can be inserted in the middle of the pot. Set them away in a dark, warm place for twenty-four or thirty-six hours. Thns. cuttings will grow quickly in a hot bed, because the temperature is not dry. Their growth depends a great deal upon light, heat and moisture.

If a bud is close at the base of a cutting it will strike root more easily—is not so apt to decay. The roots shoot from a bud, and the lower down it is the surer your success. When the leaves drop, the plant is commencing to grow; if they wither on the stem, it has begun to decay. By following these directions no one can fail to grow all kinds of house plants. Roses and all the rarest flowers of the green houses are propagated in this manner.

How to Judge Building Lime.

As it is often of considerable importance to those who may wish to use lime for any of the purposes for which it is available, that they should be able to distinguish a good article from that which is of inferior quality, we shall describe briefly a few of the common tests by which good lime may be distinguished from that of poor.—Of two pieces of lime about the same size, the heavier will usually be the best. There are a few marked exceptions to this rule, but in general it will afford trust worthy indications.

Good lime is greasy and unctuous to the touch; poor lime is dry and gritty; when good lime slacks in water it falls quickly, causes the water to boil up furiously, and gives out a great quantity of heat. The slaking of poor lime is attended with but a slight boiling of the water, and a small increase of the heat; moreover, the quantity of water required to slack good lime will be nearly one-half its bulk. Good lime, when slacked will swell to twice its original bulk, and it exposed to water continually changed, the lime will all be taken up without leaving any residue. Poor lime when slacked, will swell to two and a half times its original bulk, and there will always remain a gritty residue, no matter how much water may be run over it.—*Am. Engineer.*

A Lean Horse Made Fat.

Many good horses devour large quantities of grain and hay, and still continue thin and poor. The food eaten is not properly assimilated. If the usual food has been unground grain and hay, nothing but a change will effect any desirable alterations in the appearance of the animal. In case oil meal cannot be obtained readily, mingle a bushel of flaxseed with a bushel of barley, one of oats, and another husbol of Tadian corn, and let it be ground into fine meal. This will be a fair proportion for all his feed. Or, the meal of barley, oats and corn, in equal quantities, may be first procured, and one-fourth part of the oil cake mingled with it, when the meal is sprinkled on cut food. Feed two or three quarts of the mixture three times daily, mingled with a peck of cut bay or straw. If the horse will eat that amount greedily let the amount be gradually increased until he will eat four or six quarts at every feeding three times a day. So long as the animal will eat this allowance, the quantity may be increased a little every day. But avoid the practice of allowing a horse to stand at a rack well filled with hay. In order to fatten a horse that has run down in flesh, the groom should be very particular to feed the animal no more than he will eat clean and lick the manger for more.—*Mass. Ploughman.*

Utilizing the Water-Melon.

Our readers will recollect the brief mention made in our issue of the 17th ult. with regard the exhibition at the State Fair, of samples of sugar grown from melons. Both sugar and syrup, each of an excellent quality, can be made from the water-melon, which grows in great abundance and profusion on California soil. In fact, there is perhaps no other product, except grapes, in which California so much excels as melons; and we incline to the opinion that even a larger amount of saccharine matter may be obtained from an acre in melon pulp than in the pulp from beets—while the refuse if somewhat less valuable for stock, would be increased by utilizing the seed as a source for table oil, for which purpose they are very superior.

Water-melons may be more easily utilized than most people imagine, as may be seen from the following process, which has been communicated by a correspondent of the *Prairie Farmer*:

"I endeavor every year to raise a water-melon patch. They are a healthy and delightful fruit, I think. I cultivate the icing variety. When the weather becomes cool in September, we haul a quantity of them to the house, split them open, with a spoon scrape out the pulp in a colander, and strain the water into vessels. We boil it in an iron vessel, then put in apples or peaches, like making apple butter, and boil slowly until the fruit is well cooked, then spice to taste and you have something that most people prefer to apple butter, or any kind of preserves. Or the syrup may be boiled without fruit, down to molasses, which will be found to be as fine as any sugar-house molasses. We have made in a fall as much as ten gallons of the apple-butter, if I may so call it; and molasses which kept in fine condition till May."

DECOMPOSING STRAW.—A correspondent asks about "decomposing straw." We have already, suggested interlaying it with a small quantity of loam. The addition of a small quantity of lime will greatly hasten the process. Gypsum should be added, when readily obtainable as an absorbent for the discharged gasses. Muck or loam answers that purpose, but not so well.

PREPARATION OF GLYCERINE.—Glycerine of itself is usually considered one of the best healing applications known; but the following special preparation which can easily be made by any one, is especially useful in many cases:—Four parts, by weight, yolk of egg, to be rubbed in a mortar with five parts of glycerine. This compound has the consistency of honey, is unctuous, like fatty substances, but is easily removed by water. Applied to the skin, it forms a varnish, which effectually prevents the action of air. It allays the itching in cutaneous affections. It is unalterable, and can be exposed to the air for an indefinite period.

THE SUEZ CANAL.—Late accounts from China say that there are 15 steamers loading at the various ports for Europe via the Suez Canal, at an average of about \$20 per ton freight; while the best iron sailing ships via the cape, are seeking freight almost in vain at rates from \$7.50 to \$10. The canal is causing a commercial revolution in China, and threatens to substitute steam entirely, for sailing vessels for the carrying trade of that part of the world. These are straws which point most unmistakably to the direction in which the wind will soon be sure to blow in this vicinity.

TO MAKE NEW ROPES PLIABLE.—Considerable difficulty is sometimes experienced in handling new rope on account of its stiffness. This is especially the case when it is wanted for halter and cattle ties. Every farmer is aware how inconvenient a new, stiff rope halter is to put on and tie up a horse with. And new ropes for tying cattle are frequently unsafe, for the reason that they are not pliable enough to knot securely. All this can be remedied, and new rope made as limber and soft at once as after a year's constant use, by simply boiling it for two hours in water. Then hang it up in a warm room, and let it dry out thoroughly. It retains its stiffness until dry, when it becomes perfectly pliable.

Life Thoughts.

THE STREAM OF LIFE.—We all sail down the stream of life, and there is no lingering or turning back. If we come to a bank of flowers, or drift beneath soft, rosy skies, we cannot remain to inhale the perfume of one, or enjoy the golden splendor of others. Our course is still onward, and the scenery we must pass by will be varied; now smiling in joyous sunlight, now slumbering in dim and obscure shadow. An occasional ray of sunlight will dart across the scene, and, for the moment we are happy. But we should never despond, even when the clouds lower and appear the most threatening; for Hope ever stands beside us, and points to a better country, where sadness cannot fade away and sorrow comes no more.

DANIEL WEBSTER penned the following beautiful sentiment: "If we work upon marble, it will perish; if we work upon brass, time affects it; if we rear temples, they will crumble into dust; if we work upon our immortal minds—if we imhne them with principles, with the just fear of God and love of our fellow men—we engrave on those tables something which will brighten for all eternity."

Our lives should be like the day, more beautiful in the evening; or, like the summer, aglow with promise; and like the autumn, rich with golden sheaves where good works and deeds have ripened on the field.

WRITE your name by kindness, love and mercy on the hearts of the people you come in contact with, and you will never be forgotten.

LIFE is a book of which we can have but one edition. Let each day's actions, as they add their pages to the indestructible volume, be such as we shall be willing to have an assembled world read.

THE shadows of the mind are like those of the body. In the morning of life, they lie behind us; at noon, we trample them under foot; and in the evening they stretch long and deepening before us.

It is only by labor that thought can be made healthy, and only by thought that labor can be made happy.

HAVE you learned to know you are ignorant? This is God's way of making wise; he bids you ask wisdom, and promises to give.

A FAST AGE.—The present is eminently a fast age. It eats fast, digests fast, assimilates fast, thinks fast, acts fast, lives fast and sleeps fast. The gradual progress of civilization and industrial and mental activity is imperceptibly abridging the period of slumber. Time was when the wants of man were pure and simple; when his activity was measured only by the needs of healthy exercise. Now a poor man must abridge the hours of sleep to provide food for himself and family; while the increased range of thought forced upon the student renders the consumption of the "mid-night oil," essential to eminence in any special department of learning. Thus the coming man will have to abridge his period of slumber to the utmost brevity of duration. The disparity between now and then is growing rapidly more and more marked, and as the world grows older, man will have to live faster and faster until his life dwindles away to a span. Perhaps it may be that the creator thus designs to check the rapid increase of the race, when the world shall have become full, and emigration cease for the want of where to go.

THOUGHT AND BRAIN GROWTH.—Every new idea planted in the thinking mind, is said to grow. It increases in breadth and height and depth, and is constantly taking new forms and new relations as it is variously modified by the ingress of other ideas. It is also claimed by some medical writers that the brain tissue increase in size with brain exercise, especially with deep and earnest thinking. Phenology in fact, is based upon the theory that the various "organs" of the brain increase in a greater or less degree, as the faculties which it is held the several organs represent are brought more or less actively into use. It is stated, on the authority of Dr. O. W. Holmes, that Daniel Webster said he had to change the size of his hat every two years—that his head grew larger as his intellect expanded.

Useful Receipts.

CURE FOR CORNS.—The *Journal of Applied Chemistry*, good authority, says: "Soak the feet well in warm water, then with a sharp instrument pair off as much of the corn as can be done without pain, and bind up the part affected with a piece of linen or muslin thoroughly saturated with sperm oil, or what is better, the oil which floats upon the surface of the pickle of herring or mackerel. After three or four days the dressing may be removed, and the remaining dead cuticle removed by scraping, when the new skin will be found of a soft and healthy texture and less liable to the formation of a new corn than before. We have this receipt from a source which we cannot well doubt, and publish it for the benefit of many suffering readers."

The pain occasioned by corns may be greatly alleviated by the following preparation:—Into a one ounce phial ask a druggist to put two drachms of muriatic acid, and six drachms of rose water. With this mixture wet the corns night and morning for three days. Soak the feet every evening in warm water without soap. Put one-third of the acid into the water, and, with a little picking, the corn will be dissolved.

DIRECTIONS FOR WASHING TATTING.—Get a common glass hottle, sew a piece of thin flannel evenly all over it; wrap the tatting on, carefully tacking each row as flat as possible to the flannel. Sew a piece of tartan (or very thin muslin) over it, leaving the tartan long enough to tie firmly both at the bottom and top of the hottle. Sink the hottle in a large basin of cold water, and soak it all night. Cut up a piece of white soap, put it in a large stew-pan of water, with the hottle, and stew for six hours; if the tatting does not look quite clean, rub the hottle a little with the hand and more soap, and stew it again; rinse well in clean cold water, and put the hottle in the sun or near the fire to dry, when the tatting can be unloosed and taken off. If it has been put on well, and in its proper form, it will be just like new tatting. This is also an excellent receipt for washing valuable lace. The flannel can be left on for future use.

LAMP WICKS.—Few of our readers know that a lamp wick which is equally good with those we buy, may be made out of Canton flannel. Take a strip three times as wide as you wish the wick to be, and as long as you like. Fold it with the fleecy side in, so that it will have three thicknesses, and baste or overcast it up the sides. Almost every housekeeper has bits of Canton flannel which would be used for nothing else, and it saves quite a little item of expense, to say nothing of the convenience of being able to make a new lamp wick whenever it is needed. I have made all the wicks used in our family for the last six or seven years.

MEAD OR SODA WATER.—Three pounds brown sugar, six gills molasses, three pints water, four ounces tartaric acid. Pour one half pint of the water boiling hot on the acid, and the remainder on the sugar, and heat gently; skim when cool, add the acid. Flavor with lemon, wintergreen or whatever you please, and hottle. Pour two tablespoonfuls in a tumbler half full of water; then add one-third teaspoonful soda; stir till it foams. This is a nice cooling drink, and can be prepared by any family and kept ready for use.

WINE JELLY.—One package Cor's Gelatine; one pint of cold water, the juice of two lemons and rind of one. Let the above stand one hour; then add three pints boiling water, one and a half pounds of crushed sugar, one pint wine, and one wine glass brandy; cool in a mould.

HOW TO MAKE TOMATO FIGS.—Pour boiling water over the tomatoes, in order to remove the skins; then weigh them and place them in a stone jar, with as much sugar as you have tomatoes, and then let them stand two days; then pour off the syrup and boil and skim it until no skum rises; then pour it over the tomatoes and let them stand two days, as before, then boil and skim again. After the third time they are fit to dry, if the weather is good; if not, let them stand in the syrup until drying weather. Then place on large plates or dishes and put them in the sun to dry, which will take about a week, after which pack them down in small wooden boxes, with fine sugar between each layer. Tomatoes prepared in this manner will keep for many years.

FARMERS should be, as they are, or if not, may be, the happiest of men and families—surrounded as they are by Nature's purest, most elevating, and ennobling influences.

Scientific Press.

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San Francisco:

Saturday Morning, Oct. 15, 1870.

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Cotton in California.

An interesting and important letter on the subject of cotton culture will be found in to-day's agricultural edition, written by a gentleman who has had large experience in that culture at the South, and who has closely studied the adaptability of the soil and climate of California for such culture here. The statements and figures made by this writer are well worth the serious attention of California capitalists, and of all others conversant with that special branch of agriculture. The subject is one well worthy of careful and serious consideration.

In connection with this letter, we have received a note from Col. J. M. STRONG, of Snelling, Merced county, who also forwards for inspection a sample of cotton raised upon his ranch, which is pronounced of very superior quality. The Colonel informs us that his present experiment is the third which he has made within the past six years to raise cotton on the banks of the Merced river.

We should be pleased to hear from him more at length of his actual experience in cotton raising in California.

The White Pine News give up San Francisco in despair and falls back on Sacramento. It advises that city to build reduction works and become the metropolis of the Coast. Good advice, no doubt.

Co-operation in Mining.

This part of the history of mining camps is continually repeating itself: In the beginning, ore is found near the surface of the ground, which can be easily extracted, easily treated, and gives speedy returns, so that small claims can be worked successfully without much capital. But with the increase of depth, the difficulties of mining increase and the quality of the ore often changes, so that more extensive or complicated machinery is required and more capital is necessary. Then, if the district is promising, a monied company comes in and erects a large mill or smelting works, and all is rose-colored; but after the excitement about the "development of our resources" has somewhat subsided, the cry is heard that capital is crushing out the poor man, and capitalists are denounced as selfish and extortionate.

Now the poor miner and the rich capitalist both go to any such locality with the same object and the same determination, viz:—to make as much money as possible in as short a time as possible. Neither has any particular reference to the benefit to accrue to the general public from his labors. Selfishness is the main-spring of action here as it is in business transactions everywhere. Selfishness is natural, in-born in man, necessary for self-preservation, and therefore cannot be found fault with, practically, within certain limits; without those limits, it is sure to over-reach itself. A correspondent of the PRESS, a couple of weeks ago, gave an illustration, as he considers it, of "human selfishness," which applies in this case. A certain monied company pays the very lowest prices possible for ore and declares that it will not pay higher until compelled so to do. The action is natural, although the declaration might not be exactly politic. But he says, further on, that the result is that the company has great difficulty in getting ore supplies. How far all the assertions are strictly true, we are unable to say. We only know that our correspondent is generally reliable, and we give this merely as a possible illustration.

We are writing in the interest of, and to the poor man, and propose to look matters squarely in the face. Acknowledging, then, that both poor and rich man are there for selfish purposes, and that, after a time, the superior advantages of the rich man generally enable him to get a better place and press aside the poor man in the race for riches, the question arises,—what is the poor man to do? Uttering reproaches, or calling to outsiders for help, will not avail. He must help himself. He must himself make it for the interest of the rich man to run in his company.

The poor man always has one advantage, which he ought to avail himself of, although he does not do so often enough. He is strong in numbers. We believe that the answer to the question above is, unite in co-operative societies. If a dozen (taking a general number) of men without capital, but owning mines which have any value, would consolidate their interests or would make some agreement by which their interests would be as one with regard to outside parties, they would form a power and do a benefit to themselves and to every body else. Take an instance of custom smelting works. So long as these works receive only small lots of ore at irregular intervals, so long will their expenses be disproportionately large, and so long will they be actually unable to pay good prices for the ore received. But let them be sure of large and regular lots, and they can afford to give higher prices and, to secure these, will pay them to any party holding the lots.

If, then, several miners would co-operate with one another so as to be able to produce constantly a certain amount of ore (and they could do this more cheaply than

by working separately); they could make excellent business bargains and would have but little cause to complain of oppression. If all the miners of a district, say White Pine, would form a number of co-operative mining companies in this way, as outsiders would then be moderately certain of the steady production of large amounts of ore, not only would the Matteson company readily give prices which could not be complained of, but other competitive companies would be attracted to the place, and the district would take on a new and more vigorous life than ever.

We believe that through such co-operative companies wonders could be accomplished on our coast. Capital would be attracted to legitimate enterprises, in which the poor miner could have an interest. The miner could have a share in the ownership and direction of the works which treated his rock. New districts could be developed. Low grade ore could be worked. The prospector, having a steady interest in a fixed locality, would find a rest from his wanderings, leaving his former task to the new comer who would be urged to greater exertions by the example. The mining camps would increase and flourish. The farmer would be led to settle among the mines, where he would find a good market for his produce.

But our plan demands the existence of honesty, intelligence and steadiness among our mining communities. How far these qualities do actually exist, and to what extent our plan can be introduced into practical life, we leave for the consideration of the individual miner. We merely add that co-operation has been found to work successfully in other branches of business. Why can it not be made to succeed in mining?

THE SAN FRANCISCO MUSICAL INSTITUTE is about to afford our city an opportunity to hear really good music, which action cannot be too highly commended and reflects to the credit of the directors. A series of five chamber concerts are to be given in the hall of the Mercantile Library, at which the best talent will be employed, and the programme will, without doubt, be excellent. Boston provides, in the Harvard symphony concerts, the best music in America, and we hope that San Francisco will give our musical talent such a hearty support that we too may be able to justly pride ourselves on our concerts. We have full confidence in the directors of the Institute, and wish them the success which they deserve. The first concert will be given on the 20th. Thanks for the ticket.

ANOTHER GRASS VALLEY MANUFACTORY.—Messrs. Tyrrell & Perry, says the Union, on Anburu street, near the Wolf creek crossing, have established an important factory. The kind of nails called "track nails," or the nails which fasten iron bars in the wood which makes the run way for the miner's cars, is made in Grass Valley. These nails have heretofore been imported from the Eastern States. No factory in California has made the track nail.

CHARGING QUICKSILVER.—In answer to a query from a "Sierra County Millman," we would state that it takes from one to one and one-third ounces of gold to charge 100 pounds of quicksilver for amalgamating purposes. The largest amount we ever obtained, in a mill experience of years, from retorting quicksilver, (which had been in use six months), was 4½ ounces of gold, worth \$16 an ounce, from 300 pounds of silver and at the end of another six months the yield was a fraction less than four ounces; that is, the quicksilver dissolved and held in solution that amount spite of squeezing through cloth or chamois leather.—Nat. Gazette.

MESSRS. DICK AND FITZGERALD, publishers, New York, send us Frost's Humorous Exhibition Dialogues, a selection of sprightly original dialogues for school exhibitions. Price 30 cents.

Patents and Inventions.

Notices of Recent Patents.

Among the patents recently obtained through Dewey & Co.'s Scientific Press American and Foreign Patent Agency, the following are worthy of mention:

DEVICE FOR OPERATING HEAVY GUNS.—A. F. Potter. Oakland. In these heroic times, when the hearts of mankind are inclined to war-like deeds, and the great topic of the day is the hostile meeting of armies, the production of an instrument of destruction has an unusual attraction for the general public. People have flocked to see the Prussian needle-gun and the French Chassepot, and no less interest was shown in Mr. Potter's breech-loading cannon, lately exhibited. The present invention has for its object the training and operating of heavy guns, and more especially the elevating and depressing of the gun, so that any required range may be obtained and kept, although the gun may be moved from place to place. It has also for its object the application of a graduated scale, so that the gun can be trained instantly on any point, the range of which is known or has been estimated. These objects are effected by means of cams or eccentrics mounted upon a transverse shaft beneath the gun, so that by means of a series of levers operating them, the angle of the gun can be changed. The lever through which the power is applied, moves over a graduated arc which shows the different distances, and it can be held at any point by a set screw. This does away entirely with the trail-screw (which is liable to be damaged by the weight of the gun or to run down), and provides a simple and effective method of obtaining and keeping any given range.

IMPROVED GANO PLOW.—J. H. Andrews, Benicia. While Mr. Potter has been attending to the devices of war, Mr. Andrews has been cultivating the peaceful arts, and looking to the wants of our own homes. He has succeeded in inventing a new construction of the gang-plow, by which the ready elevation or depression of the plows is effected. In his plow one end of the axle is bent down vertically, and in this vertical part slides up and down a block, which can be fastened at any point by a set screw, and which forms an axle for one wheel. The other wheel is attached to the main axle as usual. The plow frame and the rear end of the pole are connected by a bolt. A lever is pivoted on the seat-support and connected with the plow frame. Another (vertical) lever has its fulcrum at or near the level of the main axle and is provided with friction rollers which move over the lever first spoken of, so that when the foot of the driver presses the upper part of the vertical lever forward, it acts through these rollers on the other lever and thus raises the plow frame.

FLETCHER'S STEAM DITCHING MACHINE has been on exhibition the last week at I. H. Smalls, on Beale near Market street, and has attracted considerable attention. On a frame, 41 feet long and 12 feet wide, mounted on four wooden wheels, are placed a 23-horse power steam engine, the cutting apparatus and the belts for raising and discharging the earth. There are four revolving knives, for pulverizing the ground, two feet in width, and baving on each side a blade for turning the sloping edge of the ditch. These can be raised or lowered as desired. The earth is thrown from them upon a gutta percha apron or belt, which elevates it to the rear of the machine, whence it is thrown off to the side of the ditch by a horizontal belt. The machine, we are told, will cut daily from one to two miles of ditch 4½ feet deep, 4 feet wide at the top, and 28 inches wide at the bottom, three workmen and an engineer being required to run it. The entire weight is about 8 tons.

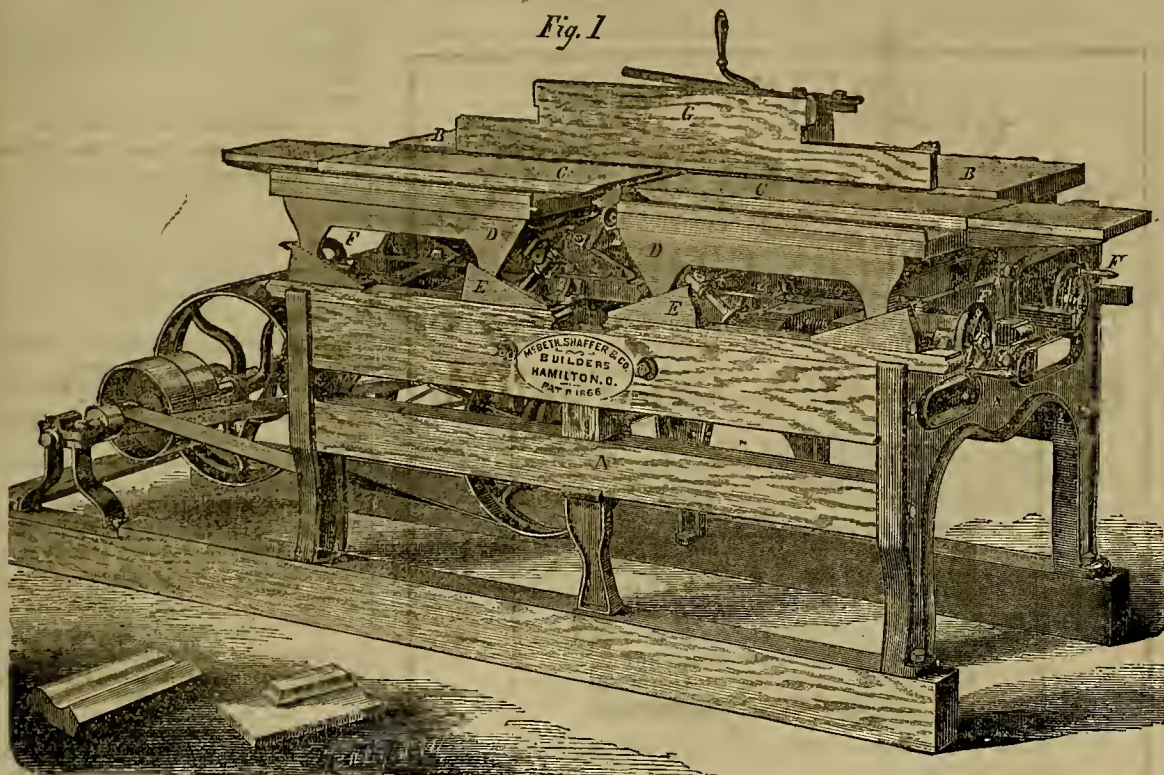
Universal Wood Worker.

A glance at the accompanying engravings will show a most useful labor-saving machine for wood working, which is adapted to almost every variety of work of the kind. The cuts show both sides of the same device,—on that represented in Fig. 1, all kinds of jointing, rabbeting, bevelling,

C, two other adjustable tables (the three being independent of one another) sliding on beds, D, which rest on inclines, E. Those last are bolted on a sliding frame, and by moving them backward and forward by means of the screws, F, the tables are raised and lowered. An iron fence, G, graduated in half and quarter inches, is fastened at right angles to B, being held by

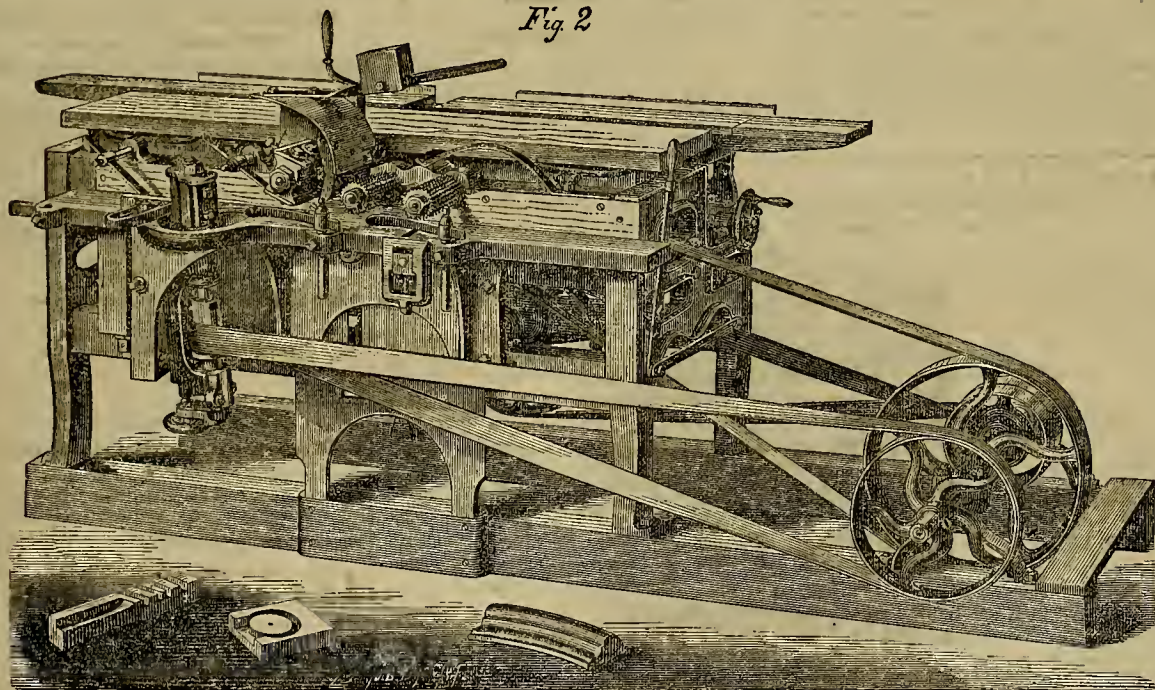
niture of every description, carriages, wagons, railroad cars, distillers' and brewers' tubs; in machine shops, brush factories, etc., etc. It has a capacity for heavy or for light work, is not complicated, is quickly adjusted, requiring only the time necessary for replacing one head by another, can be worked on advantageously by two persons at the same time. We com-

Fig. 1



UNIVERSAL WOOD WORKER.—SIDE FOR JOINTING, RABBETING, ETC.

Fig. 2



UNIVERSAL WOOD WORKER.—SIDE FOR MAKING MOULDINGS, ETC.

panel raising, gaining, planing out of wind, smoothing, plowing, circular moulding, cornering, hand-matching, heading, fluting, sawing, etc., are done; while the other side, Fig. 2, is adapted for thickening, making mouldings, sash, door and blind work, and all the purposes for which a sticker or moulder of this capacity is intended. It will plane eight inches wide, and two sides at once, has a fifteen-inch drop and two feed rollers with a parallel feed. Such is the endless variety of work for which the machine is adapted, and as good authority has pronounced the quality of the work done as "remarkably good," we have spoken in its praise.

We can give but a very brief and partial description of the machine, which is clearly enough shown in the cuts. A is the frame; B, an adjustable table; C

wing-nuts through slots in the arms, and can be moved over the tops of the knives.

Attached to the beds, D and A, and to cross-ties below, is an arrangement, shown in the cut, for moving the tables (in raising and lowering) in an oblique direction, and carrying them towards the bits in raising, and away from them in lowering, so as to prevent their being struck by the bits when adjusted and running. The bevel nut and fence are made in a single piece and can be adjusted at any angle. Three kinds are made, one with boring and routing attachments, one with sticker attachments, for planing one side, and one with sticker attachment for planing two sides.

We are told that the machine is in successful operation in more than six score of the best shops in the country, where it is used for making sashes, doors, blinds, fur-

niture of every description, carriages, wagons, railroad cars, distillers' and brewers' tubs; in machine shops, brush factories, etc., etc. It has a capacity for heavy or for light work, is not complicated, is quickly adjusted, requiring only the time necessary for replacing one head by another, can be worked on advantageously by two persons at the same time. We com-

THE MAXWELL LAND GRANT AND R. R. Co. have served a notice on the Moreno M. and Water Co., forbidding them to divert into their ditch any stream of water on the land claimed to belong to the grant. The *Press and Telegraph* claims that the Moreno Valley is outside of the limits of the grant.

PROSPECTING PARTY.—A company is being formed in Sacramento for the purpose of sending prospectors to Utah. Two men are to start soon, one of whom has resided in the Territory some eighteen months, according to the statement of the *Record*.

Notes on Contributions to Our Cabinet.*

Mr. R. H. Evans has very kindly sent us a number of specimens of ore from the mines around Kernville, Kern county, together with notes thereon. Those numbered 504 to 507 (inclusive) are from mines owned by the Big Blue Lead corporation, which are all worked at the present time.

No. 504.—Under this number are included four samples from the Big Blue, a lode from 60 to 80 feet wide, which has been worked more or less for the last eight years. The ore has paid from \$3 to \$8 per ton in gold, some closely selected lots yielding \$60. The vein has a north and south strike and a dip to the west. The deepest shaft is down 80 feet. Nearly all the ore milled, some 10,000 tons, came from within 30 feet of the surface, the water hindering operations below that depth. The country rock is granite. The gangue is quartz, in some specimens considerably decomposed, holding varying amounts of arsenical pyrites (mispickite).

No. 505.—A sample from the Sherman lode, which is about 3 feet wide, and has been worked to a depth of 260 feet and over a length of about 300 feet. The ore averages about \$30 per ton. The specimen is marked \$23, and apparently came from the walls of the vein.

No. 506.—Two specimens from the Ubana lode, a small vein about 12 inches wide, but rich. The ore mills from \$40 to \$70 per ton. Both specimens are considerably decomposed, and one shows quite a large amount of free gold.

No. 507.—Two specimens from the Jeff Davis lode, the richest, it is said, in the district, the ore milling from \$60 to \$100 per ton. The vein is from 12 to 18 inches wide. Both pieces are considerably decomposed and are marked \$87 per ton.

No. 508. This is a specimen of ore from the Joe Walker mine, Walker Basin. It is not particularly remarkable in appearance, is white quartz containing a little mispickite, etc.

No. 509.—Mr. R. F. Knox, the same who has been running his improved furnace for reducing quicksilver ores, presents us with a handsome specimen of cinnabar from the Manhattan mine—a new working—in Lake county.

*Under this heading we shall continue to mention and describe, according to merit, such specimens of ores, minerals, fossils, curiosities, etc., as may be sent to us by mail or express prepaid. Each article will be numbered, marked with the name of the donor and the locality, and placed in our cabinet. A full account of the place, occurrence, etc., when sent adds much to the value of such specimens.

ORGANIC REMAINS.—A few days ago, says the *Avanuche*, of Silver City, Idaho, H. B. Maize of this place, found imbedded in the soil on Rabbit Creek, about ten miles from Snake River, what seems to have been an elephant's tusk of huge dimensions, it being nine inches in diameter at the base and six feet in length. In the same locality Mr. Maize also noticed fragments of petrified wood in abundance, and a variety of bones of animals whose species probably do not now exist. The entire country between here and Snake river, and extending from Bruneau to Reynolds' creek, is one vast expanse of organic remains, which would furnish an interesting field of scientific research for the geologist as well as the comparative anatomist.

BROMINE.—The Commissioner of the General Land Office is in the receipt of potash salts from Churchill county, Nevada. As these extensive deposits continue to exercise considerable influence upon chemical industry, we call the attention of the public to this important new source of our mineral wealth. Not only do they furnish now the very purest potash, but the lye resulting therefrom has also become available for bromine, the price of which since 1865 has fallen to one-fourth of its former value. The bromine has scarcely been of any use heretofore, but since the discovery of the potash deposits in Safford and in Nevada, it has become of daily growing importance.—*Carson Appeal*.

THE whole mountain range around San Bernardino is reported on fire.

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B. ROTHSCHILD, Secretary.

20v17

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GEO. E. PHELAN.

W. H. J. BROOKS,

Searcher of Records, and Examiner of
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DESIGNS AND PLANS

FOR THE

NEW CITY HALL

OF

SAN FRANCISCO.

Office Board of City Hall Commissioners, southeast corner of Sacramento and Montgomery streets, San Francisco, June 22, 1870.

The Board of City Hall Commissioners hereby give notice that they will be prepared to receive at their office, on or before the FIRST DAY OF NOVEMBER NEXT, designs and plans for the new City Hall of San Francisco.

The Commissioners, in order to obtain the very best design and plan, invite the fullest competition among architects, and to this end have resolved to offer the following premiums:

First—For the design and plan selected and adopted \$3,500
Second—For the second best design and plan 2,000
Third—For the third best design and plan 1,500
Fourth—For the fourth best design and plan 1,000
Fifth—For the fifth best design and plan 500

The premiums payable in City Hall warrants.

As a guide to architects in the preparation of the designs and plans, the Commissioners have prepared a pamphlet containing full instructions and suggestions, as well as the terms and conditions upon which the premiums will be awarded.

Pamphlets can be had on application at the office of the Commissioners.

Any design or plan in which the requirements of the Board, as set forth in the printed instructions, have not been reasonably complied with, will be rejected from the competition.

P. H. CANAVAN, Chairman,

JOS. G. EASTLAND,

CHAS. E. McLANE,

City Hall Commissioners.

26v20-4m

A NEW REMEDY.

As this Preparation of these plants, lately made public (Patented June 28, 1870), but long proven in Siskiyou county, Cal., owes its efficiency entirely to its remarkable power of INCREASING THE INSENSIBLE PERSPIRATION, or, in other words, the VAPORY EXHALATIONS from the millions of minute pores of the EXTERNAL SKIN, from the crown of the head to the sole of the foot, it is all important that the direction to pass a sponge, or towel, dampened with saleratus water, under the clothing, twice a week, or oftener, be attended to.

Also, that when taken by LADIES, for IMPROVING THE COMPLEXION, for which it is very successful, that it should be in half doses, often repeated; and that one of the Pills of Citrate of Iron and Gum Myrrh, which erehence the bottom label of each bottle, be taken at night, much aiding in restoring Color in the Checks and Lips. To CHILDREN also, give it "little and often." It is agreeable to them any way, but especially if sweetened a bit; and it is admirably suited to their Diseases, which generally are those of the MUCOUS MEMBRANES.

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FOR irritated Stomachs, from Bad Liquor, Alkali Water, Strong Coffee, Saleratus Bread;

FOR humors on the Skin, or MUDDY COMPLEXIONS, or, in a single sentence,

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3v21-12bwr

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21v20-12c

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23v20-3m

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Notice is hereby given that the co-partnership heretofore existing between N. P. Langland and A. Cameron was dissolved by mutual agreement, September 1st, 1870.

The undersigned will continue the business of stair-building as formerly at No. 485 Brennan street, San Francisco.

14v214 N. P. LANGLAND.

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JOHN GORMAN,
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COMMISSIONED FOR
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REMOVAL.

DR. BEERS, Dentist.
Has removed from Tucker's Building to
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north, opposite the Occidental.
2v20-3m

Dr. J. H. PAINE, Dentist,
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16v20-3m JOHN F. LOHSE, Secretary.

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WHOLE WORLD
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its enduring fame. We do not deem it necessary to say
much in its favor as one small bottle will do more to
convince you of its efficacy than all the advertisements
in the world. Give it one fair trial and you would not
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R. H. VAN BRUNT.....Cashier.

BANKING HOUSE,

No. 415 CALIFORNIA STREET.
26v20-qy

Travellers' Guide.

Central Pacific Railroad.

Time Schedule, September 2, 1870.

EASTWARD.	Express Train Daily.	Passenger Sunday excepted.	Mixed.*
San Francisco	Leave	8:00 A.M.	7:00 P.M.
Oakland	"	8:30 A.M.	4:30 P.M.
San Jose	"	7:45 A.M.	4:30 P.M.
Sacramento	Arrive	12:02 P.M.	7:33 P.M.
Sacramento	Leave	1:50 P.M.	7:40 A.M.
Sacramento	Arrive	2:10 P.M.	9:10 A.M.
Marysville	Arrive	4:00 P.M.	1:15 P.M.
Chico	"	6:45 P.M.	5:20 P.M.
Colfax	Leave	5:00 P.M.	4:00 P.M.
Reno	"	1:15 A.M.	4:45 A.M.
Winnemucca	"	9:10 A.M.	10:15 P.M.
Battle Mountain	"	12:00 P.M.	3:50 A.M.
Carlin	"	3:10 P.M.	10:00 A.M.
Elko	"	4:40 P.M.	12:30 P.M.
Kelton	"	1:50 A.M.	7:45 A.M.
Ogden	Arrive	6:00 A.M.	5:00 A.M.

WESTWARD.	Express Train Daily.	Passenger Sunday excepted.	Mixed.*
Ogden	Leave	6:00 P.M.	5:00 P.M.
Kelton	"	10:42 P.M.	1:30 A.M.
Elko	"	8:45 A.M.	7:15 P.M.
Carlin	"	10:15 A.M.	9:45 P.M.
Battle Mountain	"	1:25 P.M.	3:15 A.M.
Winnemucca	"	4:05 P.M.	9:00 A.M.
Reno	"	1:00 A.M.	11:30 A.M.
Colfax	"	8:45 A.M.	12:30 A.M.
Chico	"	6:30 A.M.	10:30 A.M.
Marysville	"	9:10 A.M.	2:30 P.M.
Sacramento	Arrive	11:25 A.M.	7:00 A.M.
Sacramento	Leave	1:45 P.M.	7:30 P.M.
Stockton	"	1:40 P.M.	8:30 A.M.
San Jose	Arrive	5:25 P.M.	12:01 P.M.
Oakland	"	5:30 P.M.	2:10 P.M.
San Francisco	"	10:00 P.M.	12:40 P.M.

P. M. A. M.	Local Times.	A. M. P. M.
3:00	Leave.....SAN FRANCISCO.....arrive	10:40
3:20	".....OAKLAND.....arrive	10:12
4:40	".....NILES.....leave	8:40
6:35	arrive.....SAN JOSE.....leave	7:45

From	From	From
SAN FRANCISCO.	OAKLAND.	SAN JOSE.
B 6:50 A. M.	B 5:40 A. M.	B 5:30 A. M.
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the earlier machines the arrangement was exactly the same as in an ordinary syringe, as shown in Fig. 1, but it was found that the fluid pressure of the metal within the syringe created such an inordinate amount of friction upon the inner surface as to rapidly wear out the several parts; but by a slight modification, more in accordance with sound principles, the defect has been obviated.

In the arrangement shown in Fig 2, the piston contains the orifice, and in pressing against the upper surface of the metal, causes it to remain in a state of rest within the containing vessel; but as fluid pressure is equal in every direction, the solid finds the orifice as a point of less resistance, hence it flows outward in a continuous stream, thereby avoiding the friction of the solid lead within the cylinder. It will thus be observed that a rod of lead or tin can be squirted of any form or dimensions, depending on the die or orifice. In the Royal Arsenal may be seen lead thus squirted into continuous rod, and then wound upon reels like yarn, to be again unwound and made into bullets by self-acting compressing machinery; but the whole of the several processes are entirely due to the flowing property. Man's mechanism is subordinate, and may be varied to any extent as circumstances may require.

Pipes are made with the same facility as rods, by the mere insertion of a steel pin, the size of the required bore, placed in the bottom of the cylinder, and exactly in the center of the orifice, thus forming an annular space through which the metal flows outward as a continuous pipe; or, by making this pipe of sufficiently large diameter, and then cutting it open by a stationary knife as it leaves the machine, the pipe becomes a sheet of lead, which, by means of suitable rollers, may be wound on a reel as a long web of sheet lead, or the sheet lead may be rolled out by rollers. In both ways the same mechanical work has to be done; the respective friction is a disputed point.

A very singular result was obtained by an attempt to squirt brass pipes, which are extensively used as steam boiler tubes and for gas-fitting purposes. This brass consisted of 60 parts of copper and 40 parts of zinc, and of various other proportions, but, singular to relate, the pipes so squirted were zinc rather than brass; the most of the copper remained in the vessel and refused to flow. We are not to infer from this that the copper would not flow, but rather that the union between the zinc and the copper was less than the pressure necessary to make the copper flow; the mixture may have been more mechanical than chemical, or the temperature may have been such as to have had the zinc too near its melting point. Whatever is the explanation, the subject is well worth further experiment. In any such operation, the nearer the lead or other metal is to the liquid state, the easier it is accomplished; but it must be solid.

Lead or tin may be rolled out to any extent, either singly or both combined, or with a thin coating of other metal upon one or both sides of the lead, so as to have a leaden substance, but yet covered with a tin surface, perhaps not thicker, if so thick, as the leaf called tinfoil, thus combining economy, with scarcely any disadvantage, for many purposes.

A beautiful illustration of the flowing property of tin is shown in the manufacture of the German capsule, in which the paint for artists is made up for sale and use. A button of tin, as in Fig. 3, is laid in the recess of a die in a fly press; a corresponding punch or die, a little smaller, is then brought down upon it with a smart blow, thus leaving, from the difference of dimensions, an annular space between them, when the metal at once squirts up like water, but at a velocity much faster than the eye can follow, thus converting it into a perfect capsule. The form of the punch and die depends upon the article to be made, but in all provision has to be made for the admission of the atmosphere on the removal from the dies.

From these remarks it will be seen that, by understanding a few of the natural properties of these metals, how completely they are under man's control, and, by knowing the simple laws, he can modify the apparatus in thousands of different ways, in order to produce whatever may be required.

Mr. R. O. OLD, of the Terrible mine, thinks that Colorado will export only about 600 tons of ore, with the present cost of transport, during the next year. With lower charges, it would be much greater.

KANSAS CITY thinks itself the best location for smelting works for western ores.

Lode and Placer Claims.

The following are the instructions issued by Commissioner Wilson on this subject. We have already published the bill referred to.

Circular

In relation to the survey and entry of mining claims under the provisions of the Act of Congress, approved July 6th, 1866, "granting the right of way to ditch and canal owners over the public lands, and for other purposes;" and the Act amendatory thereof, approved July 9th, 1870.

DEPARTMENT OF THE INTERIOR,
GENERAL LAND OFFICE, Aug. 8th, 1870.

Gentlemen: The original mining Act of July 26th, 1866, U. S. Statutes, vol. 14, p. 251, having been amended in adding to its provisions additional sections twelve to seventeen, inclusive, by the Act of Congress, approved July 9, 1870, it becomes my duty to prescribe for your information and observance the following regulations, to wit:

1st. By the 12th section of the amendatory Act, Placer claims, including all forms of deposit, except veins of quartz or other rock in place, are made subject to entry and patent under similar circumstances, conditions, and like proceedings as contemplated in the original Act for vein or lode claims.

Placer claims on surveyed lands, are authorized to be entered by legal subdivisions, no special survey or plat in such case being required, at the rate of two dollars and fifty cents per acre. In regard to Placer claims, however, the amendatory law restricts their extent in respect to locations made after the date of its passage, not to exceed one hundred and sixty acres for any one person, or association of persons; such location being required to conform to the Government surveys, and not to interfere with any bona fide pre-emption or homestead claims upon agricultural lands.

2d. The Act further provides for the subdivision of forty-acre legal subdivisions into ten-acre tracts, and authorizes two or more persons, or association of persons having contiguous claims of any size, although less than ten acres each, to make joint entry of such minor subdivisions, all bona fide pre-emption or homestead claims upon agricultural lands being protected by law. The Surveyors General are therefore hereby authorized to have such subdivisions into ten-acre tracts made by their Deputies when applied for by claimants, numbering each ten-acre tract with consecutive numbers of claims in the township, as in the case of other mineral surveys, and if the service is performed by county or local surveyors, as authorized by the 16th section of the amendatory Act, it will be the duty of the Surveyor General to verify the surveys so executed, and if found correctly done, to adopt the same and certify the fact, appending his approval as in cases where surveys are made under his own direction. The expense of such subdividing is required to be defrayed by the mining claimants.

3d. In the thirteenth section it is declared that in the absence of any adverse claim where said person or association, they and their grantors shall have held and worked their said claims for a period equal to the time prescribed by the statute of limitations for mining claims of the State or Territory where the same may be situated, evidence of such possession and working of the claims for such period shall be sufficient to establish the right to a patent thereto, subject to any lien which may have attached to such claim prior to the issue of said patent.

The foregoing provision is construed to apply as well to lode as to placer claims, and should lessen the amount of proof usually required to establish a right to a patent.

4th. In the fourteenth section it is declared that all ex parte affidavits required under the original and amendatory Acts may be verified before any officer authorized to administer oaths within the land district in which the claims are situated.

5th. By the fifteenth section it is declared that Registers and Receivers are entitled to the same fees for service in mining cases, as are provided by law for like services under other Acts of Congress, the rates of allowance being specifically given under our circular dated July 21st, 1870.

6th. By the sixteenth section the interdiction placed by the Act of March 3d, 1853, "that none other than township lines shall be surveyed where the lands are mineral," is repealed; this provision of law being referable to surveys in California only; the extension of the lines of future surveys over the lands mentioned in this section applies exclusively to this State. The requirement, however, in the last proviso of the same section, "that nothing contained shall require the survey of waste or useless lands," is a principle of general application and Surveyors General will refrain from extending the lines of public surveys over such waste lands which are considered to be those covered by alkali to a depth calculated to prevent the growing of crops, moving sand, or other sandy plains of great extent, and abrupt or snowy mountains not known to contain mineral deposits.

7th. Section seventeen authorizes the extension of the rights conferred by sections 5, 8, and 9 of the original Mining Act, to all public lands affected by this law, and subjects all patents granted or pre-emptions or homesteads allowed, to any vested or accrued water rights, or rights to ditches and reservoirs used in connection with such water rights as may have been acquired under, or recognized by, the said ninth section, said section declaring further that nothing in the act shall be construed to repeal, or in any way affect, the Act granting the right of way and

other privileges to aid in the construction of a draining and exploring tunnel to the Comstock lode in the State of Nevada, approved July 25th, 1866, U. S. Statutes, volume 14, p. 242.

8th. The per diem allowance to Deputy Surveyors including all expenses of assistants, for surveys of mineral claims, as stipulated in our circular letter of January 14th, 1867, has been in several cases found inadequate, and that, consequently, parties in order to induce Deputies to make the surveys have found it necessary to pay additional sums as on private account. To avoid such results the Surveyors General are hereby authorized to increase the maximum per diem allowance according to the difficulty of the service, taking care, however, to have the work performed on the most economical scale by skillful and responsible surveyors, and in no case to exceed a maximum of \$20 per day.

In each case where an allowance is made of over \$10 per day, the reasons showing the necessity for doing so must be stated in the contract and then reported to this office, and it must be understood that no extra compensation, under any circumstances whatever, is to be exacted or received by the deputy upon penalty of forfeiting the contract and exclusion from the public surveying service.

SPECIAL INSTRUCTIONS RELATIVE TO OBTAINING PATENTS FOR MINING CLAIMS.

With reference to the proceedings necessary to obtain patents for lode or placer claims under the provisions of the Acts of Congress above mentioned, the following is communicated:

9th. The mining enactments limit the right to apply for and receive patents for mining claims to claimants—

First. Who have occupied and improved their claims according to the local customs or rules of miners, or—

Second. Who have, by themselves or their grantors, held and worked their claims for a period equal to the time prescribed by the Statute of Limitations for mining claims of the State or Territory where the same may be situated.

Third. Who have expended in actual labor and improvements upon their respective claims an amount of not less than one thousand dollars and—

Fourth. In regard to whose possession there is no controversy or opposing claim.

Unless, therefore, applicants for mining patents are properly within these requirements, they are not in a condition to avail themselves of the privileges extended by the laws referred to.

THE APPLICATION.

10th. This must be in writing, and must be filed in the office of the Register and Receiver of the Land District in which the claim lies. It must distinctly state the name of the applicant and whether the claim is applied for by an individual, an association, or an incorporation; the name and extent of the claim; the character of the ore; the mining district, county and State; the date of its original location according to the mining customs; where the same was recorded; whether the applicant claims as a locator or purchaser; give a description of the premises claimed, and the nature of the improvements made, or labor performed; and finally the application should state that the claimant has posted a "Diagram" of the claim in a conspicuous place thereon, together with a notice of his intention to apply for a patent, giving the date of such posting.

11th. With the above application the claimant must file a copy of the "Diagram" posted on the claim, which diagram must represent the boundaries of the premises, as fixed by the local laws, customs or rules of miners, and when the claim lies upon surveyed land, it must also show its relation to the public surveys.

12th. Diagrams of PLACER claims upon surveyed lands must represent the subdivision of the public lands which the claimant desires to enter, as the Act requires such entries, in their exterior limits, to conform to such legal subdivisions.

13th. With said diagram must be filed a copy of the "Notice" posted upon the claim.

This should state the name of the claimant, describe the claim, give the names of adjoining claims, or if none adjoin, the names of nearest claims; state whether it is a placer or rock claim; if the former, the approximate area, if the latter, the estimated extent of surface ground, and the number of feet claimed on the course of the vein, distinctly stating the name of the lode and the character of the vein exposed; the mining district, county and State in which it lies; whether upon surveyed or unsurveyed lands; if the former, in what section, township and range; if the latter, the location of the claim relatively to some known natural object or landmark in the vicinity; and finally the notice should state that it is the intention of the claimants to apply for a patent for the premises therein designated and upon which it is posted.

14th. There should also be filed with the application satisfactory evidence that the applicant has the possessory right to the claim agreeably to the local laws or customs of miners. This should consist of a certified copy of the laws or customs of the miners of the district in force at the date of the location of the claim, and of a certificate, under seal, of the County or Mining Recorder, giving a copy of the record of the original location of the claim, with name or names of the locators, and if the applicant claims as a purchaser, an abstract of the title should be filed, tracing the right of possession from the original locators to the applicant for patent. Where applicants furnish satisfactory evidence that they and their grantors have held their claims for a period equal to the time pre-

scribed by the statute of limitations of mining claims of the State or Territory where the same may be situated, such evidence being sufficient to establish a right to a patent for a claim so held and worked, upon compliance with the other provisions of the law and instructions, the proofs enumerated under this subdivision, (14,) of the instructions are not required.

(TO BE CONTINUED.)

Solid Beer.

The Englishman and the German retain their love of their beer, in whatever clime they may wander. But they can nowhere else find that article so good as in their native countries. It will interest many to know that a German invention for concentrating the wort and making the beer from the "grainstone" has been transplanted to England, and that a large factory for working the process has been started at Margate, so that henceforth one can order his beer "in the lump." We find an account of the manufacture in the *Australasian*, a paper published at Melbourne, which contains an immense amount of reading matter (and most varied and excellent matter it is), some 23 pages in each number. According to this account, the malt is placed in the mash tub, hops are added to the sweet-wort, and the liquor is allowed to cool and clarify, according to the usual practice. At this point, however, the liquor is sucked up into a vacuum where it is kept in a rotary motion, and then transferred into a smaller vacuum pan and treated similarly until it assumes a pasty consistency. Thence it falls, at the proper time, for a considerable distance, thereby becoming more concentrated, and finally is pounded in a pasty state into boxes lined with tin and hermetically sealed. All that the consumer now has to do, is to break off a proper-sized piece, to add the requisite amount of water and some yeast, and, when the beer has fermented, to rack it off into casks. The resulting liquor is excellent and would cost about 21 cts per gallon in Australia. Unless the customer chooses to adulterate it himself, he cannot fail to have a beverage of pure malt and hops, which is something in this age of mixtures.

NEW SMELTING FURNACE.—We learn from the *London Mining Journal* that Mr. G. Metcalf of the Pertusola Foundry, near Spezia, Italy, has invented a new lead smelting furnace which is successfully operated. A reverberatory furnace is divided longitudinally for a portion of its length by a vertical partition or wall extending upward to the crown of the furnace, but not extending to the grate, so that a chamber with a bed is left near the fire-place extending the entire breadth of the furnace. The furnace bed is constructed by preference of a peculiar curved form and has a false door fastened parallel to the tapping door, the interval between the two being filled with bone-ash or similar substance. This last is for the purpose of getting out all the lead, in case the bed leaks or is destroyed. The two compartments formed by the partition have at their ends arrangements for opening and closing communication between them, and flues leading thence to the chimney. The charges are placed in these compartments and gradually fed towards the fire until they get close to the fire-bridge when the greater part, melted to a slag, is removed. The lead formed is tapped out. The draft is shut off from each compartment alternately, thus exposing the charges to alternating influences. It will be readily understood, says the description, [but we don't readily understand it] that, as already stated, [but it has not been already stated] four charges are continually under treatment—two on the preliminary side of the partition and two on the finishing side. The charges average 1½ tons of ore and a charge is drawn every six hours. The result is declared excellent by competent judges. The loss by volatilisation is uncommonly small and the saving of fuel is enormous, 5 tons with this furnace doing quite as much work as 26 or 28 with the old kinds.

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Every Legitimate Branch of Patent Agency Business promptly and thoroughly conducted.
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DEWEY & CO.,

Publishers and Patent Agents, No. 414 Clay street below Sansome, San Francisco.

IMPORTANT BOOK!

JUST ISSUED.—Roasting of Gold and Silver Ores, and the Extraction of their Respective Metals without Quicksilver. By G. Kustel, Mining Engineer and Metallurgist; Author of "Nevada and California Processes of Silver and Gold Extraction," and "Concentration of all Kinds of Ore." Illustrated by numerous engravings. Published and sold by Dewey & Co., proprietors SCIENTIFIC PRESS, San Francisco.

This Book contains 120 pages. Price, \$2.50, gold, or \$3 currency, postage paid.

THE SCIENTIFIC PRESS (San Francisco), one of the best journals on the Western slope.—N. Y. Herald and Home.

PHOTOGRAPHY.—FOR CABINET PHOTOGRAPHS, OF ENAMELED Cards, of the very best quality, you must go to the NEW YORK GALLERY, Nos. 25 and 27 Third street, San Francisco. Every picture warranted to give satisfaction.
11/13 6m S. F. HOWLAND

BOILER FELTING SAVED twenty-five per cent. of fuel, BERRY & PLACER'S MACHINERY DEPOT, No. 114 California street.
1/21-3m

BLO & TIN AND SOLDER WIRE, broom wire, piano covering wire, etc., manufactured by Joshua Gray, 437 Broadway street.
1/19-3m

THOMAS O'NEIL Ornamental Glass Cutter, No. 10 Ste Vernon street, up stairs. Stained, Ground and Ornamental Cut Glass to order on reasonable terms. 1/1/20

HAVING had numerous applications to purchase the right to manufacture CHAMPAGNE MEAD (the great temperance drink), we will state that we are now prepared to sell State and County Rights on reasonable terms.
San Francisco, July 10, 1870. KENYON, GARR & CO. 2/21-3m

A GENTLE WHISPER TO MOTHERS.—If unfortunately you have lost your own teeth or neglected or mismanaged, take care that your daughters do not suffer the same penalty from the same cause. See to it that they brush their teeth regularly and thoroughly with NOZONOT and thereby you will insure them sound and serviceable sets as long as they live.

"SPALDING'S GLUE," handy and useful.

A GRAND ENTERPRISE has been started in Nevada City in aid of the Nevada School District. The highest Prize is \$10,000 Gold Coin. Every other ticket draws a prize. The scheme is a very liberal one, and the Managers are among the most respectable citizens of Nevada. The Nevada city paper speak in the highest terms of this Enterprise. See advertisement in another column and do not forget it when read.

THE Scientific Press is devoted specially to matters machinery, inventions and processes pertaining to the development of mines, and gives free and full discussions of such matters. Terms, \$4 per year.—White Pine News, May 10.

Mining and Company Advt's.

Silver Sprout Mining Company.—Location of Works and Mines: Kearsego District, Inyo County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 29th day of August, 1870, an assessment of twenty-five (25) cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary, at the office of the Company, No. 408 California street, San Francisco, Cal.

Any stock upon which said assessment shall remain unpaid on the eighteenth day of October, 1870, shall be deemed delinquent, and will be duly advertised for sale by public auction, and unless payment shall be made before, will be sold on Thursday, the first (1st) day of December, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

T. B. WINGARD, Secretary, Office, 408 California street, San Francisco, Cal. 1/17

Mountain City Mining Company.—Location of Mine: Cope District, Elko County, State of Nevada.

Notice is hereby given that at a meeting of the Board of Trustees of said Company, held on the 29th day of September 1870, an assessment of fifty cents per share was levied upon the capital stock of said Company, payable immediately in United States gold coin to the Secretary at the office of the Company, No. 206, Front Street.

Any stock upon which said assessment shall remain unpaid on the seventh day of November 1870, shall be deemed delinquent, and will be duly advertised for sale by public auction, and unless payment shall be made before, will be sold on Monday the 28th day of Nov. 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

T. B. WINGARD, Secretary, Office, No. 206, Front Street, San Francisco, Cal. 1/17

Columbus Mining Company.—Location: Roach Hill, Placer County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the twenty-eighth day of September, 1870, an assessment of seventy-five (75) cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary, 419 California street, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on the second day of November, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Saturday, the nineteenth day of November, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

A. NOEL, Secretary, Office, 419 California Street, San Francisco, Cal. 1/17

La Blanca Gold and Silver Mining Company. Location of Works: District of Ures, State of Sonora, Mexico.

Notice is hereby given that the annual meeting of the Stockholders of the above named company will be held on Monday the tenth day of October 1870, at the office of the Company, No. 312 Front Street, San Francisco, California, for the purpose of electing Trustees for the ensuing year, and for the transaction of such other business as shall properly come before the meeting. By order of the President, JOS. GOLDMAN, Secretary.

Land Purchasers' Association.

NOTICE.—At a meeting of the Board of Trustees of the Land Purchasers' Association, held Oct. 1st 1870, the following resolution was adopted by unanimous vote:

Resolved, That an assessment of ten dollars per share, gold coin, be, and the same is hereby levied, upon each and every share of the capital stock of the Land Purchasers' Association now held by subscribers thereto; being for the monthly installment falling due and payable Oct. 1st, 1870. Said assessment is payable on or before the thirtieth day of Oct. A. D. 1870, to JAMES F. CROSETT, Secretary, at the office of the Association, No. 304 Montgomery street, San Francisco. Any stock upon which said assessment shall remain unpaid on the thirtieth day of October, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on the 26th day of November, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. J. F. CROSETT, Secretary. 1/17

To Hydraulic Miners.

Last season I patented my improved discharge pipe for Hydraulic Mining. I manufactured and sold six of them. They were used by the parties whose answers to inquiries as to merits or demerits, find herewith appended.

Holding such opinions it is not strange that Gold Run miners think the PRESS correspondent got things slightly mixed when he represented them as preferring Craig's Globe to the Dictator.

RECOMMENDATIONS:

Your Patent Discharge Pipe known as the Dictator exceeds my expectation. I am now using a 4-inch nozzle at 250 feet pressure and can move my pipe in any direction with one hand. I consider it a perfect success and far ahead of the Globe Joint.

H. KELSEY, Jehosophat Co., Dutch Flat.

I fully endorse Mr. Kelsey's opinion and intend to use the one I have on my upper bench and get one of your large ones for the bottom next season.

J. PHILLIPS, Central Co., Dutch Flat.

Your Dictator gives perfect satisfaction. Get me another ready against water comes.

W. JUDD, Ind. Hill, Gold Run.

The Dictator is a perfect success. I shall want two for the Kearsago Claim next season.

H. H. BROWN, Gold Run.

Get me two Dictators of the large size ready against next season. I shall run both at Indians Hill and lay aside the small one I have. This is sufficient answer as to how I like my pipe.

JASON RINKS, Indiana Hill.

I pronounce the Dictator ahead of the Globes. I would perhaps use Craig's Globe if I could get nothing else. I am working at over 300 feet pressure and using a 4-inch nozzle, yet can move my pipe easily with one hand.

W. O. BROWN, foreman, Golden Gats and Church Claims, Gold Run.

We want you to get ready for us two more of your large size Dictators for the Cedar Claim against next season.

BROGAN & CO., Gold Run.

These joints being protected by letters patent dated June 1870, I will prosecute all parties infringing whether by manufacture or use.

I will guarantee against all suits for infringement by parties holding untenable patents and wishing by threats of law to secure by intimidation a monopoly for an inferior article. For particulars apply to

R. HOSKIN, Dutch Flat, Placer Co. 15/212t

LEA & PERRINS'

CELEBRATED

Worcestershire Sauce.



Declared by Connoisseurs to be the only good SAUCE. The success of this most delicious and unrivalled Condiment having caused certain dealers to apply the name "Worcestershire Sauce" to their own inferior compounds, the public is hereby informed that the only way to secure the genuine is to ask for LEA & PERRINS' SAUCE, and see that their names are upon the wrapper, labels, stopper and bottle.

Some of the foreign markets having been supplied with a spurious Worcestershire Sauce, upon the wrapper and labels of which the names of Lea and Perrins have been forged, L. and P. give notice that they have furnished their correspondents with power of attorney to take instant proceedings against manufacturers and vendors of such, or any other imitations by which their right may be infringed.

Ask for LEA & PERRINS' Sauce and see name on wrapper, label, bottle and stopper.

Wholesale and for export by the Proprietors, Worcester, Cross and Blackwell, London, &c., &c. and by Grocers and Oilmen universally. Agents, CROSS & CO., San Francisco. 1/20-1/20w

New Advertisements.

Every Advertisement in this journal is published throughout its entire Mining, Agricultural, Monthly and Quarterly Editions.

THE ASPHALTUM PRESSURE PIPE COMPANY,

HAVING ERECTED A MANUFACTORY of sufficient capacity to supply their Asphaltum Pipe in large quantities.

Are now Prepared to Take Orders AND MAKE CONTRACTS.

This Company will manufacture Pipes and guarantee it to stand any pressure required; it is lighter than iron pipe and more durable, it is not affected by chemical action, cannot corrode, and being glazed imparts no disagreeable taste to water. To miners and farmers it is invaluable; any body can put it down; it is twenty per cent cheaper than iron pipe and ten times more durable. For further particulars, apply at the office of the Company, Room No. 2, 645 Market street. 16/21-tf

TO MINERS, MILLMEN AND METALLURGISTS. Kustel's new work on the Concentration of all kinds of Ores, and the Chlorination Process, for Gold-bearing Sulphurets, Arseniurets, and Gold and Silver Ores generally, is the best and most complete work issued. It contains 120 diagrams, illustrating machinery, etc., which alone are of the greatest value. Price, \$7.50, postage paid. Published by Dewey & Co., publishers of the Scientific Press, San Francisco.

\$85,000 00

GRAND ENTERPRISE!

PARTIAL LIST OF PRIZES

1 Premium Gold Coin,	\$10,000
1 Premium Gold Coin,	5,000
1 Premium Gold Coin,	3,000
1 Premium Gold Coin,	2,000
1 Premium Gold Coin,	1,000
1 Premium Gold Coin,	1,000
1 Premium Gold Coin,	1,000
1 Premium Gold Coin,	1,000
1 Premium Gold Coin,	1,000
10 Premiums Gold Coin,	2,000
10 Premiums Gold Coin,	1,000

50,000 \$ upon Tickets \$2.50 each. 25,000 Prizes amounting to \$85,000 will be awarded to Ticket Holders during a Grand Fair to be held, commencing Oct. 27th and to continue two weeks.

This grand Enterprise is gotten up in Aid of the
NEVADA SCHOOL DISTRICT,
NEVADA CITY, CALIFORNIA.

TRUSTEES:

HON. J. I. CALDWELL, JUDGE NILES SEARLS,
and A. B. GREGORY.

Treasurer: Bank of Nevada County.

References residing in this city:

O. VON SCHMITZBERG, Postmaster; JUDGE T. H. ROLFE, A. W. POTTER, ex-Sheriff; J. A. LANCASTER, National Exchange.

Responsible Agents Wanted.

Liberal commissions allowed. For full particulars and terms to Agents, Address

R. L. GRINNAN, Secretary,
Nevada City, California.

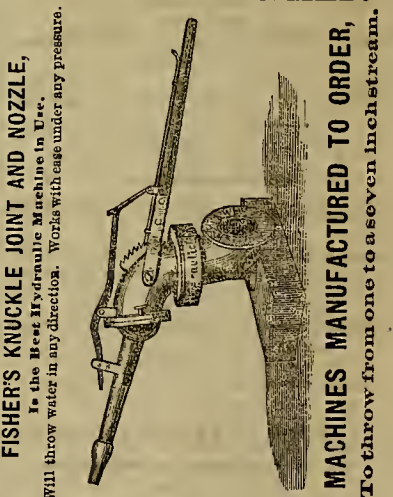
FOR SALE.

One 10-stamp Mill with thirty Horse Power Engine' Boiler, Hoisting Reel, Eight Inch Cornish Pump, Wire Rope Cars, all complete and as good as new, will be sold at a bargain. Inquire of

PRESCOTT & SCHEIDEL,
Proprietors of Marysville Foundry,
MARYSVILLE, CAL.

16/21-1m

HYDRAULIC CHIEF.



FISHER'S KNUCKLE JOINT AND NOZZLE, is the Best Hydraulic Machine in Use. Will throw water in any direction. Works with ease under any pressure.

MACHINES MANUFACTURED TO ORDER, To throw from one to seven inch stream.

F. H. FISHER,
NEVADA CITY.

Stiles' Factory, South end Suspension Bridge.
16/21-1m

MARAVILLA COCOA.—For Breakfast.—The Globe says: "Various importers and manufacturers have attempted to attain a reputation for their prepared Cocos, but we doubt whether any thorough success has been achieved until Messrs. Taylor Brothers discovered the extraordinary qualities of 'Maravilla' Cocos. Adapted to their perfect system of preparation to this finest of species of the Theobroma they have produced an article which supersedes every other Cocoa in the market. Entire solubility, a delicate aroma, and a rare concentration of the purest elements of nutrition, distinguish the Maravilla Cocoa above all others. For homeopathic and invalids we could not recommend a more agreeable or valuable beverage." Sold in packets only by all Grocers, of whom also may be had Taylor Brothers Original Homoeopathic Cocoa and Soluble Chocolate. Steam Mills—Briok Lane, London. 16/20-1y

TREATMENT OF REBELLIOUS SILVER ORES by Charles H. Aaron—a pamphlet of eight pages of concise reading, of practical value to parties interested in the subject. Printed and sold by Dewey & Co., at this office, for 25 cents, post paid

San Francisco Metal Market.

PRICES FOR INVOICES

Jobbing prices rule from ten to fifteen per cent. higher than the following quotations.

THURSDAY, Oct. 13, 1870.	
Iron, -Duty: Pig, \$9 per ton; Railroad, 60c per 100 lbs.; Bar, 1 1/2c per lb; Sheet, polished, 3c per lb; common, 1 1/2c per lb; Plate, 1 1/2c per lb; Pipe, 1 1/2c per lb; Galvanized, 2 1/2c per lb.	
Scotch and Eng. Pig Iron, per ton.....	28 @ \$30 00
White Pig, per ton.....	26 00 @ 28 00
Refined Bar, lead assortment, per lb.....	03 @ —
Refined Bar, good assortment, per lb.....	04 @ —
Boiler, No. 1 to 4.....	04 1/2 @ —
Plate, No. 5 to 9.....	— @ 04 1/2
Sheet, No. 10 to 13.....	04 1/2 @ 05
Sheet, No. 14 to 20.....	05 @ 05 1/2
Sheet, No. 24 to 27.....	05 @ 06 1/2
Copper, -Duty: Sheathing, 3 1/2c per lb; Pig and Bar, 2 1/2c per lb.	
Sheathing, per lb.....	— @ 26
Sheathing, Yellow.....	20 @ 21
Sheathing, Old Yellow.....	10 @ 11
Composition Nails.....	— @ 22
Composition Bolts.....	21 @ 22
Tr. Plates, -Duty: 25 cent. ad valorem.	
Plates, Charcoal, 12, per box.....	12 00 @ —
Plates, 1 C Charcoal.....	10 00 @ 10 50
Roofing Plates.....	10 00 @ 10 50
Banca Tin, Slabs, per lb.....	— @ 42
STEEL, -English Cast Steel, per lb.....	— @ 15
QUICKSILVER, -per lb.....	7 1/2 @ 70
LEAD, -Pig, per lb.....	10 @ 8
Sheet.....	10 @ —
Pipe.....	11 @ —
Bar.....	9 @ 9
ZINC, -Sheet, per lb.....	10 1/2 @ 11
BORAX.....	35 @ 28

Machinists and Foundries.

FULTON
Foundry and Iron Works.

HINKLEY & CO.,

MANUFACTURERS OF

STEAM ENGINES,

Quartz, Flour and Saw Mills,

Hayes' Improved Steam Pump, Brodie's Improved Crusher, Mining Pumps, Amalgamators, and all kinds of Machinery.

N. E. corner of Tehama and Fremont streets, above Howard street, San Francisco. 3-qy

THE RISDON
Iron and Locomotive Works.INCORPORATED.....APRIL 30, 1868.
CAPITAL.....\$1,000,000.Corner of Beale and Howard Streets,
SAN FRANCISCO.

Steam Engine Builders, Boiler Makers, Machinists, Foundrymen, and Manufacturers of Car Wheels equal to the best imported, and guaranteed equal to Eastern Wheels.

Directors:

S. F. Butterworth, Lloyd Telys, Wm. Alvord,
Wm. Norris, Joseph Moore, Chas. E. McLane,
John N. Risdon, John N. Risdon.JOHN N. RISDON.....President.
JOSEPH MOORE.....Vice President and Superintendent.
LEWIS R. MEAD.....Secretary.
24717-qyUNION IRON WORKS,
Sacramento.

WILLIAMS, ROOT & NEILSON,

MANUFACTURERS OF

STEAM ENGINES, BOILERS,

CROSS' PATENT BOILER FEEDER AND SEDIMENT

COLLECTOR.

WILCOX'S PATENT WATER LIFTERS,

Danbar's Patent Self-Adjusting Steam Piston

PACKING, for new and old Cylinders.

And all kinds of Mining Machinery.

Front Street, between N and O streets,

14-1 SACRAMENTO CITY.

CALIFORNIA BRASS FOUNDRY,

No. 125 First street, opposite Minna,
SAN FRANCISCO.

ALL KINDS OF Brass Composition, Zinc, and Bahilit Metal Castings, Brass Ship Work of all kinds, Spikes, Sheathing Nails, Rudder Braces, Hinges, Ship and Steamboat Bolts and Gongs of superior tone. All kinds of Cocks and Valves, Hydraulic Pipes and Nozzles, and Hose Couplings and Connections of all sizes and patterns, furnished with dispatch.

PRICES MODERATE.

P. GALLAGHER. J. H. WEED V. KINGWELL.

Wm. W. CANTY, JNO. BURR, P. PRETORIOUS, JNO. CONNER.
MINERS' CO-OPERATIVE BOILER SHOP.

228 FREMONT STREET,

Between Howard and Folsom, San Francisco.

—ALL KINDS OF—

High and Low Pressure Boilers Built.
SHEET IRON WORK, ETC., ETC.

Repairing promptly attended to.

17-20-5m WM. W. CANTY, Manager.

California File Manuf'g Co.

437 BRANNAN STREET, bet. Third and Fourth.

W. WUSTHOFF, L. KRAMER, M. HARRIS, J. BURKE.

REAPER AND MOWER SECTIONS, BARS
AND KNIVES COMPLETE.

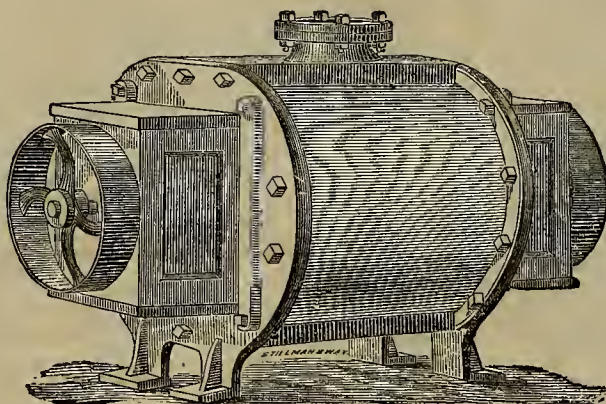
At a saving of 50 per cent. New Files of every description on hand and made to order. Old Files re-cut, and warranted equal to new. Orders from the country promptly attended to.

17-19-qy

ROOT'S PATENT FORCE BLAST ROTARY BLOWER.

MANUFACTURED BY KEEP & BARGION,

At the Globe Iron Works, Stockton, California.

Awarded the First Premium at
the Paris Exposition.Patented Nov. 1st, 1864; July
24, 1866; and Oct. 9, 1866.

ADAPTED

FOR

Smelting.

Foundry.

Mining

and

Steamships.

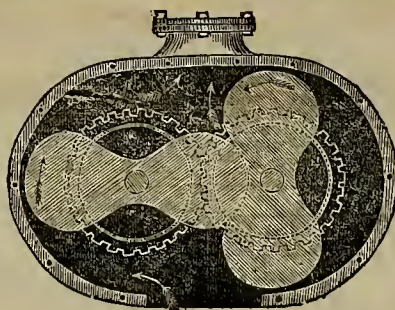
REQUIRES

Fifty Per Cent.

LESS POWER

Than any Blower

Now in use.



One of these Blowers may be seen on exhibition at W. T. Garratt's Brass Foundry, corner of Mission and Fremont street. They are also in use at the Almaden Quicksilver Mine; Gridley's Foundry, Gold Hill, Nevada; Etna Iron Works, San Francisco, and many other places.

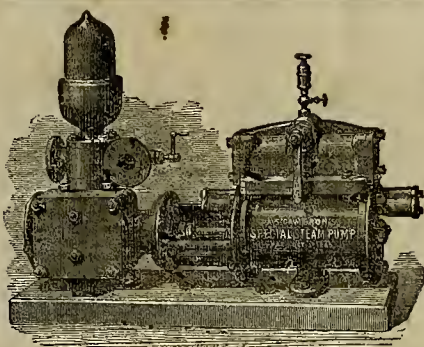
CAUTION.—Purchasers will find it to their advantage to apply direct to the Stockton Agency, as certain parties, not authorized to manufacture the Blower, have put in the market machines of inferior construction, which do not answer all the requirements of the genuine article.

Quartz, Saw and Grist Mill Irons, Steam Engines, Horse Powers, High and Low Pressure Steam Engines, Steamboats and Propellers, made at short notice.

For circulars and further information address

KEEP & BARGION,
Globe Iron Works, Stockton, Cal.

4716-5m

CAMERON'S
STEAM PUMPS.PICKERING'S
Engine Regulators.GIFFARD'S
INJECTORS.BARTOL'S
STEAM TRAP.SURFACE
CONDENSERS.

DAVID STODDART,

114 BEALE STREET.



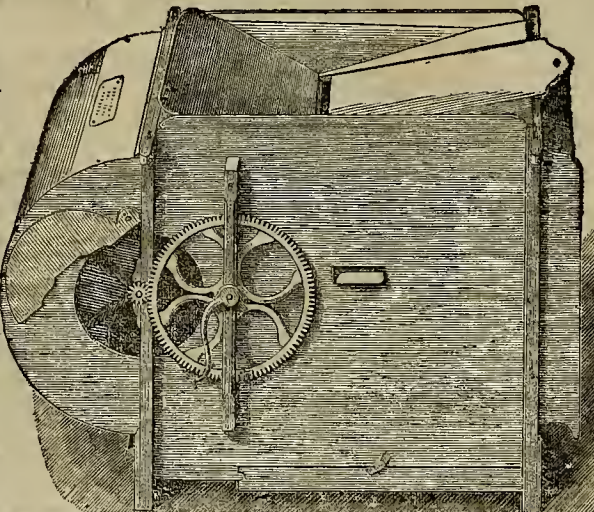
NOVELTY MILL AND GRAIN SEPEARATOR.

THE undersigned having purchased of the Patentees, WIRTS & SWIFT, of Hudson, Michigan, their right to this mill, Patented June 23d, 1869, for California, Oregon, Washington Territory, Montana, Utah, New Mexico and Arizona, wishes to call the attention of FARMERS, MILLERS and GRAIN DEALERS to one of THE GREATEST IMPROVEMENTS OF THE AGE for cleaning and separating grain. While it combines all the essential qualities of a first-class FANNING MILL, it also far exceeds anything that has ever been invented for the separation of grain. It has been thoroughly tested on all the different kinds of mixed grain, separating all the different small and cut kernels, such as merchantable wheat, is deposited in another compartment. By the use of this mill a great quantity of wheat usually sown that has been cleaned in the common mills will be saved to the farmer, as the cut or shrunken kernels will never germinate.

The above mentioned Novelty Mill is the only mill known to possess all these superior qualifications, and was exhibited and tested at the last Michigan State Fair held at Jackson, Michigan, September 21, 22, and 23, 1869, and here away the palm over some thirty other different mills from all parts of the United States, including the famous Dickey Mill of Racine, Wisconsin. All who have witnessed here the operations of the NOVELTY MILL, declare it perfection, and the most beneficial invention to the Farmers, Millers, and Grain Dealers ever introduced on the Pacific Coast. The farmers in Santa Clara County, are loud in its praise, and also in other parts of the State where it is being introduced. No. 1 Mill, complete, is capable of cleaning 25 tons of grain per day. No. 2 Mill, 15 tons; No. 3, M1, 8 tons. A large number of recommendations and certificates of the practical working of the mill will be furnished. Circulars containing references sent free by mail. N. B. Town, County, or State Rights for sale on favorable terms. For further particulars apply to

K. STONE, 422 Battery Street, San Francisco.

11-21-3m

GEO. T. PRACY'S
MACHINE WORKS,100 and 111 MISSION STREET,
SAN FRANCISCO.

MANUFACTURER OF

PRACY'S IMPROVED
PATENT STEAM ENGINE

GOVERNOR.



These Governors are the most sensitive built, running at a high velocity and maintaining a uniform speed.

SOLE AGENT FOR

L. W. POND'S CELEBRATED TOOLS,

—SUCH AS—

Lathe, Planers, Drills, Boring Mills, Milling Machines, Etc.,

Which I will offer at very low rates. Also,

MORSE'S TWIST DRILLS,
AND CHUCKS OF ALL KINDS.

MANUFACTURER OF

Steam Engines, and Mill Work Generally.

Sole Agent for TAFT'S PATENT SHEARS AND PUNCHES. 3v21

MACHINERY

—AT—

GREATLY REDUCED RATES.

Miners' Foundry & Machine Works,

235 TO 245 FIRST STREET,
SAN FRANCISCO.

This Establishment is now working upon the

CO-OPERATIVE PLAN,

And are thereby enabled to manufacture

MACHINERY, CASTINGS & BOILERS

AT EASTERN PRICES.

And better adapted to the wants of the Pacific States

Ascertain our prices before purchasing. 8v20q

ESTABLISHED 1851.

PACIFIC IRON WORKS,

First and Fremont streets,

SAN FRANCISCO!

IRA P. RANIN, A. P. BRAYTON,

GEO. W. FOGG, Superintendent.

Steam Engines and Boilers,

MARINE AND STATIONARY,

IRON AND BRASS CASTINGS

Mining Machinery of Every Description,

And all other classes of work generally done at first-class establishments, manufactured by us at the lowest prices, and of the best quality.

Particular attention paid to Jobbing Work and Repairs.

N. B.—Sole Agents for sale of HUNTOON'S CELEBRATED PATENT GOVERNOR.

18v20-3m GODDARD & CO.

McAFEE, SPIERS & CO.,

BOILER MAKERS

AND GENERAL MACHINISTS,

Howard st, between Fremont and Beale, San Francisco.

Flue or Tubular Boilers, with plain circular or spiral courses. Upright Flue or Tubular Boilers, Locomotive and Marine Boilers, and Wrought Iron Tanks of every description.

Hydraulic Pipe supplied at reasonable rates. In ordering, give the quantity of water to be supplied, height of the fall, and total length of pipe, so as to enable the firm to determine the diameter of the pipe and thickness of iron to be used.

Repairs.—Boilers, Smoke Stacks, Pipes, etc., put in repair with promptness.

To Boiler Makers and Machinists in the Interior.—The firm is prepared to furnish estimates of Boilers, supply new heads, drilled and punched, and attend to the selection and forwarding of iron for Boilers, Pipes and other purposes.

Plans, Drawings and Specifications.—The firm is prepared to make out Plans and Specifications, receive estimates, and superintend the erection of any Machinery that may be entrusted to their care.

To Inventors.—The firm is prepared to assist in developing the plans of those who have the ideas but not the practical experience necessary to put the same in form, by making Drawings of their inventions, giving them the benefit of their practical knowledge in the construction of Machinery, and attending to the manufacture and introduction of their inventions. 1v18f

To Those using Steam Power.

The Gardner Automatic Stop Governor will give you perfect regularity of speed and positive insurance against all accidents, resulting from Slipping or Breaking of the Governor or driving belts. Cost less than any other FIRST-CLASS GOVERNOR.

The Dreyfus Cylinder Lubricator

Will save 80 per cent. of Tallow, is automatic in its action and will give the Cylinder a steady supply of Tallow or Oil whenever the Engine is in motion. No writer or leakage. Cost from \$5 to \$40, according to size.

The Nathan & Dreyfuss Patent Oil Cups

Will save 90 per cent. of Oil. They are easily applied to all Shafting and all other bearings. For further information apply to

WILKIE DARLING, General Agent,
620 Washington St., San Francisco. 3v30

New York Metal Market.

[CORRECTED WEEKLY FROM THE AMERICAN ARTISAN.]

§ New York City, Saturday, Oct. 24, 1870. 2

IRON.

Pig, Scotch, No 1 (cash), per ton.	\$33 00	@	\$36 50
Pig, American, No 1 (cash).....	33 00	@	34 00
Pig, American, No 2	29 00	@	31 00
Swedish, ordinary sizes.....	110 00	@	125 00
Common.....	75 00	@	80 00
Re-fined.....	77 50	@	95 00
Rods.....	85 00	@	120 00
Horse-shoe.....	95 00	@	—
Hoop.....	105 00	@	150 00
Scroll.....	97 50	@	125 00
Nail-rods, per lb.....	7 00	@	7 1/4
Spring.....	7 1/4	@	—
Tire.....	8 1/4	@	—

STEEL.

Bars, best cast, warranted, per lb....	17 00	@	18 00
Sheet, best cast.....	18 00	@	—
Sheet, second quality.....	16 00	@	—
Sheet, third quality.....	14 00	@	—
Saw-plates, circular.....	27 00	@	—
Double-shear, warranted.....	23 00	@	—
Single-shear.....	19 00	@	—
Montague & Co. (cast bars).....	18 00	@	—
Machinery, round.....	11 00	@	—
German, best.....	11 00	@	—
German, goat.....	10 00	@	—
German, eagle.....	9 00	@	—
Blister, warranted.....	16 00	@	—
Blister, common.....	15 00	@	—
Jessop & Sons', common.....	17 00	@	—
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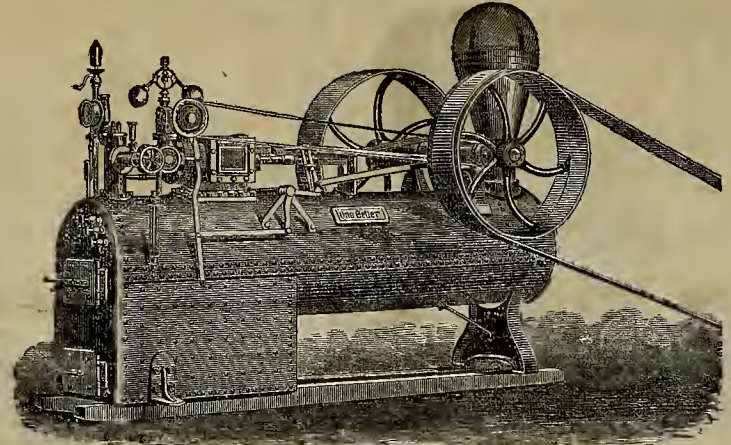
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San Francisco, Saturday, October 22, 1870.

VOLUME XXI.
Number 17.

Mining Edition.

An Unheralded Charity.

Many a person passing through Genry Street has noticed undoubtedly, opposite the Unitarian Church, an unpretending sign, announcing the existence of a Homœopathic Dispensary, for the gratuitous medical and surgical treatment of the sick poor of all nations. Yet as no one has been called on to contribute to its support, and as nothing has been said in the public journals with regard to it, probably but a few have given it any thought, except the four hundred and forty-five poor who have received treatment there and the one hundred sick ones who, unable to go thither, have been visited by the attending physician.

Fifteen months ago, Francis Cutting Esq., of the firm of Cutting & Co., founded this institution, and has since provided from his own purse the funds necessary to meet the whole expenses, including the salary of a physician in constant attendance, the rent of three rooms, the cost of medicine, etc. That the Dispensary, under the charge of Dr. J. S. Beakley, has been quietly doing a large amount of good, we know personally. One item, the 1975 prescriptions given, may be noted in this connection. Still its founder has desired to extend its benefits to a much greater number, and has called to its aid the co-operation of all the Homœopathic physicians in this city, proposing at the same time to continue his liberal contributions towards its support. In response to the call last Saturday evening, Drs. J. N. Eckel, E. J. Fraser, J. A. Albertson, J. P. Diasmore, W. N. Griswold, J. J. Cushing, J. S. Beakley, M. J. Werder, J. Esten, L. Royer, J. H. Floto and Mr. W. Boericke (of the Pharmacy of Boericke and Tafel) met at the Dispensary and formed the Homœopathic Dispensary Association of the City of San Francisco, with Dr. J. N. Eckel as President and Dr. E. J. Fraser as Secretary.

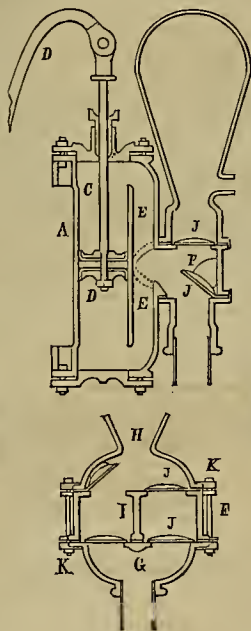
In accordance with the plan then formed, the Dispensary will be open hereafter from 1 to 3 P. M. daily (except Sundays). Dr. J. S. Beakley will act as attending and visiting physician, being aided by the above named gentlemen in regular order every day. Dr. E. J. Fraser, moreover, will act as Dispensary surgeon. By this arrangement the sphere of action of the institution will be greatly extended, and to further its objects its friends (without the knowledge of the generous founder) have thought it proper to say a few words to the public in regard to the matter.

Double Acting Force Pump.

Stockton is a flourishing, lively place. It is noticeable that those who write letters concerning the city, manage always to dwell on the fact of its ovident business activity. Excellently situated in many respects, the center of trade for the San Joaquin Valley, its inhabitants seem not at all

inclined to let any advantage escape them through laziness.

Stockton is quite a manufacturing place. In it almost all classes of domestic manufacture are in successful operation. With its ship-yards, machine shops, tanneries, factories for wagoas, agricultural implements, etc., etc., it has an element of successful growth which cannot be over-estimated. To speak of these individually and in detail, we have no space. But our subject leads us to remark on one establishment, the Globe Iron Works, which is known extensively by the excellent articles which emanate from it. The proprietors, Messrs. Keep & Bargion, have a wide reputation as good machinists, and men who generally know all about their business.



KEEP'S PATENT GLOBE PUMP.

Their work speaks for them.

A recent invention by one of the partners, Mr. W. H. Keep, has excited considerable attention and elicited much praise at the various fairs which have lately been held in different localities in our State. While the fact of its being a California invention was sufficient to call attention to it, it must have appeared a superior article to have been mentioned so favorably as it has been. We give here an illustration of the pump.

The object of the invention is to form an improved double-acting force pump which, by a well devised general combination and arrangement of its parts, shall be made simple, cheap and effective. For this purpose the pump is constructed as follows:

The pump cylinder, A, the piston, B, and the rod, C, are of common form. The handle, D, is supported on a movable fulcrum post, so as to accommodate its movements to the direct motion of the piston rod. The supply passages, E, E, for the upper and lower parts of the cylinder are

to the valve chambers and are made to lap or pass each other (as shown in the sectional view) so as to use as little weight of metal as possible. The valve chamber, F, is formed on the side and midway of the length of the pump barrel, so that the water for each end passes over equal distances. This chamber has a vertical diaphragm, I, cast in the middle and is so formed that it is only necessary to plane off its upper and lower faces, when it is ready for the valves.

The cap, G, has an opening at the bottom with which the supply pipe connects. This cap can be planed or put into a lathe and faced. The air chamber, H, is formed so that its lower end forms a cup for the top of the valve chamber, and this is also faced to fit. This is all the fitting required

in the whole pump, except boring the cylinder. The parts are made large. The valves, J, may be ordinary binged valves, or of other suitable form.

By such a construction, it is possible to bring all four valves closely together, and thus to simplify the making of the valve chamber, so that everything is fitted by simply running it through the planer twice. Lugs, K, K, are made on the side of the valve chamber, and one bolt on each side will hold the parts firmly together.

It will be seen that the objects of the invention seem, certainly, to have been attained. Its simplicity, moreover, ensures durability and cheapness,—the cost of manufacture being said to be only about two-thirds of that of common pumps. A patent has been applied for, through the SCIENTIFIC PRESS agency, by Mr. W. H. Keep, of Stockton, Cal.

Fires in the Country.

According to custom, at this period of the year, extensive fires are burning in various places in the State. We have

previously made brief mention of the fact that conflagrations were raging in several localities, as they have occurred. During the last week or ten days, the inhabitants of this city have enjoyed (?) the sight of large fires on the foot-hills back of Oakland. Up at Calistoga a fearful one is reported. "All the grain fields," it was said, "fences and woods have been burned from Holmes' Ranch, in Knight's Valley, to Walnut station, five miles from Calistoga,—a distance of 10 or 12 miles. In the vicinity of Napa, nearly 10,000 acres have been burned. Fences, houses, barns and hay were in many instances destroyed, etc." The fires are originated by persons burning up brush wood in advance of the rainy season, by hunters and others. By these annual conflagrations, loss is occasioned to the value of thousands of dollars. Fences, crops, too often houses are consumed, to say nothing of the trees which are none too abundant in many localities. It is a sin and a shame that property should be destroyed in this wanton manner, that the carelessness of individuals should be allowed to injure others. If a farmer will not take the trouble to isolate his brush wood from his neighbors land, he should not be allowed to fire it. If the hunter will persist in lighting fires which he allows to spread anywhere, hunting in the neighborhood of fields and forests should be made a State Prison offence and punished accordingly. We have no objection against hunting in the proper season and manner, but if the hunter disregards all rights of property and humanity, if he destroys our crops, burns our fences, our farms and our houses, renders us liable to loss of life and property that he may amuse himself a few short hours, then we claim that the hunter should be excluded from all localities where there is valuable property, and should be held responsible for all loss occasioned by him.

Setting fire to a building in a city is recognized as a crime everywhere. Burning up property in the country is just as bad, and ought to be so considered by every individual. Being careless and having evil intents are so akin in their results that want of care ought to be punished as well as intentional crime. We enter our protest against this yearly wanton destruction. It affects us individually and affects us as members of the community. We have lived in a loose sort of way in many respects long enough; it is time to recognize the fact that the rights of others must and ought to be regarded.

We all desire to attract population to our coast. We advertise our grand advantages, explain our great possibilities. But we must not forget that the immigrant looks at both sides, and examines the probable losses as well as the probable gains. We must remember that he is apt to magnify the chances of misfortune and to lessen those of good luck; and we may take it as a fact proved by experience that the reports of such useless destruction will lose nothing by spreading to other countries.

Communications.

IN THIS DEPARTMENT we invite the FREE DISCUSSION of all proper subjects—correspondents alone being responsible for the ideas they advance.

All About Montana.

[WRITTEN FOR THE SCIENTIFIC PRESS.]

The Road to Cedar Creek Mines.

I left Deer Lodge City at 3 P. M., in one of Gilmer and Saulsbury's stages and, riding all night, reached Missoula City, (or Hell Gate) in time for breakfast. Then leaving this place (whither I shall return hereafter and about which I shall write you) the road leads up Missoula Valley for 18 miles to French Town, likewise marked by me for a future visit. [What our correspondent says about these places will be found in our agricultural columns. Eds.] From here we pass on over the famous Mullen's Road, built by the government in 1857 at a very great expense. This is a pretty tough road, winding up hill and down totally irrespective of grade. The passengers are often obliged to get out and walk, for the road is too steep for the horses to be able to pull them up. Why Mr. Mullen should have picked out just the route he did, when he might have easily crossed the river and found a much easier (and cheaper) way, no one knows. Perhaps he was fond of overcoming difficulties. Perhaps he wished to give the traveler the opportunity of seeing the grand scenery, to look up the huge mountains with their green sides covered with thick forests and to grow dizzy on the edge of steep cliffs. Whatever his reasons, he seems to have left the labor of the draft animals out of all consideration, and to have had no thought of the evil things now invoked on his head by the drivers.

At 6 P. M., we arrived at Superior City, at the mouth of Cedar Creek, a distance of 165 miles from Deer Lodge. Here we cross the river, which is 400 feet wide, on a ferry, and here stop for a night's rest after our hard ride. Messrs. Booth and Bourcsew are building a bridge, which will be 400 feet long and cost between \$3,000 and \$4,000. Superior City is a small place, about 17 miles from Louisville (the principal town up the creek) which very likely will get to be of considerable importance for the transportation of goods and passengers to the mines, which are reached on horseback, the stage company keeping a fine stock of animals. The agent is Mr. T. C. Jackson, who conducts himself in a kind and courteous manner.

After our night's rest we start, at 7 A. M., for the mines with mail bags, etc., strapped on the horses. We ride up the creek, which is beautifully wooded with cedar (whence the name), pine, fir, etc., over a very fair trail, considering the roughness of the country, and amid grand scenery. Ten miles on, we reach Cedar Junction, a small place, and the only post office in the canyon. Claims have been taken up along the road for miles, but we saw none worked until we arrived at this point. Here, however, I noticed miners busy prospecting and driving pits, for, as I am told, the bed-rock is very deep down here, and much work must be done in sinking shafts. Seven miles further up we reached Louisville, the largest place in the gulch, when the miners are hard at work on their claims. These claims, I may remark, are numbered from the Discovery in both directions. That is, there is a No. 1 above and a No. 1 below; a No. 2 above and a No. 2 below; etc.

Louisville.

Louisville is now a lively and important place, with a number of stores, saloons, etc., and one good hotel, all built of logs. A Post Office is to be established here this week, and this will be a great accommodation to the miners, for the mail boy charges 25 cents for bringing the letters up from Cedar Junction, although newspapers are free. The town is located on the steep side of a very high mountain, where it is much easier to roll down than to climb up. But the miners started it where it would be convenient to the mines and not with any more regard for street grades than your supervisors have in San Francisco.

I have traveled considerably about the Pacific Coast, as you well know, but the rough high mountains around this place rather go ahead of what I have before seen. The range is known as the Caewedolene mountains, and the sides incline at a tremendous angle (it looks like 40° to 45°) on the western slope. Exactly what the elevation of Louisville is, I don't know, for no observations have been taken, but I should imagine that it must be somewhere about 8,000 feet. The climate is healthy enough, but exceedingly cold in winter and cool in the summer and fall. Last winter and spring the miners could not work on account of the heavy snow and the boys had a hard time of it, without any trail. But things are fixed up quite comfortably now. All goods have to be packed up to this place, and the mules have already brought up a small safe and several billiard tables,—things which I have just seen,—besides other articles which one would more readily think of. The canyon and hills are so heavily timbered that

the miners are obliged to cut the trees down and burn them to get them out of the way. The population of the district is estimated at about 1,500.

The Mines—Forest City.

On my way up to Forest City, a small place some three miles above Louisville, I looked at the different claims. The bed-rock is slate. The deposits were discovered in October, 1869, by Lewis Barette and B. Lentier who own the Discovery claim, and No. 1 above and No. 1 below. These are on a small bar just below the city, and now employ 14 men. They yield, the owners tell me, nearly \$300 per day. The miners are paid \$5 in gold dust, which is coarse and worth from \$18 to \$21 per oz. According to the miners' law here, each claim is 200 feet running up the creek to each man.

No. 4 above is owned by Maizon and Co., who employ 8 men, and struck the pay streak last week. It is four to six feet from the surface to the bed-rock. They made a clean up last week of \$1,400. Nos. 13, 19, 20 and 21 are consolidated and owned by the Montreal Flaming Co., who have some 900 feet of flumes and are going to build 800 feet more, for washing their ground. At No. 29 four men are at work. It is 12 feet to the bed-rock, and the claim pays \$10 to the hand. Nos. 52, 53 and 54 are owned by Edmison & Co., who have 13 men at work. These three claims have paid \$200 daily. Nos. 55 and 56, owned by Minnesinger & Co., employ 9 men and pan out an ounce daily to the hand. This is not very deep (3 to 6 feet) and is considered excellent ground. Nos. 58 and 59, owned by Adkin & Co., have a shaft 30 feet deep and a tunnel run in to tap this and carry off the water, 18 men being employed night and day. The claims pay well, a clean-up of a 24-hours run while I was there, yielding \$500. This brings us up to Forest City.

Forest City is situated on a bar or what might be called a heavy wash, and here many are working and some prospering. The channel pays splendidly under this town and on up the creek in a straight line. But the stream winds its way some 300 feet below the place and there no pay has been found, although in the old channel it appears very rich, that is, under the city. There shafts are sunk and tunnels run, the pay streak being apparently some 70 feet wide and 40 to 50 feet down below the surface.

I must stop here to speak of one of those persons who are found here and there, doing unusual acts of kindness to the stranger and making all things pleasant for his neighbor. To Mr. H. O'Neil, who owns a claim near this place, I would return my sincerest thanks for many kind acts and favors extended to one who never met him before and who will never forget him hereafter. A true gentleman, in all senses of the word, and one for whom all wish success.

Up above this town the claims all have over-shot wheels or Chinese pumps for getting out the water where tunnels cannot be run. No. 60 has a shaft 55 feet deep and a tunnel 240 feet long. They have just struck the old channel and are confident that they have a good thing, after their expense of time and money. No. 61, Sullivan & Co., works 9 men, has a shaft 25 feet deep, struck the pay streak (supposed to be 100 feet wide here) Sept. 6th., and has yielded \$1.62 to the pan. No. 62, Smalley & Co., has 16 men working night and day, a shaft 25 feet deep, and pays \$10 to the hand daily. At No. 66, five men are employed, the shaft has been sunk 30 feet, pay has been struck, and drifting is going on, as in other claims. Above No. 67 many claims are being prospected vigorously, but they are not yet opened up, although the highest hopes are entertained of them. After visiting the claims, I returned to Louisville. W. H. M.

[TO BE CONTINUED.]

Notes of Travel in Nevada County.

[WRITTEN FOR THE SCIENTIFIC PRESS.]

North Bloomfield G. M. Co.

At Malikoff, one mile from North Bloomfield, are situated the office and principal works of the North Bloomfield Gravel Mining Company; capital stock \$800,000; all paid up; stock all held by citizens of San Francisco. The trustees are S. F. Butterworth (President and Treasurer), L. L. Robinson, Wm. E. Barren, Chas. I. Brenham, Thomas Bell, Andrew I. Moulter, Secy., A. M. Dohbin, Gen. Supt. The company own large and valuable gravel claims (about 1,500 acres) at North Bloomfield in Nevada County, about 13 miles N. E. from the City of Nevada on the road to Eureka South. They have constructed a ditch from Big Canyon Creek to Bloomfield, a distance of 40 miles, with a carrying capacity of 3,000 in. This ditch has cost about \$500,000, and is the best constructed and most substantial one in the State. They have also constructed a dam across Big Canyon Creek at Bowman's Ranch, 65 feet high, giving them a reservoir capable of retaining 400,000,000 cubic feet of water. In addition to this immense supply of water, the Company own several important water rights in the line of their ditch, which afford a large amount of water during the rainy season. They also own the Rudeyan reservoir, formerly owned by an English company, distant about 13 miles from the line of their present ditch. This is the largest reservoir in the State and cost the English company over \$100,000. From Bloomfield this company have constructed another ditch, 7 miles long, to Columbia Hill, to supply water to the Union Gravel Mining Company a majority of the stock of which is owned by the

North Bloomfield G. M. Co.

The mining claims of this Co. are at present fitted with pipes, etc., costing some \$40,000. Their network of mining flumes is about 1½ miles in aggregate length, varying in width from 40 to 72 inches. When these claims are running in their full capacity, they will be using 3 Monitors, each capable of carrying 1,200 inches of water; also what is known as a Goose-neck, carrying some 600 inches of water. These pipes are used under a head of 300 feet, and it is estimated that the capacity of the work is an ability to mine 100,000 tons of gravel each 24 hours. When the works are in full operation they will use about 80,000,000 gallons of water per day. The various flumes are so arranged that they can clean up, without stopping the work of mining. The main flumes are paved with stone, the branches with wooden blocks. The grade of the flumes is as a general thing 6 inches to each box of 12 feet, although some of them are upon a grade of 5 inches. The company have steadily prosecuted their work for the past 3 or 4 years, and when their subterranean works, now to be constructed, are completed, no one can doubt that great results will be obtained in the way of dividends. This company's new ditch was finished, and washing commenced September, 15th.

Giant Powder or Dynamite.

The giant powder, now an acknowledged necessity in all the counties I have visited so far, had to stand, like many other excellent inventions, the attack of that class of people, who are always opposed to new and labor saving inventions, in the belief that the workman will be thrown partially out of employment and consequently will suffer. The giant powder stood all these attacks of being injurious to health, too quick in its explosion and too explosive, etc., and came out triumphant. I have found that the consumption of this blasting agent, on account of its great strength and safety, is steadily increasing. The saving to mine owners in i with single hand drilling, is from thirty to fifty per cent, in their expenses. Mr. Geo. E. Turner in Nevada City, the agent for the sale of this powder, informed me of the increasing consumption of this article, even in such places where last year so much opposition was manifested to its introduction. The great success it has met with in so many mines should be sufficient guarantee to the few who are yet opposed to its use, that they have not given it the fair and impartial trial which should be accorded to every new invention.

I have no space to dwell any longer on this subject, and will merely state that the North Bloomfield Company used last year over five hundred pounds per month for a long time. Mine owners would do well to introduce the single hand drilling system in all places where it can be done to advantage, for it will reduce expenses without lessening wages and benefit the laboring classes by enabling owners of claims to re-open mines known to be good but now laying idle.

Between here and San Juan North are the villages of Lake City and Cherokee. But little or nothing is being done at either place. At Columbia Hill (or near there) the Union Gravel Mining Co. are driving business and just now making it pay. W. W. Nichols is Supt. and principal owner.

North San Juan and Vicinity.

There are at this time four mining claims in operation on San Juan Hill. 1st. Thos. Foster & Cos. claims on the northwest end of said hill. These have been worked since last winter and have the reputation of paying their owners fair dividends. 2d. The New England Cos. claims, situated on the north end of the hill, owned by E. Beach and others, are very nearly worked out. Owing to the cement in the same, the expense of working them has been great, eating up most of the profit. 3d. The claims of Bowen & Davis are on the south end of the hill, have uniformly paid a fair remuneration to the owners, who have but lately made some large additions to their ground, by purchase from owners of adjoining grounds. 4th. The Eureka Lake Ditch Cos. claims, are on the east end of San Juan Hill. This corporation is largely interested in claims here. Those which they are now washing, have been worked but a short time; hence but little can be said as to their value.

About one mile west from San Juan, near the little town of Sebastopol, is situated the celebrated American Mining Cos. claims, owned by Geo. C. Spauler, J. H. Brown, John H. Effinger & others. These claims are the largest and best paying claims on what is called here "the Ridge," which ridge embraces a vast tract of mineral land some fifteen or twenty miles in length. The said American Cos. claims are situated on what is known as Manzanita Hill. Every appliance useful and necessary in working a hydraulic claim is used by this company. They give employment to about 30 men. A few weeks ago they let a contract for the extension of their tunnel for a distance of 1,000 feet. (at a cost of about \$20,000,) which when completed will make the entire length of their dume between 2,500 and 3,000 feet.

Sweetland, Birchville and French Corral, have from two to four companies in each doing well; but as a great many idle men are visible around each, it goes to show that they have seen better days. At the latter named place two cement mills only are in operation. Ten or a dozen other companies are idle on account of water. Each work a few men preparing for winter rains. Rough and Ready is ready for anything to turn up to enliven it. Grass Valley and its mines will be the subject of my next. L. P. Mc.

The Origin of Life.

In Prof. Huxley's inaugural address before the British Association for the Advancement of Science, this subject and the various hypotheses with regard to it were admirably handled in the most interesting manner. We would gladly publish the address in full, but are obliged to condense, giving only the main outlines.

It is a matter of every day experience that it is difficult to prevent many articles of food from becoming covered with mold; that fruit, sound enough to all appearance, often contains grubs at the core; that meat, left in the air, soon putrefies and swarms with maggots. Even water allowed to stand in an open vessel, sooner or later becomes turbid and full of living matter. The old philosophers did not doubt but that the low forms of life were generated in the matters in which they made their appearance. The proposition that life may and does proceed from that which has no life, was universally accepted down even to the seventeenth century. Then the first distinct proposition that all living matter has sprung from pre-existing living matter came—just two hundred and two years ago—from a distinguished Italian, Francesco Redi, who attacked experimentally particular cases of supposed "spontaneous generation." If I expose dead animals or meat, he says, to the air in warm weather, in a few days they swarm with maggots. But if I put similar bodies, while fresh, into a jar and cover the mouth with fine gauze, not a maggot appears, while the dead substances putrefy as before. It is obvious, then, that the maggots are not generated by the corruption of the meat, but that the cause of their formation must be something which is kept away by the gauze; and as the gauze will not keep out aeriform bodies or fluids, this must exist in the form of solid particles too big to get through the gauze. There is no doubt what this is, for the blowflies, attracted by the odor, lay eggs, out of which maggots are immediately hatched, upon the gauze. The maggots, therefore, are not generated by the meat, but from eggs laid by the flies.

The theory that life can come only from life was now triumphant for nearly a century; for the application of the microscope displayed such complexity of organization of the lowest and minutest forms and such a prodigious provision for their multiplication by germs, that the opposite theory seemed absurd. But in the middle of the eighteenth century, Needham and Buffon took another view. When animal or vegetable matter is infused in water, it gradually coarsens and disintegrates and the water swarms with the most minute creatures, the "infusorial animalcules," invisible except under the microscope, and many of them only under the very strongest. Now, said Needham and Buffon, if these animalcules come from germs, these germs must exist either in the substance infused or in the water or in the adjacent air. But their vitality is destroyed by heat. Hence if I boil the infusion, cork it up carefully, cementing the cork with mastic, and then heat the whole vessel by heaping hot ashes over it, I must kill all germs present. And if, on cooling, animalcules appear, they must come not from germs but from the substance itself. The experiment was tried and the animalcules appeared when sufficient time was allowed. Then Buffon originated his hypothesis of "organic molecules,"—that life is the fixed property of indestructible molecules of matter, which exist in all living things and have inherent activities which distinguish them from not living matter. Each living organism is formed by their temporary combination, just as the particles of water form a cascade or whirlpool or any body of water. As the stoppage of a whirlpool destroys nothing but the form, leaving the molecules of water, with all their inherent activities, intact, so death and putrefaction of an animal or plant is merely the breaking up of the form or manner of association of its constituent organic molecules which are then set free as infusorial animalcules.

But the great, ever-recurring tragedy of science—the slaying of a beautiful supposition by an ugly fact—was played almost immediately for the benefit of Buffon and Needham. The learned Italian Abbe Spallanzani showed that Needham's experiments were questionable. Was the air completely excluded by the corks and mastic? and were the infusions and the air sufficiently heated? He showed that if the glass vessels were hermetically sealed by fusing their necks, and if they were exposed to the temperature of boiling water for ¼ hrs., no animalcules ever appeared, and the propositions of Buffon and Needham were annihilated.

But another change came. Chemistry had grown. It was shown that oxygen played an important part in supporting life. Now came the question, was it not possible that, in his experiments, Spallanzani had affected the organic matter of the infusions or else the oxygen? had checked or prevented, by these changes, the development of life which ought to have taken place. So in 1836 and 1837, Schultze and Schwann took up the matter. In their experiments they passed the air through red hot tubes or sulphuric acid, by which any organic matter in the air is destroyed, while the proportion of oxygen is not changed. They obtained no living things, while, if the same infusion was exposed to the air afterwards, such things appeared abundantly. These experiments, if accurate (which has been doubted) proved that the treatment destroyed something in the air which was essential to the development of life. This "something" might be gaseous, fluid or solid; that it consisted of germs was still only a supposition of greater or less probability.

(TO BE CONTINUED.)

Mechanical Progress.

WOODEN CARPETING.—The Boston *Cabinet Maker*, of Sept. 27th, describes a new article for carpetings and wainscotings, consisting of lath shaped strips of various woods glued together on a canvas bottom, and having the appearance of elaborate inlaid work. The strips are of carefully seasoned stuff, and are made of uniform thickness and width, and perfectly smooth, by a machine constructed for this special purpose. They are laid upon a table with metallic top, and pressed closely together; then thoroughly covered with glue; then with the canvas, which is well pressed down at every point. The article is more durable than oil cloth, and is neater and cheaper. For hospital flooring, it is spoken of as invaluable; it being as noiseless under the tread as a woolen carpet, while it is much freer from dust. It is already in favor.

THE WORTHINGTON PUMPING ENGINE.—The London *Engineering* illustrates the direct acting steam pumps lately constructed for the Newark, N. J., Water Works, the largest of the kind ever built, and in some respects peculiar. We quote part of the description:—"The single-acting air pumps are driven by rock shafts off the main piston rod, and are in a convenient and accessible position. The steam slide valves are carefully and simply balanced. The steam cylinder and cylinder heads are steam jacketed, and thoroughly lagged, though this is not shown in the engraving. The double-acting water plungers are hollow cylinders, with tight heads, their weight being thus nearly floated; and the water, entering the numerous suction valves below them, passes them in a nearly direct line into and through the discharge valves above. The valves are rubber discs, backed by iron, working vertically on fixed spindles. They are readily reached through the hand holes, and are purposely made numerous in order to subdivide any trouble from the possible failure of any one of them. The engine being horizontal, all the cylinders and other parts are most accessible for inspection and repairs, and great solidity and steadiness are insured to the machine. Each engine drives its plunger at a speed practically uniform throughout its stroke, during which it opens, by a rock-shaft and appropriate connexions, the steam valve of its neighbor, and is obliged to pause at the end of its own stroke, till its own steam valve, being opened by the motion of the other's piston rod, enables it to reciprocate. The combined and reciprocal action of the two double-acting plungers thus driven at unvarying piston speed by the combined pressures in the high and low-pressure steam cylinders (whose sum is a practically uniform quantity), forces the water in a steady, quiet stream, while the silent seating of the water valves by their own gravity through the equalisation of pressures in the water cylinder, takes place during the pause of each engine at the end of its stroke."

BEVEL BAND SAW.—At the Fair of the American Institute is shown a band-saw machine made to saw bevel as well as straight. This is effected by moving the upper wheel sideways, without even taking off the saw or stopping the machine. The table, which works on a slide, as perfectly level, and connected with a lever which again is connected with the upper sideways slide, being a radius from the center of lower shaft; the whole is moved by a screw.—*Sci. Am.*

THE ALLEN ENGINE.—We take the following brief note upon this steam engine from the *Scientific American's* report of the Fair of the American Institute, Oct. 1st:—"Indicator diagrams taken from this engine show that the exhaust and admission approximate very closely to perfection. The exhaust valves are upon the opposite side of the cylinder from the induction valves, and are operated independently by a rock shaft connected with the eccentric by means of a link. The link is attached directly to the bend of the eccentric, and also operates another rock shaft, which drives the induction valves. The valves are plain slides, and are all balanced. They run with the greatest ease. The end of the connecting rod which operates the rock shaft, belonging to the induction valve gear, plays in the slot of the eccentric as it is operated upon by the governor, making a variable cut-off of great simplicity and efficiency."

LENGTH OF BULLET THE MAIN POINT.—Mr. Whitworth, inventor of the gun which bears his name, in a recent letter to the London *Times* says "that in all discussions upon the performances of guns, it should be borne in mind "that the primary element of success in long range shooting is length of bullet, and not the method of loading. Methods of loading merely affect the rapidity with which guns can be fired; great range, accuracy and penetrating power being obtained by using the long bullet,—with the proper twist of rifling and the heaviest charge of powder the bore can consume,—and by no other means."

CASTING OF A LARGE CYLINDER.—The *Colliery Guardian* of Sept. 16th witnessed, at the Atlas Works, Cardiff, the casting of a cylinder which is to form part of a large steam hammer now constructing at those works. We quote: "The cylinder will be bored and finished to the following dimensions:—Diameter, 45 ins.; stroke, 10 ft.; thickness of metal, 3 ins. It has been cast with box-plate, steam-ways, and steam chest in one, and weighs 18 tons. The iron was melted in two cupolas, and supplied with blast from one of Root's patent blowers. The time taken in melting was two hours and ten minutes, and the metal was run into the mould through a sluice from the reservoir in the remarkably short time of fifty-seven seconds. The steam-hammer, for which this cylinder is intended, has been designed by Mr. Macpherson, of St. Petersburg, one of the proprietors of the Baltic Ironworks, in which establishment it is intended to be used for forging large guns and other heavy work. The entire hammer will weigh over one hundred tons, exclusive of the base and anvil block, and will be what is called a double action steam-hammer, being one of the most powerful of the kind that has ever been manufactured."

DUPLEX PLANING MACHINE.—A writer in *Newton's London Journal* describes this as follows:—"It is arranged with double beds and double tables, each table having a separate set of gearing, with starting, stopping and feed motion. There are two tool boxes at the cross slide, each of which is independently self-acting, so as to work with its own table. Thus the two tables may be used separately, as two smaller machines working independently of each other, and capable of planing different lengths of work at the same time; or when planing a large article, the two tables, gearing and motion, may be coupled, so as to form one large machine, an arrangement rendering the machine capable of doing a large variety of work. Also one table may be fixed stationary as a bed-plate to bolt awkwardly shaped or long pieces of work upon, while they are planed by a slide rest fixed upon the other table. When used as one machine, both sets of straps and gearing are in operation, and are reversed by the stops of one table only, so as to insure the straps moving at the same time."

ELECTRO-MAGNETIC BANK LOCK.—At the late Fair of the American Institute there was exhibited a contrivance which is thus described:—"A combination lock is worked entirely by electro-magnetism, and is placed within the safe on the back wall, opposite the door. Its wheels are worked by electro-magnetism, the circuit being controlled entirely by circuit-breakers, placed in an office desk or any other convenient place. No one can unlock the safe without knowing the combination, and no key hole or any other aperture in the walls of the safe exists whereby powder can be inserted. Burglars could only enter a safe provided with this lock by actually penetrating the wall."

ELECTRO-METALLURGICAL.—M. Chantoux, of Paris, has devised a plan for keeping the solution in constant agitation, in order to secure uniformity of strength, and therefore uniformity of deposition. The arrangement of an electro-magnet attached to the battery, puts in motion a small fly-wheel by means of a connecting rod. On the shaft of this fly-wheel, is a band which runs a spiral placed vertically in the solution, by means of which an ascending current is kept up in the middle of the vessel, and a descending current at the sides.

DIMENSIONS OF KRUPP'S 1,000-POUNDED SIEGE GUN.—Length 17½ feet:—Diameter of bore, 14 inches:—Weight, 50 tons—with carriage and turn-table, 90 tons:—Weight of the solid shot, 1,212 lbs.,—of the shell, 1,080 lbs.:—Charge of powder, 110 to 130 lbs.

Scientific Progress.

ANÆSTHETIZING SENSITIVE PLANTS.—In our issue of Sept. 24th, we gave a brief extract from the *Academy* in reference to some experiments with chloroform upon the sensitive stamens of the barberry. In the *Bowdoin Scientific Review* of the 27th, we find an abstract of a paper by Mr. W. Coldstream, giving in detail a number of similar experiments, in which several other anæsthetics besides chloroform were used, and several other plants besides the barberry operated upon. In each case the capacity, in cubic inches, of the bell glass under which the plant was exposed to the vapor, was noted; also the duration of the exposure, and the number of minims of chloroform used. The results varied from zero to complete anæsthesia, and in some cases the death of the plant. One curious effect was, that when the vapor was weak, the sensitive folioles, which completely closed when first exposed to it, would shortly completely expand again, as if they had become accustomed to the action of the chloroform. We give an extract from the portion relating to the experiments upon the barberry:—"Immediately after exposure to the vapor, the irritative action, as in man and animals, first set in; that is to say, the irritable stamens of the flower sprung towards the pistil. This action was instantaneous; but almost immediately they began to move slowly back to their former position, till in a few minutes they were seen to be again appressed to the petals. If now removed from the bell-glass, the stamens were found to be destitute of irritability. Irritability was never lost until the stamens had thus sprung; and in the case of flowers, some of whose stamens only were thus irritated, it was found that those which had not sprung showed undiminished sensibility, while the others had lost every trace of it. Here was true anæsthesia; for if the flowers were now taken and exposed to the warm sun, they were, with very few exceptions, restored to their original irritable condition. They were exposed in bunches of from two to six, so that by one exposure many experiments were, in reality, tried. One bunch of strong young flowers of the *Berberis vulgaris* was exposed four successive times to the action of chloroform vapor, losing its sensibility in each exposure, and then recovering it in the sunshine."

THEORIES OF ELECTRICITY.—"According to a theory of electricity which is making great progress in Germany two electrical particles act on one another directly at a distance, but with a force which, according to Weber, depends upon their relative velocity, and according to a theory hinted at by Gauss, and developed by Riemann, Lorenz and Neumann, acts not instantaneously, but after a time depending on the distance. The power with which this theory, in the hands of these eminent men, explains every kind of electrical phenomena must be studied in order to be appreciated. Another theory of electricity which I prefer denies action at a distance and attributes electric action to tensions and pressures in an all-pervading medium, these stresses being the same in kind with those familiar to engineers, and the medium being identical with that in which light is supposed to be propagated. Both these theories are found to explain not only the phenomena by the aid of which they were originally constructed, but other phenomena which were not thought of, or perhaps not known at the time, and both have independently arrived at the same numerical result which gives the absolute velocity of light in terms of electrical quantities."—*Prof. Maxwell.*

MINERAL AND ORGANOIC CHEMISTRY.—The following, from Prof. Kolbe's paper on the "Province of Mineral Chemistry," is quoted by Prof. C. A. Joy as a fitting close to some remarks upon the accumulating evidence of the agency of life in the transformations of silica and carbon:—"The student of mineralogical chemistry must not now rest content with a mere quantitative analysis, or with the empirical deduction of rational formulae from the results of such analysis. Such a process can never fully elucidate the chemical constitution of inorganic compounds. This can only be accomplished by a careful and systematic study of the decompositions, syntheses and substitutions; in other words, by the application of methods of research similar to those which have yielded such splendid results in organic chemistry."

MOLECULAR SCIENCE—RING VORTICES.—We quote the following from the paper of address of Prof. J. Clerk Maxwell, F. R. S., before Section A, of the British Association:—"A theory which Sir W. Thompson has founded on Helmholtz's splendid hydrodynamical theorems, seeks for the properties of molecules in the ring-vortices of a uniform, frictionless, incompressible fluid. Such whirling rings may be seen when an experienced smoker sends out a dexterous puff of smoke into the still air, but a more evanescent phenomenon it is difficult to conceive. This evanescence is owing to the viscosity of the air; but Helmholtz has shown that in a perfect fluid such a whirling ring, if once generated, would go on whirling for ever, would always consist of the very same portion of the fluid which was first set whirling, and could never be cut in two by any natural cause. The generation of a ring-vortex is of course equally beyond the power of natural causes, but once generated, it has the properties of individuality, permanence in quantity, and indestructibility. It is also the recipient of impulse and of energy, which is all we can affirm of matter: and these ring-vortices are capable of such varied connections, and knotted self involutions, that the properties of differently knotted vortices must be as different as those of different kinds of molecules can be. If a theory of this kind should be found, after conquering the enormous mathematical difficulties of the subject, to represent in any degree the actual properties of molecules, it will stand in a very different scientific position from those theories of molecular action which are formed by investing the molecule with an arbitrary system of central forces invented expressly to account for the observed phenomena. In the vortex theory we have nothing arbitrary, no central forces or occult properties of any other kind. We have nothing but matter and motion, and when the vortex is once started its properties are all determined from the original impetus, and no further assumptions are possible. Even in the present undeveloped state of the theory, the contemplation of the individuality and indestructibility of a ring-vortex in a perfect fluid cannot fail to disturb the commonly received opinion that a molecule, in order to be permanent, must be a very hard body. In fact one of the first conditions which a molecule must fulfil is, apparently, inconsistent with its being a single hard body. We know from those spectroscopic researches which have thrown so much light on different branches of science, that a molecule can be set into a state of internal vibration, in which it gives off to the surrounding medium light of definite refrangibility—light, that is, of definite wave-length and definite period of vibration."

ALTERNATE GENERATION.—We have before alluded to the rusting of wheat by the barberry. In a late number of *Nature*, Mr. Berkeley says:—"There is a microscopic parasitic fungus on the barberry, making orange red spots of rust on the leaves, which is called *Æcidium berberidis*. A different fungus rusts the wheat and other cereal grains, and the couch-grass and other grasses, and is called *Puccinia graminis*. De Bary inoculated barberry leaves with *Puccinia* pollen and got, not *Puccinia*, but *Æcidium* rust. Then he inoculated wheat with *Æcidium* pollen and got, not *Æcidium*, but *Puccinia* rust. But when he tried to make the spores of the barberry rust on wheat, he failed in both cases. It is a clear case of alternate generation; and it seems to account for the well known fact that rust is apt to affect the wheat crops on alternate years. The plant has to pass from wheat to barberry and back again to go through its forms of life. A similar instance is reported of the pear blight and the jelly-like juniper parasite. The great difficulty has always been, that mildew is most prevalent in countries where barberries do not grow, and pear blight where no savina (*juniperus sibirica*) grow. The explanation may be found in the fact; 1. that where the barberries exist the spores of this year's barberries do not produce mildew, but last year's spores which have penetrated the tissues of the young sprouts just issuing from the ground, do; and 2. where there are no barberries, then the subsidiary spores of previous mildewed crops of grasses, especially the mildewed reeds in all fenny lands, keep up the growth of *Puccinia* without any intervention of the *Æcidium* form."

Mining Summary.

The following information is gleaned mostly from journals published in the interior, in close proximity to the mines mentioned.

California.

ALPINE COUNTY.

ITEMS.—*Miaer*, Oct. 8th: Monitor No. 3 is running along the ledge, and the ore improving slowly... Silver Glance is still in casing, and big headway is made.... Millwrights are putting the Exchequer Quartz mill in order. This is the old Davidson mill on Silver Creek.... Better than ever, is the ore now found in the Schenectady (Tarrish) mine lower works.

LOVELY.—*Chronicle*, 8th: Mining operations are progressing finely. Another claim near Silver Mountain has been sold to an English company, and negotiations are pending for the sale of three others.

AMADOR COUNTY.

CONEX.—*Ledger*, Oct. 15th: We were shown some rich rock taken from this mine during the past week. The work of sinking progresses rapidly, and the rock improves—every bucket shows more or less gold.

HINKLEY MINE.—They have one hundred tons of ore now on the dump. A few days ago they came upon another pocket from which they took fifty ounces of gold.

BEIDING, HATCH & Co., have let a contract on the Kearsing mine to sink fifty feet deeper. So far, the prospect has been encouraging. Mr. Beiding exhibited to us a piece of rock that would weigh about three pounds, and contained not less than twenty dollars.

LANCHA PLANA DITCH.—Kerr & Co. have just completed repairs, and as soon as the rains commence they will be prepared to furnish an abundance of water. In addition, they have two large iron pipes that cross the Mokelumne, conveying water to Calaveras county. Mining will be lively the coming winter.

CALAVERAS COUNTY.

SOME QUARTZ.—*Chronicle*, 15th: Sundermier & Co., of Independence, have 300 tons of good quartz in their dump, which will be crushed as soon as it can be hauled to the mill.

HOISTING WORKS.—We understand that a Mr. Sargent has contracted to erect hoisting works on the Poe mine at Railroad Flat. A great deal of rich rock has been taken from the lead, and the prospects warrant the erection of machinery.

INYO COUNTY.

KRAUSGATE.—The Gold Hill *News* gives the result of six assays of ore from this mine, made at that place, the totals of which in gold and silver run from \$64 to \$2,388.

LASSEN COUNTY.

BIG VALLEY.—*Yreka Journal*, Oct. 12th: H. J. Ehlers, one of the proprietors of the rich claim, says they have laid sluices in a small stream, three miles from the claim, and had commenced hauling the dirt when he left. The claim holds out as good as ever. New diggings in the vicinity will be prospected when the rains commence.

The *Yreka Union* of 12th says that Dave Watson, has discovered, about 150 yards above the rich claim, what seems to be a well defined quartz ledge, from four to eight feet in thickness.

NEVADA COUNTY.

GOON YIELD.—*Gazette*, 11th: A crushing of seven and a half tons of rock at Murchie's mill, from the Willow Valley mine, yielded \$563—or \$75 a ton. This is a mine that many thought had petered out.

ORLEANS LEDGE.—This has been traced by the croppings two and a half miles, and all the rock taken from it has yielded \$25 to \$42 a ton.

PROGRESS.—The tunnel by Marselns & Maltman to their Manzanita claims is in 1,000 feet from the lower end. From their shaft they have run another section 335 feet. They have 900 feet more to run.

MULBERRY LEDGE.—*Transcript*, 13th: A crushing of ten tons worked at Stiles' mill, yielded \$200 in gold and a ton and a half of rich sulphurets. This ledge was recently discovered in Burnett's yard on Gold Flat. The shaft is down 105 feet.

HAYES & Co.—Same of 18th: We learn that Irwin Hayes and others have made a big strike in their tunnel. These claims are two miles west of town and are supposed to be part of the Alta Hill lead. This company recently took out a nugget of pure gold worth six hundred dollars; besides they have a bed of gravel which prospects from 50 cents to one dollar to the pan.

HOPE GRAVEL Co.—*Grass Valley Union*, 12th: Last week the clean up was 55 ounces of gold, and the week before 96. There are 25 men employed. The old Rock tunnel

is to be cleaned out for draining purposes, and then the Hope will have to raise its water only 70 feet. To pump to the top requires a lift of 250.

GOLDEN GATE.—Same of 13th: This mine, on Rattlesnake is being worked successfully. The shaft is down 140 feet on the incline, and the ledge at the bottom is three feet thick. The rock shows well in free gold and is heavily charged with sulphurets.

WEBSTER & Co.—Same of 15th: The prospects on Randolph Ridge, continue good. The company are running a drift in the bed rock just under the gravel, in order to ascertain the width of the channel. When gravel is taken out in running this drift, it cleans up well in gold. As soon as the bearings of the channel have been demonstrated, another shaft will be put down.

EMPIRE MINE.—Reconstruction is going ahead with rapidity. The hoisting works will be in running order by the first of next month. By the first of next year the crushing mill will be ready. The new mill is to be of twenty stamps, and will be capable of doing the work of the thirty stamper destroyed.

GREENHORN MINE.—Same of 18th: The new steam hoisting works will be started up to-day. The pump will be running by the end of this week. In the shaft there are 15 or 20 feet of water, which will soon be thrown to the surface. The mill cannot commence crushing until rain comes.

GREAT WESTERN.—These claims are at Ray's ranch, head of Squirrel creek. The company will push work with all speed. The sulphurets are very heavy, and look well.

SIX-HUNDRED DOLLAR NUGGET.—The *Grass Valley Union* of 19th says, in reference to the item in the *Transcript*:—We have interviewed several members of the Hayes company, and they tell us that the nugget mentioned has not been found that they know of. They get some good prospects in their claims, but are not expecting big returns yet. Some one has sold the *Transcript*. The company are running towards ground out of which a \$480 nugget was taken years ago.

PLACER COUNTY.

POTNAM CLAIM.—*Herald*, 15th: We are informed that this claim is prospecting well for a long distance on the surface. It is west of Baltimore ravine, one mile from town.

CRÆSUS.—This is being energetically worked and paying handsomely. We saw some very rich specimens this week. The last crushing yielded over \$30 to the ton.

OPHIR.—The miners are taking out ore, but the scarcity of water has stopped nearly all the mills and some of the hoisting works. The new mill of McFadden and Sears, on Shipley ravine is approaching completion. The owners have a large ledge which prospects well. The owners of the St. Patrick have drifted sufficient to prove their ledge rich at the 128-foot level.

BAID HILL.—From the Wizard mine, owned by Milton and Bell, a crushing has been had at Empire mill which yielded \$30 per ton. This is the second crushing, the former yielding as well.

NORTH FORK DITCH.—The dam is so far advanced as to secure its completion before the rainy season sets in. This dam was swept off by the floods of 1862. We learn that the certainty of a supply of water has induced many miners to locate claims along the line of the ditch and its branches in the lower portion of the county, and lively times are anticipated.

PLUMAS COUNTY.

ITEMS.—*Quincy National*, 15th: The New York mill commenced crushing rock from the ledge on Monday. The Indian Valley has started up fifteen stamps.... The Eureka mine is rolling out, reports say, \$20,000 per month. They have over seventy men employed at the works.... Mr. Bransford, the Superintendent of the Crescent, has struck a body of very rich rock. McIntire & Bidwell have purchased Dr. Drury's interest (one-fourth) in the Union quartz ledge in Indian valley, for \$3,600, cash.

GOOD PROSPECTS.—*Quincy National*, "Uncle" Tommy Taylor has struck good ground in the old Pioneer claims at Newtown, and reports say he is making $\frac{1}{2}$ oz. per day. O'Neill & Bros., are driving their drift ahead, with flattering indications.

SIERRA COUNTY.

ORO LEDGE.—*Downieville Messenger*, Oct. 15th: Watson & Co., proprietors, are pushing their tunnel in earnest, and expect in a short time to reach the pay chimney.

FOREST CITY.—This old camp is consid-

erable of a village yet. The owners of the Live Yankee Claims, from which millions of dollars have been taken, are making \$8 to \$10 per day working old ground.

PORT WINE.—We visited the Monte Cristo Claims. The 400-foot incline is descended in a rail car, operated by an engine at the top. The track is double, one car ascending while the other descends. The water is removed by an iron car, which is let down into a pool and allowed to fill by a swinging door, which closes when the car starts back up the incline.

SISKIYOU COUNTY.

MINING ON THE KLAMATH.—*Yreka Union*, 12th: Messrs. Dean, Keating, and Leonard have been throwing a wing dam into the Klamath, just below the mouth of Scott River. After several interruptions, they last week got into their claim and commenced to wash up. In two days they took out 200 ounces of gold; 45 ounces from a single pan of dirt.

RYAN & WILLIAMS. have struck it rich again in their quartz ledge, on Scott Bar.

VIRGINIA BAR.—*Journal*, 12th: The company at work on the Klamath river at this place, took out seventeen and a half ounces of gold week before last, and no doubt as large an amount last week. The low water permits the miners to work with success.

SHASTA COUNTY.

RICH.—*Courier*, 15th: This week Mr. Banghart obtained something over two hundred dollars from one pan of dirt out of his claim.

SAN BERNARDINO COUNTY.

HOLCOMB VALLEY.—*Guardian*, Oct. 15th: Mr. Geo. E. Moore returned last week from the Green Lead, bringing between \$600 and \$700 with him, the result of 9 tons of quartz rock manipulated with arastras. He is having erected a water wheel 35 feet in diameter, as a motive power to run some 15 arastras, he finding this mode of crushing the most inexpensive.

TRINITY COUNTY.

THE SHAFT.—*Journal*, 15th: At a depth of ninety odd feet, Mr. J. W. Smiley, while visiting the subscription shaft, obtained twenty cents from three pans of dirt. The gold was coarse—the largest piece weighing six cents. As might be expected, our people are mightily rejoiced. The dirt is being prospected all the while. We anticipate a rush of old Trinitarians to their former stamping ground. The shaft is now about one hundred and ten feet deep, and, as may well be believed, will be sunk to the bed rock or to China.

NORTH FORK.—M. H. Engel is driving ahead on his quartz ledge. The rock has been noted for richness, but there was no certainty that a vein of considerable width existed. This question, was solved last week. All the veins come together in a wide ledge.

James Carson, while at work in Weaver Creek, found a specimen seven or eight feet deep in the false bedrock, weighing over two dollars.

BULKHEAD.—Carson & Goering are building an immense bulkhead in Weaver Creek, at the head of their flume. An expense of \$2,000 will render them safe from the floods. This claim was sold a few weeks ago, and the purchasers have already taken out the purchase money.

Nevada.

COPE DISTRICT.

BAID MOUNTAIN.—*Elko Independent*, 12th: The best reports reach us from this district. Located near the main road to White Pine, on a portion of the Ruby range, it is of easy access to the railroad, where ore can be delivered at eight dollars per ton. Wood and water are abundant. The ledges are large and the ore well diffused. Several mines are being worked. One company is preparing to put up a mill and another to build smelting works.

The bullion trade here has grown into great importance. Stacks of bars can be seen at any time on the platforms of the warehouses.

HUMBOLDT.

RICHEST.—*Silver State*, 14th: A piece of ore worth nine dollars per pound was brought to this office Wednesday, from the General Grant (formerly Moonlight) mine, Indian District, seven miles south of town. A Government patent has been secured to the mine. The owners are J. J. Linn, Julien Lott, Col. Buckner and others. The ore in question came from the 60-foot level, where a drift was run from the shaft and the vein was found to vary from two to four feet in width.

STAR.—The mines are looking up, and the number of operatives has been increased of late. Comparative little shipping ore is met with, but large quantities of high grade milling ore.

REESE RIVER.

MONTZUMA DISTRICT.—Belmont Cor. of *Reveille* Oct 13th: The district is 75 miles south of this place. There are three to five hundred tons of ore stacked up at the mines ready for reduction, that I think will pay from \$100 to \$300 per ton. The ore crops out boldly, and the ledges vary from 18 inches to four feet in thickness. The mines are two miles from the mill on the southern side of the mountain, with a splendid natural road. A 10-stamp mill is being erected under the superintendence of Dawley and other mechanics, who are in hope of getting the mill running in six weeks.

REVEILLE DISTRICT.—Same of 14th: Mr. Clark just arrived, reports favorably. He and M. Hawes brought from the district four tons of ore for reduction at the Manhattan mill. About half of the lot was from the Fisherman mine; and judging from the specimen, it will yield hard on to \$1,000 a ton. The Fisherman Co. owns 30 claims. The company's mill of 10 stamps reduces 10 or 12 tons of ore daily, mostly from its own mines; but as the ore is treated without roasting, scarcely more than 40 per cent of the silver is reclaimed.

MINERAL HILL.—The *Elko Independent* of 15th, says of this camp: The immigration is setting strongly in that direction. There is one 10-stamp mill running on custom work, and there is sufficient ore to constantly run 15 stamps more.

An Austin telegram of 19th says: Since Sunday, the Manhattan have shipped to New York, through Wells, Fargo & Co., fourteen bars of bullion, weighing 1,291 pounds, and valued at \$20,273.56.

WASHOE.

OCCIDENTAL.—*Enterprise*, Oct. 16th: The mill is running constantly up to its full capacity. The main tunnel has been driven northward until it is nearly under the rich ore in the levels above. The legal difficulties have been adjusted.

HALE AND NORBORSS.—Producing 185 tons of ore per day. The main shaft is sunk to the eighth level, 90 feet below the seventh, and a drift will be started to-day to cut the ore vein on the new level. The drift will probably reach the vein in going 55 feet east.

YELLOW JACKET.—*News*, 15th: Daily yield 130 tons. The ore breasts continue yielding well. A survey shows the face at the 1,000 foot level to be farther from the wide than has been supposed. The connection will be made about the middle of next week.

SEGREGATED BELCHER.—This company are taking out 25 tons of ore per day, at an expense of but \$3,000 per month. They have out 1,500 tons. The new body continues to look well. The Eureka mill, on Carson, will begin crushing for them on the 1st.

VIRGINIA CONSOLIDATED.—The drifting progresses. They are in good blasting rock and making three and a half feet per day; no water.

CHOLLAR-POTOSI.—Daily yield 240 tons. The indications at the south face of the Potosi tunnel level, in the Belvidere section, are that the ore will make again before the barren streak.

GOULD AND CURRY.—This mine is yielding 90 tons of ore per day, mostly what is called second-class to distinguish it from the few tons of very high grade ore.

CROWN POINT.—The sinking the incline progresses. The drift south, on the 1,100-foot level, is still in porphyry and barren quartz. Receipts for September, \$23,215.18—average of the ore for the month, \$19 per ton.

OVERMAN.—Daily yield 70 tons. The 400-foot level is looking more favorable.

BELCHER.—Looking well. Prospecting vigorously prosecuted. The raise above the 200-foot level, south, shows great improvement.

SAVAGE.—The Savage is yielding 70 tons per day. About 20 of this is from the Potosi deposit and mills over \$50 per ton. They are opening their 3th or new level.

CALEDONIA.—The daily yield is 80 tons of excellent ore, which is crushed at the Piute and Sapphire mills.

SACRAMENTO AND MEREDITH.—Mill running on good ore and the mine yielding an abundance.

OPHIR.—The drift west for the lead is still driven ahead vigorously. Work at the upper mine has been discontinued.

HOPE.—Daily yield 43 tons of \$26 ore, keeping both mills running.

SIERRA NEVADA.—Mill running regularly and mine yielding as usual.

RICH ROCK.—We saw at the Saloon some exceedingly rich ore from the Monte Cristo lean, Flowery District. It shows both native gold and silver. There is said to be plenty of the same kind in the vein.

WHITE PINE.

ITEMS.—News, 16th: In the old workings on the upper level of the Original Hidden Treasure, a large body of low grade ore, which will pay for working, has been discovered. Silver Wave is now 25 feet from Hidden Treasure line, and in good ore. Silver Wedge is taking out fine ore. Ward Beecher is turning out better every day. The dump now contains a large quantity of high grade ore, which is accumulating faster than the teams can haul it away. Aurora North presents a lively appearance. The English company employing 100 men who are extracting low grade ore for the new mill building at the Eberhardt. The mine is looking well. In the Eberhardt during the week, very rich discoveries have been made again, one on the surface workings in front of the large chamber, and the other in the chamber itself. The outside discovery reminds us of the old time specimens. It is hardly anything else but the pure chloride itself. West Wind is working four men, and taking out a little good ore. Consolidated Chloride Flat, has a small force at work, under contract. Truckee had a few tons crushed at the Big Smoky mill, which yielded away up in the hundreds. Of the base metal mines, Fay produces some of the finest carbonates that have been seen in the district. A tunnel has been run 150 feet, in good ore all the way. Burning Moscow and Sunbeam are idle on account of a law suit. Imperial is taking out rich ore. Great Valley is working with good results. Jennie A is turning out better from day to day. The force keep the dump full of rich carbonates. The company has leased the Margary Smelting works. At Mount Ophir considerable ore is being taken out; also around the Monte Christo mill. At the St. Roque some good ore is on the dump. Gov. Matteson has a force at work on the four mines which he purchased lately, extracting plenty of rock for his furnaces. Ticonderoga struck a good body of ore, yesterday.

MILLS AND FURNACES.—The Oasis, at Sherman town, is running steadily on extra good ore from the Eberhardt. Standford is running again. Metropolitan has an abundance of ore on hand to keep it going for some time. Sheba is running on Ward Beecher ore. Swansea has started again. The Big Smoky has never ceased work yet, except for repairs. The Dayton and Manhattan are running. Monte Christo commenced this week, and the new patent Wagner crusher is working to a charm. The Stetefeldt furnace is working with good results. Work on the International is progressing. A large force is employed. The White Pine mill has been started again. Gov. Matteson's two furnaces are running finely, and shipping hullion daily. Work on the refining-furnaces is progressing. The Magary works, leased by the Jennie A. Co., will be started up during the week. Powers' furnace is in full blast. They have run out, since Thursday morning, till 1 p. m. yesterday, 60 bars weighing 190 pounds each.

OUTSIDE DISTRICTS.—Two tons ore shipped from the Oriental mine, Kern District, yielded in Reno \$620 per ton. The Nonpareil has 3 tons ready for shipment to the Monte Christo mill which will work as high. In Robinson some valuable discoveries have been made during the week. The smelting works are shut up on account of a lawsuit, but will be started by the end of this month. At Cooper District the Rappahannock mine shows an immense vein of good ore.

MINING SALE.—Gov. Matteson has bought the following four mines: West Point, Eliza D., Ore and Carlin.

ITEMS.—Empire: A 5-stamp prospecting mill is being put up by Mr. Powers. We learn that there are 14 large teams en route from Elko with machinery for the Eberhardt. R. H. Rogers, Supt. of the Virginia mine, tells us that he has struck a large body of rich ore, from which he made a mill test, the pulp assaying \$57 to the ton.

BULLION.—Wells, Fargo & Co. shipped during September, 106 bars valued at \$129,653.67, of which seventy-one went west and thirty-five east.

BASE BULLION.—During the week ending October 9th, Pritchard shipped 580 bars weighing 54,000 pounds, all of which was from the Rothchilds (Matteson) works, and went East. McIntosh & Barclay shipped 38,320 pounds from the Rathburn furnace to the Jennie A., San Francisco; also, 8,028 pounds to Miller & Gosland, San Francisco, and 10,840 pounds from the Mount Ophir mines to John Seale, San Francisco.

EUREKA.—Sentinel, 15th: Last week Geddes & Bertrand, of Secret Canyon were offered \$100,000 for their interest—two thirds—in the property at that place. They refused it, and the least figure they would set was \$200,000. The smelting and refining works of Ogden, Dunne & Co., will be running by Dec. 1st. They have purchased the Tip Top mine, in the Buckeye & Champion lode.

Colorado.

GEORGETOWN.—Miner, Oct. 13th: The Mendota is yielding richer ore than ever, and more of it. A silver brick weighing 801 ounces, coin value \$837.78, was shipped from the International Mill, East Argentine, a few days since. Morris Tunnel is in 245 ft. Baltimore tunnel is in 560 ft. The Douglass, 80 ft. Orphan Boy lode pays \$384 to \$646 per cord. Gulch mining in Summit has been unusually successful. The yield of the County has been \$500,000. The Stevens mine up to Oct. 1st, has produced \$8,000 at a cost of \$3,500.

FALL RIVER.—Central City Register, Oct. 12th,

The Whale mill has started up again. Several capitalists talk of putting up smelting works, after the Swansea plan, on a very large scale.

GRAND ISLAND.—The "No Name" assays as high as \$3,976.64 per ton. They have taken out ten tons in nine days, with two men, and have on dump a handsome lot of ore. The Idaho is still producing first rate ore. The Cariboo folks are hurrying over their ore. It has accumulated in Prof. Hill's yard considerably beyond the demands of the furnaces. One lot recently assayed 800 ounces. It is believed that the purchase money, \$50,000, will be cleared from the mine within six months. Mr. Everest's first assay on the Monitor showed three ounces of silver per ton. His second, a few feet deeper, sixty-four ounces, third seventy-four, and the last ore shipped within a week yielded 117 ounces. The shaft is now 35 feet in depth.

Montana.

PILGRIM BAR.—New North West, 7th: The Rock Creek Ditch still supplies 1,000 inches of water during the day, and five companies at night. Among the clean-ups we hear of during the week were Holcomb, Berry & Co., \$4,500; Fly, Kohrs & Co., \$2,100; Catehing & Co., \$1,450.

MINERS' DITCH.—Deer Lodge Independent, 8th: The Ditch is completed to Modesty creek. A large number are availing themselves of the offer of the Co. that water is free to those who wish to prospect. The ditch will carry 2,000 inches.

TOP O'DEEP.—Mr. McGhee tells us that the season is about closed, the water not lasting more than one hour per day. Even this is made to yield from \$100 to \$150 per day. The mines on Bilk gulch are also short of water, but pay almost as well.

SUMMIT.—Montanian, Oct. 13: Livelier than for two years. The Excelsior mill was running on rock from the Carerona. The lode is fifteen feet wide, and the rock easily mined. The mill will start on Midas ore next week, and the prospects are that Layton & Bros., will keep it going for some time. The Midas is the most thoroughly opened in Montana. Spring gulch mill shut up after making that big run that turned out the brick of 110 ozs. It will steam up, in a few days again on the Ore Cacho ore. Col. Postlewait is preparing to work the Key Stone; he will erect an engine immediately to hoist water and ore.

A NEW EL DORADO.—The Pick and Ploie for Oct. 7th says that rich gold mines have been found in Eastern Montana, in a south-easterly direction and not over 200 miles from Bozeman. We have seen the gold. It differs in appearance from that of the old camps, being deeper hued. The deposits are said to be very extensive. The opinion is that the new diggings will yield from ten to fifty dollars a day to the hand. The prospects ranged from fifteen cents to a dollar and a half to the pan. The diggings are shallow. It is believed several thousand men can find employment in the basin. The discoverers will not give precise information of the locality until spring.

Idaho.

ROSS' FORK AGAIN.—Statesmen, 11th: Stone & Fisher write denying the statement that the McCoy Basin mines are a humbug. They say there are three strings of sluices in operation paying good wages and over one hundred men prospecting and rigging up sluices.

THE RICHEST YET.—Avalanche, 15th: A large deposit of the richest ore ever seen in camp has just been struck in the fifth level of the Golden Chariot, 80 feet south of the shaft. Fifteen tons were taken out on Thursday, that, at the lowest estimation, will pay \$3,000 per ton, and good judges say \$5,000 to \$6,000. The rich streak is about a foot wide, and is known to extend 30 feet in the stope.

SNAKE RIVER.—Elko Independent, 15th: Mr. E. Burner, of Little Shoshone Falls, in connection with Capt. Bledsoe, has been engaged all Summer on the river, employing about ten men at from \$3 to \$4 per day. Their claim has paid well. They have been running two rockers during the past six weeks, and have averaged \$300 per week. They are now putting up sluices. Many of the miners along the river are making \$5 to \$10 per day.

New Mexico.

ITEMS.—Press and Telegraph, Oct. 8th: Tom Lowthian writes from Grant Co., that they have struck lodes at Silver Flats, that throw the Comstock in the shade. Tom Pollock cleaned up four pounds of gold dust last week—working 13 men, with 100 inches of water.

ROASTING OF GOLD AND SILVER ORES AND THE EXTRACTION OF THEIR RESPECTIVE METALS WITHOUT QUICK-SILVER.—By G. Kustel, San Francisco, Dewey & Co. 1870, 12 mo pp. 150.

The main purpose of this book is to explain the bleaching process for extracting silver from certain ores, invented by Kustel and Hoffmann, and successfully practiced by the latter in Mexico. Several years ago we described the main features of the process, but in this book, a number of new details adapted to different ores and circumstances are given. As roasting precedes bleaching, that is fully treated. The book is worthy of Mr. Kustel's reputation as one of the first metallurgical authorities of our own age, and it will be of service to all who study the methods of extracting the precious metals on this slope.—Daily Alta.

STOCK REVIEW.

MISCELLANEOUS STOCKS.

The market for miscellaneous securities has been quiet during the past week, though some sales have been made from private hands. The Central (City) Railroad Co. disburse their usual 1/2 per cent. dividend the present month. At the close, we note sale of Spring Valley Water stock at \$66 50@66 25.

The following quotations have been carefully revised by F. H. Woods, Broker:

Federal, State, County and City Bonds.			
Name.	Bid.	Asked.	
U. S. Bonds, 6-30-1885, '67, '68.	99	99 1/2	
U. S. Bonds, 3-20-1884	99	100	
U. S. Bonds, 3-20-1882	99	100	
Legal Tender Notes	88 1/2	89 1/4	
California State Bonds, 7s, 1857.	98	—	
San Francisco Bonds, 10s, 1857.	—	par & int.	
San Francisco City Bonds, 6s, 1858.	98	—	
San Francisco City and County Bonds, 6s, 1858.	84	86	
San Francisco School Bonds, 10s, 1880.	100	—	
San Francisco School Bonds, 10s, 1881.	—	par & int.	
San Francisco City and County Bonds, 10s, 1880.	98	—	
Sacramento City Bonds.	30	35	
Sacramento County Bonds, 6s.	77	80	
Marquette Bonds, 10s.	85	90	
Stockton City Bonds.	85	—	
Yuba County Bonds, 8s.	85	—	
Santa Clara County Bonds, 7s.	80	—	
San Mateo County Bonds, 10s.	80	—	

San Francisco and Miscellaneous Stocks.

Name.	Bid.	Asked.
California Steam Navigation Co.	40	40
San Francisco Gas Co.	85	86
Sacramento Gas Co.	100	102
Spring Valley Water Co.	66 1/4	66 3/4
Omnibus Railroad Co.	64	64
Central Railroad Co.	70	75
North Beach and Ocean Railroad Co.	—	67
Front Street, Mission and Ocean Railroad.	—	—
Do do preferred	—	—
Fireman's Fund Insurance Co.	98	100
Pacific Insurance Co.	100	102
Merchants' Mutual Marine Insurance Co.	560	580
California Insurance Co.	100	105
Union Insurance Co.	98	100
Central Insurance Co.	95	97 1/2
People's Insurance Co.	85	96
The Bank of California	123	124
Pacific Bank	97 1/2	100

MINING SHARE MARKET.

The mining share market was quite active during the period under review, the sales embracing a larger variety of stocks than has been offered for some time past, and throughout the entire list exhibited an upward tendency. We observe, too, that a more hopeful feeling pervades mining interests in general—both in this and our neighboring States, the main feature of success, in our opinion, depending upon the present desire and the strong operations in the direction of a reduction of expenses in every department of this leading commercial pursuit of the Pacific Slope. Nearly every mill in the White Pine District is in successful operation, and since the competition of the East in the matter of reducing ores has created sharp inquiry, the attention of many of our capitalists has been directed to this important matter, with a view of making it still more desirable upon the part of the producers to have their ores manipulated this side the continent.

HALE & NORCROSS—has been in good favor during the past week, at an improved figure. For the week ending October 15th, 192 1/2 tons of ore were taken from the 300 level, and 1,021 1/2 tons from the 7th station level, making 1,214 1/2 tons, against 1,264 1/2 tons the previous week. They have in their dumps 6,431 1/2 tons of ore. The ore-hearths on the 6th and 7th levels, south of the shaft, have improved considerably. The shaft has been carried to the 8th level, the station timbers are being placed, and they will soon commence to drift toward the ore-vein.

CHOLLAR POTOSI—has again come into marked favor, showing a material advance during the period under review. They extracted 1,920 tons of ore during the week ending October 15th, showing an average assay of \$71 09 per ton. The drift east from the Potosi Tunnel has been carried into the quartz four feet, and they have sixty feet to make before reaching the eastern side. The drift south, on the track floor, shows more and better ore than existed at that point seven days ago, and other portions of the ore-producing sections have changed none, with the exception of the 25th floor, where the ore is wider and extends much farther north than it did on the floor below.

GOULD & CURRY—sold somewhat freer at a better figure. For the week ending October 16th 586 1/2 tons were extracted, assaying \$49 06 per ton. The north drift from station A shows some very favorable quartz, assays of which run as high as \$13 per ton.

SIERRA NEVADA—is in better request, with some improvement. During the "run" ending October 14th, they extracted 654 tons of ore, and in 12 1/2 days produced bullion to the amount of \$9,813. A letter states that "the mine is looking very well, and the results likely to be good for a long time, they having plenty of ore in sight." OVERMAN is rather neglected.

For the week ending October 15th, they took out 371 tons of ore, showing an approximate value of \$9,660 69, equal to \$26 04 per ton.

CROWN POINT—sold to a less extent than last

week. They extracted 326 1/2 tons for the week closing October 14th, valued at \$3,500 15, equal to \$10 72 per ton. The incline is down 84 feet below the 1,100 level, the entire face of it showing quartz. The south drift is in 249 feet from the north line, and the ground through which it is passing is very much broken up. The east drift on the 1,100 level is being cleared out preparatory to resuming work there. BELCHER sold freely at a better price. The ground on the 420 level improves as they drive south and "raise."

SAVAGE—continues in large request. They extracted 463 tons, valued at \$14,872, equal to \$32 17 per ton. In running a drift south above the track floor of the Potosi deposit some good ore has been found, without knowing the extent of it. EMPIRE MILL levied an assessment of \$4 per share on the 18th inst. ORIENTAL levied an assessment of 30 cents per share on the 11th. GOLDEN CHARIOT paid a dividend of \$2 50 per share on the 20th.

With reference to the White Pine mines, we take the following from the News of the 16th:

ORIGINAL HIDDEN TREASURE—A large body of low grade ore, but which will pay for working, has been discovered in the old workings on the upper levels, which, after a little clearing away, will be taken out and milled immediately. Work is also being laid out now to continue the old shaft and tunnel so as to form a connection, but it will take some three or four months to accomplish this. Meanwhile the work in the upper levels will be continued, and the ore taken out. The mine in general looks first rate.

SILVER WAVE—Is working a small force and running a level toward the Hidden Treasure. Are now about 25 feet from the dividing line. The level shows good ore all the way. Another level is also being run southwesterly toward the Montauk, from which they are now only about 12 or 15 feet distant.

SILVER WENCE—Taking out some very fine ore, and has a good deal of low grade ore in sight. Work is being prosecuted slowly.

NOONDAY—Is working with very fair results, but has not many men employed at present.

AURORA NORTH—This mine presents a lively appearance now, the English company employing about 100 men, who are extracting a large amount of low grade ore for the new mill building at Eberhardt. The mine is looking exceedingly well, immense quantities of ore which will pay well for milling being in sight.

ENERHARDT—During the last week, some very important and rich discoveries have been made again, one on surface workings outside and in front of the large chamber, and the other in the chamber itself. The outside discovery reminds us of the old-time specimens. It is hardly anything else but the pure chloride itself, and shows a large body of it. The mine is now in such a shape that a very large force could be set to work immediately to very good advantage, extracting ore without doing any dead work. Exploration by which new and rich discoveries are being brought to light daily, are being pushed ahead; and we understand that a large force of men will be employed shortly to extract ore for the new mill. At present, only 15 men are at work.

Mining Shareholders' Directory—Meetings, Assessments and Dividends.

[Compiled weekly from advertisements in the SCIENTIFIC PRESS and other San Francisco journals.]

ASSESSMENTS

NAME, LOCATION, AMOUNT AND DATE OF ASSESSMENT.	PAY	DATE
Belcher, G. H., Sept. 6, \$2	Oct. 10—Oct. 20	
Brush Creek, Sierra Co., Aug. 5, \$2.50	Sept. 9—Sept. 29	
Columbia, Cope Dist., Sept. 24, 25c.	Oct. 29—Nov. 22	
Columbia, Placer Co., Sept. 28, 75c.	Nov. 2—Nov. 18	
Cherokee Flat, Butte Co., Sept. 10, \$5.	Oct. 14—Oct. 31	
Concha, Virginia, July 6, \$1.	Oct. 14—Oct. 31	
Empire, G. H., Oct. 13, \$1.	Nov. 22—Dec. 13	
Gold Hill, G. H., Sept. 8, \$10	Oct. 13—Oct. 31	
Ida Elmore, Idaho Terr., Sept. 10, \$5.	Oct. 15—Nov. 3	
Kentuck, G. H., Aug. 27, \$5.	Sept. 29—Oct. 17	
Morning Star, Alpine Co., Oct. 17, 50c.	Nov. 24—Dec. 10	
Mountain City, Elko Co., Sept. 29, 50c.	Nov. 7—Nov. 28	
Meadow Valley Ex., Sept. 10, 50c.	Oct. 25—Nov. 11	
N. Bloomfield, Nevada Co., Sept. 22, \$4.	Oct. 25—Nov. 11	
N. Oriental, Sierra Co., Oct. 11, 30c.	Nov. 10—Nov. 30	
Ophir, Virginia City, Sept. 9, \$3	Oct. 13—Nov. 2	
Hidden Treasure, W. P., Aug. 27, \$2.	Sept. 30—Oct. 10	
Silver Sprout, Inyo Co., Aug. 23, 25c.	Oct. 13—Oct. 28	
Segmented Belcher, W. P., Aug. 25, \$1.50	Sept. 23—Oct. 18	
San Marcial, Mex., Oct. 13, \$2.50	Nov. 19—Dec. 5	
Tullish, Nev., Oct. 14, \$1.50	Nov. 22—Dec. 20	
Wheeler, Esmeralda Co., Nev., Aug. 25, 50c.	Sept. 20—Oct. 20	

MEETINGS TO BE HELD.

Eureka	Special Meeting, Oct. 20
Independent Coal	Annual Meeting, Nov. 9
LATEST DIVIDENDS—(Within Three Months)	
Eureka, div. \$7.50	Payable Aug. 18
Golden Chariot, div. \$9.50	Payable Oct. 10
Hale & Norcross, div. \$5.	Payable Sept. 16, 1870
Sierra Nevada, div. 50c.	Payable Sept. 16, 1870
Union, div. \$1.	Payable Aug. 6, 1870

*Advertised in this journal.

Poultry Husbandry.

We have numerous enquiries as to the best breeds of fowls. Such questions are difficult if not impossible to answer. The fact is there are quite a number of "best breeds." While one affords the best and most meat for the table, another, quite inferior in that respect, furnishes the best and largest number of eggs. Still another breed excels as setters, and is quite inferior to either for flesh or eggs. There are no reliable data from which any very intelligent opinion may be drawn. A series of careful comparative experiments, with full and reliable notes, is something much to be desired in this respect; and whoever will undertake such a work will accomplish an immense amount of practical good.

All that is now known of poultry husbandry is gathered up from uncertain, disconnected experiments, most of which are merely one-sided opinions, favoring this or that breed, in the propagation of which the experimenter is generally interested.

Chicken Fences.

One great draw-back to the more general keeping of poultry arises from the mistaken idea that a high and expensive fence is necessary to keep them within bounds. On the contrary a common paling fence, five feet high, with a single strand of small galvanized wire stretched a few inches above the top of the pickets is sufficient to keep within bounds the best winged domestic fowls. When a hen flies over a fence, she invariably calculates either to make a landing on the top or to barely clear the fence. If the wire is galvanized and small enough, she will not notice it, but will fly against it and be thrown back. If one wire fails, a second one just above the first, will be sure to succeed and a hen will not fly over it once in ten years, although it may not be over six feet above the ground. The wire will cost much less than the extra lumber for a high fence, and will stand for an indefinite time.

A Chicken Roost

Should be—especially in this country—open and airy, not close and confined. Fowls should, however, be carefully sheltered from rain, in the wet season. The floor should always be kept clean. We sweep our hen-house floor (an earth one) every morning, as regularly as Bridget does the kitchen. Such care will pay twice over—first in the health of the chickens, and second in the saving of ammonia for the manure heap, which would otherwise escape. It is a good plan to first sprinkle some fresh earth over the droppings, especially if you have a plank floor.

Chicken Feed, etc.

With proper care in cleanliness and food, and with a reasonable amount of room, large poultry yards may be made as profitable or more so, than small ones. The floors, walls and roosts of a hen-house should be kept scrupulously clean. The floors as above stated; the walls should be whitewashed and the roosts should be rubbed over as often as once a month with kerosene to kill and drive away vermin.

There is an establishment in Bohemia, where it is said 15,000 chickens are kept. The hatching is entirely by mechanical process, and the profits are set down at 400 per cent. per annum. But the most remarkable thing connected with this establishment is the fact that the proprietor feeds no grain or meat. He is said to feed his fowls upon worms, which are produced upon the place, (probably by the decomposition of animal and vegetable matter.) We are not advised whether the large profit of this poultry ranch is due to the economy in the manner of producing the food employed, or the general good management of the concern. A publication giving a description of this establishment, the process of feeding, etc., has recently been published in that country, which is

now being translated for publication by some of our Eastern poultry raisers.

With regard to the space which should be assigned to fowls, a good rule may be stated as follows:—for 20 hens, a space 20 feet square feet should be allowed; 30 hens, 30 feet square; 40 hens, 40 feet square; etc.

The sides of the yard should be enlarged one foot for every fowl added. When more than fifty are kept, it is better that a separate yard should be prepared for such excess.

This rule should be applied only when fowls must be shut up; or when the greatest practical economy of space must be adopted, as in or near cities, etc. But whenever circumstances admit, a much larger space should be allowed. The fullest reasonable amount of range is always desirable. Whatever the extent of range allowed, open shelter should always be provided, such as low hushes, or something of the kind. Hens are especially fond of seeking low, green shade, and the more irregular and winding the paths through and among it, the better they like it. An irregular clumpy growth is most desirable.

Mountain Agriculture.

The *Statesman* claims for Idaho territory the largest average yield of wheat, for the present year, of any state or territory in the Union. The first nursery in Idaho was established at an early day by "Cayuse George," who brought his roots from Mission. He also has branch nurseries all over the coast, and at one time could have sold out his original stock for a quartz mine.

MONTANA.—The *Deer Lodge Independent* acknowledges the reception of the following articles—all the production of Bitter Root Valley:—A 25-pound, canteloupe, pepper-pods four inches in length, and two varieties of corn one of which was equal in every respect to the best we ever saw. It is fully matured, the kernels are plump and the cob well filled. One onion measuring 16 1-2 inches in circumference and another over 15. A bunch of tomatoes—growing upon a single stem—weighing nearly eight pounds. After seeing and tasting of this varied and excellent sample of the productions of the Bitter Root valley, the editor is not surprised that it is called the garden spot of the Territory.

UPPER WILLOW CREEK, in the same territory, appears to be another mountain "garden spot." This valley is located near Gallatin, and is about 18 miles long by 6 wide. A correspondent writes from there that Mr. Reeves, of that valley, has raised 14 bushels of Norway oats the present year from three pounds of seed. He has seen in Virginia City, Montana, 61 stalks of these oats growing from a single grain; 35 of which contained near one pint of grain. The evidences of the wonderful agricultural productiveness of our high mountain valleys is really astonishing.

FARMING IN LANDER COUNTY NEVADA.—J. T. Hunter sowed 800 pounds of barley and has 12 tons of as fine barley as was ever raised in California, and it is worth here five cents per pound. From 200 pounds of wheat sowed he cut five tons of fine wheat-bay and has three tons of wheat. He planted three and a half tons of potatoes and has 50 tons of as fine potatoes as were ever grown. We can speak as to them, having been the recipient of a good supply of the esculent. He has also grown a large quantity of beets and turnips of fine size and good quality. If any one supposes that crops of all kinds cannot be grown in the valleys of Nevada, that opinion would be reversed by a visit to this ranch, and seeing the result of a summer's work. If men who think nothing can be done here would exercise a little industry they could make a small fortune in a single season with a certainty that no other occupation can guarantee. There is room in the county for hundreds as good places, and a home market for every product that can be produced.—*Ec.*

CROPS IN WALLA WALLA.—The *Walla Walla Union* says that a gentleman in that place bought and set out a two-year old grapevine last spring, hoping that by another

year he would have some grapes. But later, to his glad surprise, he found that it was going to bear this season; and now it is loaded with the finest grapes. The owner has been offered fifteen dollars for the crop now on the vine, that only four months ago cost but two dollars and a half. The price offered is an evidence of the scarcity and high cost of grapes in Walla Walla, and the *Union* thinks the above experiment shows that they can be profitably raised in that locality.

FARMING IN THE SWEETWATER COUNTRY.

—A gentleman recently from the Sweetwater country gives the *San Diego Union* the following encouraging report of the farming interest in that region:—"In Secatera Valley considerable corn is ripening. On one ranch, where a crop was put in late this Spring, after many had given up on account of the drouth, there are 30 acres of corn in fine condition, and roasting ears are abundant. Here too, are sweet potatoes, squashes, beets, cabbage, cauliflowers, tomatoes, etc. etc., in plenty and of the choicest kind; there is also an acre of peanuts nearly ripe. Mr. Chas. McLean, the owner of this ranch, is a fine illustration of "Young American" enterprise and perseverance. He is not yet 20 years old; he commenced operations a few months ago with a capital of only \$200, and although we have had a "dry season," and "hard times," he now has one of the finest little ranches in the county."

Do Alkali Soils Affect the Character of Wool?

We have received several enquiries with regard to the effect which alkali soils may have upon the character of wool. As the question is one of much importance in view of the rapid increase of the sheep growing interest all through the alkali regions between the Sierra Nevada and Rocky mountains, we submitted the question to Prof. Rowlandson, of this city, who has paid much attention to the subject of sheep raising both in this country and Europe. The Professor's reply, which is hereto appended, will be read with much interest by sheep growers, everywhere.

EDITORS SCIENTIFIC PRESS:—The topic which you have referred to me—the actual or probable influence on the character of the fleeces grown on sheep that feed on alkali soils—is a very interesting one. In pursuance of the promise made to you on the occasion of a recent conversation on this subject, originating from observations and enquiries made by one of your many intelligent agricultural correspondents, I proceed to give my indirect experience, as well as some theoretical suggestions relative to this matter.

Never having had the care and superintendence of flocks whose feeding grounds consisted wholly or principally of what are commonly denominated alkali soils, my observations have necessarily been restricted to such opportunities as have been afforded me by the examination of fleeces so extensively imported into England from the Southern Russian Steppes, and the Cape of Good Hope, both of which districts possess extensive alkali plains. Such fleeces, in my judgment always afforded a harsher feeling when grasped, which would be anticipated prior to handling, by the mere external observation of their relative fineness of fibre.

In viewing this question it ought not to be overlooked that the plains under notice are usually covered with a copious growth of saliferous plants, the "artemesia," frequently predominating—accompanied by only a sparse intermixture of true grasses. In consequence of the fact just stated, animals so fed ingest in their food a much larger amount of alkaline salts than would be the case if fed only upon the *graminaceae*.

Whether this increased absorption of alkaline salts produces any deteriorating effect on the fleeces of animals so grazed, I am not prepared to give any decided opinion; inferentially, however, I am inclined to think that the change, if any, would be very slight, and consider it possible that in the case of your correspondent's complaint of the coarseness of the fleeces of his sheep being intensified by grazing on alkali lands, that the change may have arisen from climatic causes.

Fine woolled sheep taken from the plains of Los Angeles to extremely elevated districts, or northern and cold regions, would have the fineness of their fleeces deteriorated, no matter what land or pasturage they might live upon. This incident com-

plicates the question, and ought to be kept in view, if it is attempted to institute true economic comparisons.

The opinion just given may appear opposed to a statement made in a former part of this communication. It is possible, however, that the harshness so noted may arise from the following cause:—The fact is well known that the fineness of wool, other things being equal, is proportioned to the amount of *yolk*. Now the yolk is simply an animal potash soap, intermixed with a small, but variable amount of an earthy one, chiefly lime.

That potash forms a soft, and soda a hard soap, are facts pretty generally known. In the case of alkali soils, it may readily be conceived how the presence of carbonate of soda, in mass, as compared with potash, may cause the formation, to some extent, of stearate of soda, (hard soap); in this way the harshness of unwashed wool, grown on alkaline soils may possibly be explained. To constitute correct comparisons, it may consequently be found necessary to make trials with washed wool.

It may be mentioned, in connection with this subject, that a general opinion exists amongst those physiologists who have paid attention to the matter, that to the joint action of alkaline soils, and their general accompanying flora is to be attributed the abnormal development of fat-rumped and fat-tailed sheep found in the localities previously alluded to. Indeed, some go so far as to theorise that the abnormal, posterior development of the Hottentot female has a similar origin.

In conclusion, it may be well to remind the reader that while the term "alkali soil" is correct in chemical parlance, it is not so according to common apprehension—the latter application of the term alkali being confined to those compounds which color redened litmus paper blue. The greater part of the white salts, seen on our alkaline soils, are composed of common and glauher salts—both neutral salts of soda.

THOS. ROWLANDSON.

San Francisco, Oct. 16, 1870.

AGRICULTURE AND MINING.—The *Plumas National* predicts a large increase of population to Plumas County within the next two years, from the development of its agriculture in addition to the increase of its mineral resources. Agriculture and mining must go hand in hand in our mining counties or a continued retrogression will be the order of the day.

THE FARMERS in the upper portion of the San Joaquin Valley are much elated and encouraged at the assurance by Mr. Stanford, President of the Central Pacific Railroad, that the contemplated branch for the San Joaquin Valley will reach the town of Visalia in season to move the next year's crop.

San Francisco Market Rates.

Wholesale Prices.			
THURSDAY EVENING OCT. 20, 1870.			
Flour, Extra, 48 lbs.	55 00	45 00	55 00
Do, Superfine, 48 lbs.	50 00	40 00	50 00
Do, No. 1, 48 lbs.	45 00	35 00	45 00
Wheat, 48 lbs.	1 75	1 50	1 75
Oats, 48 lbs.	1 25	1 00	1 25
Barley, 48 lbs.	1 00	80 00	1 00
Beans, 48 lbs.	1 80	1 50	1 80
Potatoes, 48 lbs.	1 00	80 00	1 00
Hay, 48 lbs.	10 00	8 00	10 00
Live Oak Wood, 48 lbs.	10 00	8 00	10 00
Beef, extra, dressed, 48 lbs.	7 00	6 00	7 00
Sheep, on foot, 48 lbs.	2 00	2 00	2 00
Hogs, on foot, 48 lbs.	6 00	6 00	6 00
Hogs, dressed, 48 lbs.	7 00	6 00	7 00
GROCERIES, ETC.			
Sugar, crushed, 48 lbs.	14 00	14 00	14 00
Do, Hawaiian, 48 lbs.	14 00	14 00	14 00
Coffee, Costa Rica, 48 lbs.	20 00	20 00	20 00
Tea, Japan, 48 lbs.	65 00	65 00	65 00
Do, Green, 48 lbs.	60 00	60 00	60 00
Hawaiian Rice, 48 lbs.	7 00	7 00	7 00
China Rice, 48 lbs.	7 00	7 00	7 00
Coat Oil, 48 lbs.	40 00	40 00	40 00
Candles, 48 lbs.	14 00	14 00	14 00
Overland Butter, 48 lbs.	30 00	30 00	30 00
French Butter, 48 lbs.	35 00	35 00	35 00
Swiss Butter, 48 lbs.	35 00	35 00	35 00
Cheese, California, 48 lbs.	12 00	12 00	12 00
Eggs, 48 lbs.	60 00	60 00	60 00
Ham and Bacon, 48 lbs.	16 00	16 00	16 00
Shoulders, 48 lbs.	9 00	9 00	9 00
Retail Prices.			
Butter, California, fresh, 48 lbs.	50 00	50 00	50 00
Do, pickled, 48 lbs.	20 00	20 00	20 00
Do, Oregon, 48 lbs.	20 00	20 00	20 00
Cheese, 48 lbs.	25 00	25 00	25 00
Honey, 48 lbs.	25 00	25 00	25 00
Eggs, 48 lbs.	20 00	20 00	20 00
Lard, 48 lbs.	18 00	18 00	18 00
Ham and Bacon, 48 lbs.	22 00	22 00	22 00
Potatoes, 48 lbs.	1 00	1 00	1 00
Potatoes, Sweet, 48 lbs.	2 00	2 00	2 00
Tomatoes, 48 lbs.	2 00	2 00	2 00
Onions, 48 lbs.	2 00	2 00	2 00
Apples, 48 lbs.	4 00	4 00	4 00
Pears, 48 lbs.	5 00	5 00	5 00
Fruit, dried, 48 lbs.	10 00	10 00	10 00
Peaches, dried, 48 lbs.	10 00	10 00	10 00
Oranges, 48 lbs.	10 00	10 00	10 00
Lemons, 48 lbs.	10 00	10 00	10 00
Chicken, 48 lbs.	75 00	75 00	75 00
Turkeys, 48 lbs.	10 00	10 00	10 00
Soap, Pale and C. O., 48 lbs.	10 00	10 00	10 00
Soap, Castile, 48 lbs.	18 00	18 00	18 00

OPIMUM IN VERMONT.—Continued success in opium culture is reported in Vermont.

Household Reading.

The "Earth Process" for Making Butter.

A paragraph has been going the rounds of the press for a year or two with reference to a peculiar mode of making butter, employed in some portions of the world, sometimes called the "earth process," and which may be described as follows:

The cream is put into a thick linen or woolen sack, and this sometimes enclosed in still another. The cream so enclosed is buried a few inches deep in the ground, in a sheltered or shady spot, the earth being packed closely over the bag. After remaining in that situation about 24 hours, the bag is dug up, when it is found to contain nothing but butter, which needs only to be "worked" to be ready for market.

Some of our contemporaries have doubted whether butter can be so made; but the fact is well authenticated, and the philosophy of the thing, which is very simple and well understood, may be explained as follows:

The butter globules in cream, as we have frequently stated, are simply little globes of butter, of microscopic fineness, covered with a thin film or skin, and floating in the liquid known as "butter-milk." The butter-milk, being quite limpid, may be drawn away from the less limpid butter, by capillary attraction, or strained out of it by a slow process of that kind, when a gentle pressure is added.

The former is just what is done in the process referred to. The gentle pressure of the earth, when the bag is first buried, starts a straining process, which is subsequently kept up by capillary attraction, after that pressure is removed by the shrinkage of the bag, until nearly all the butter-milk is taken away the balance being readily removed by "working" as is practiced after the ordinary churning process.

However simple this process may be, it is not at all likely that it will ever come into general use, for two reasons:—First for its lack of cleanliness, and second for its wastefulness.

The soil itself, even when *fresh*, will have a more or less unpleasant flavoring influence upon the butter; and this is especially the case, when the process is oftentimes repeated in the same hole; where the decomposing fluids of previous operations have more or less vitiated the soil by their presence. For evident reasons of cleanliness a sandy, loamy soil is preferable to a rich, heavy soil. Another serious objection grows out of the fact of the total loss of the butter-milk, which is always considered of more or less value.

The process however has been considered worthy of some experiments by Mr. A. Mott, who has elaborated a device which he has recently taken steps to secure by letters patent.

He takes a box about two feet high, and first packs it with a layer of dry, porous substance, such as coarse sand, charcoal, lime, etc., over which he carefully spreads a piece of cloth. Then, to collect the butter-milk, he places upon the cloth a 3-inch layer of fragments of sponge, upon which the bag of cream is laid, spread out into a thin cake. Another layer of sponge is then spread upon and around the bag, and the box filled to the top with a like porous or similar substance to that at the bottom. This latter is to exert the pressure and start the capillary action. In 24 hours the butter-milk is all removed and taken up by the sponge, from which it can be removed by pressure. The plan may have some practical value; but we still prefer the old way.

CHEWING GUM.—Chewing gum is made of certain parts of gum-arabic, gum-tragacanth, a small quantity of resin and fat. The fat used is expressed from the bodies of hogs, cats, dogs, and other animals found dead in the streets of cities. Nioe, isn't it?

Beautiful Chemical Experiment.

The following beautiful chemical experiment may easily be performed by a lady, to the great astonishment of a circle at her tea-party. Take two or three leaves of red cabbage; cut them into small bits, put them into a basin, and pour a pint of boiling water on them; let it stand an hour, then pour off the liquid into a decanter. It will be of a fine blue color. Then take four wine glasses; into one put six drops of strong vinegar, into another six drops of a solution of soda; into a third the same quantity of a strong solution of alum, and let the fourth glass remain empty. The glasses may be prepared some time before, and the few drops of colorless liquids which have been placed in them will not be noticed. Fill up the glasses from the decanter, and the liquid poured into the glass containing the acid will quickly become a beautiful red, that in the glass containing the soda will be a fine green, that poured into the glass containing the alum will be purple, whilst that poured into the empty one will remain unchanged. By adding a little vinegar to the green, it will immediately change to a red; and on adding a little of the solution of soda to the red, it will assume a fine green; thus showing the action of acids and alkalis on vegetable blues.

A Grasshopper Exterminating Fly.

It seems that the grasshoppers that are so destructive to vegetation in many places in the central portion of the continent, are likely to find an enemy which threatens their rapid destruction. The *Deer Lodge Independent* says that a fly has made its appearance, closely resembling the common house fly, but much larger, and of a gray mottled color, which deposits its eggs under the wings of the grasshopper. The egg is inclosed in a glutinous substance, which secures it in its position until the worm is matured. It then penetrates the body of the grasshopper, which speedily dies. The worm then burrows in the ground, and at the end of 17 days comes forth a fly, ready to again commence the work of destruction. Mr. William Walker, of Dempsey Creek, informs the *Independent* that twice during the past summer the grasshoppers threatened to destroy his crops, but the flies killed them so rapidly that they did him but little damage. As the grasshoppers were killed before depositing their eggs, it is generally believed that this plague is ended in the Deer Lodge valley.

THE USE OF PICKLES.—There is no nutriment in pickles; but they nevertheless have their use in dietetics. The acid they contain aids the digestive process. With concentrated and fat meats they are especially grateful to the stomach, and in Winter and Spring supply the place of fruits. We all remember with what avidity our soldiers in the late war ate the pickled onions and relishes sent to them. These in fact supplied to some extent the place of both vegetables and fruit.

Josephine and Rose Culture.

The world may be said to owe the rose, as it is, to the Empress Josephine—probably a greater debt than it will ever acknowledge to the man to whose grand purposes she was sacrificed. From 1805 to 1810 she collected at her favorite residence, Malmaison, the choicest variety of roses that could be obtained, and thus gave an impulse to its culture. Of roses there were, in 1814, only one hundred and eighty-two varieties, and there are now more than six thousand, the poorest of which are much better than any which existed at that day. This is but another instance of what can be done by careful cultivation.

WHY WOMEN CAN'T RUN.—The bones of the lower limbs are differently arranged in women than in man. One of the consequences of this is, that no woman can run gracefully. They run, says a witty Frenchman, as if they intended to be overtaken; or, as the boys often say, like a cow. And yet some women want to run for office!

TO RELIEVE A POISONED DOG.—It often becomes desirable to relieve a dog from the effects of poison taken accidentally or otherwise. In such cases the following hint may be useful:—"W. B. M." of Lewiston, Idaho, writes that, when living in Texas, he often had hunting dogs poisoned by strychnine that was set for wolves. He always cured the dogs by pouring down their throats as much milk-warm oil, or grease, as their stomachs would hold.

Hints for Mechanics.

SHRINKING OF TIMBER.—Oak and some other kinds of timber will shrink every time it is dressed. Wagon spokes may be blocked out and laid out in a dry shop for two years, and then if fitted and driven immediately into the hub they will shrink in a few days so as to be loose. They should be fitted and left to dry and shrink before driven. Much of the agricultural machinery made of oak and ash soon works loose, notwithstanding the timber was seasoned, because the seasons were not permitted to season after being cut out for the mortice. The tenons should be made a little full, and left to dry a few days. —*Manufacturer and Builder.*

FOR REMOVING HARD PUTTY.—For removing hard putty from a window-sash, take a square piece of iron, make the same red hot, and run it along the putty till it gets soft. The putty will peel off without injuring the wood work. Concentrated lye, made of lime and alkali, will affect the wood and make it rot quicker.

CLOTH FROM CATS AND RABBITS HAIR.—Machinery has recently been invented in England which weaves from the hair of cats and rabbits a sort of velvet-tissue, distinguishable from silk, but not inferior in fineness and beauty.

BRASS VS IRON.—It seems strange that house-keepers don't buy pails and tubs with brass hoops and trimmings—they cost a little more at first, but last wonderfully, and would be more universally supplied, if there was a larger call for such fastenings and trimmings.

APPLYING EMERY TO WHEELS.—The application of emery to polishing wheels, etc., is much easier than is supposed by many. Emery flour is easily fastened by weak glue to the leather-covered face of a wheel, and as easily renewed when necessary. Usually, oil and emery, applied to the leather covering, is sufficient. There are various kinds of emery wheels made, each claiming some special advantages.

HOW TO PRODUCE AN ECLIPSE.—Place two pins at a suitable distance; then, with a string, form a loop which shall enclose both pins, and with a pencil, run around within the loop, keeping the same tight, and an eclipse will be produced, the greater or less elongation of which will be decided by the space between the pins.

Household Receipts.

HOW TO PREPARE CUCUMBERS FOR THE TABLE.—The Germans have a very good way of preparing cucumbers, which many who cannot eat them sliced in vinegar, like. Slice the cucumbers thin; sprinkle over them a handful of salt; let stand half an hour. By this time they will be wilted, then drain off the watery juice, and wash in three or four waters—enough to extract the salt. Then add some vinegar, (a little only,) and some sweet cream. Pepper thoroughly.

TO KEEP LEMONS.—Housekeepers know how soon lemons lose their flavor and rot. A simple and inexpensive remedy is to place them in a jar filled with water, the water to be renewed every day or two. By this means the fruit can be kept fresh and sound for several weeks.

SNEAKING BOOTS.—Have you sneaking boots or shoes? Saturate the soles with any animal oil, and you will step as softly as a kitten.

PREVENTION BETTER THAN CURE.—To prevent worms from infesting the bowels of children, give them well cooked food with plenty of salt. Salt is destructive to worms.

BRANDIED PEACHES OR PLUMS.—Gather Peaches before they are quite ripe, prick them with a large needle, and rub off the down with a piece of flannel; put them into a preserving pan with cold water enough to cover them, and let the water become gradually scalding hot. If the water does more than simmer very gently, or if the fire be fierce, the fruit will be likely to crack. When they are tender, lift them carefully out and fold them in flannel, or a soft table cloth, in several folds. Have ready a quart or more, as the peaches require, of the best white brandy, and dissolve ten ounces of powdered white sugar in it. When the peaches are cool, put them into a glass jar, and pour the brandy and sugar over them. Cover with leather and a bladder. Apricots and plums can be done in the same way.

TO WHITEN STRAW HATS.—Scrape stick snail-pur with a knife, mix the powder to a mush with water, plaster it thickly over the straw, and place in the hot sun for several hours; brush off when dry. An easy and effectual plan.

Life Thoughts.

BE GENTLE TO THE POOR.—If you cannot *relieve*, do not *grieve* them. Give them soft words, if nothing else. Put yourself in the place of every poor man, and deal with him as you would God should deal with you.

KINDNESS.—A word of kindness is seldom spoken in vain. It is seed which, even when dropped by chance, springs up a beautiful flower.

WHAT IS NOT LIFE.—To eat and drink and sleep; to be exposed to the darkness and light; to pace round in the mill of habit, and turn the wheel of wealth; to make reason our hook-keeper, and turn our thought into an implement of trade,—this is not life.

FORCE OF HABIT.—Few men know the force of habit. A colweh—a thread—a twine—a rope—a cable. Venture not upon the first, the last is nearly past human effort to sunder.

HOW TO ADVISE.—Advice which, like the snow, softly falls, dwells the longer upon, and sinks the deeper into the mind.

The world is in danger of suffering not from the utterance, but from the concealment, of the truth.

KILLING ONE EVIL BY ANOTHER is often and not ineffectually compared to the entailment of the devastations of the wild hog in India by the appetite of the raving tiger. That land, however, is most to be desired as a home which is neither cured by wild hogs nor saved by tigers.

GUARD THE TONGUE.—Words oftentimes inadvertently drop from the tongue which the heart neither conceives nor harbors.

THE DIFFERENCE.—While some are refined like gold in the furnace of affliction there are many more that, like chaff, are utterly consumed therein.

THE VALUE OF TIME.—One hour each day saved from idleness or trifling pursuits, and earnestly devoted to improvements will make an ignorant man wise in ten years.

Infant Slaughter.

The *Pioneer* (woman's organ) of this city makes the following reference to a matter, the importance of which is most unaccountably neglected by community everywhere. "Our mortuary reports show that about forty per cent. of our children die before they attain their fifth year. If stock raisers were no more successful in rearing brutes than are parents in raising children, they would soon become bankrupt. If beautiful and healthy children at the age of fifteen years should command a high money premium from society or the State, or if families rearing children without loss, and at the same time possessing health and beauty, should be entitled to honors and pecuniary rewards, it is very problematical if the present system of slaughtering infants would long continue. Money considerations would prompt the discovery of laws and lead to the adoption of proper food, clothing, exercise and habits favoring health, development, symmetry of form, beauty of feature and longevity, that parental affection, unstimulated by objective influences, would be slow to understand or adopt. Great is the almighty dollar.

CALIFORNIA THE PLACE FOR INVALIDS.—There is good reason to believe that California will soon be selected in preference to any other part of the world as a resort for consumptives, as the more southern portion of the state surpasses in respect to the two essentials,—equable temperature and dry air, Madeira or almost any other known place of resort. The extremes of temperature in January and July and the rainfall on two different localities on the island of Madeira are thus stated: Mentone, 40 and 73 degrees temperature, with 23 inches rainfall; while San Diego shows 51 and 72 degrees with only 10 inches rainfall. If these facts can be generally made known, and the inference as to the suitability of the climate be correct, that which is worth to invalids more than all her gold may be found on our Pacific shore.

NOTHING VALUABLE WITHOUT EFFORT.—Wealth has little value except it has been earned. Even a peaceable disposition is comparatively worthless unless it costs something of an effort to achieve it. No one so much enjoys serenity of mind as he who attains it by a necessary effort to subdue his passions. One who is not susceptible of passion is lacking in an important essential of manhood. Possessing that quality, with the will and power to keep it in subjection, is the most desirable condition of man on earth.

Scientific Press.

W. B. EWER.....SENIOR EDITOR.

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Two Editions.—We now use a mining edition and a farming edition of the Press. The difference consists in changing the reading matter of the 6th and 7th pages. [All advertisements appear in both issues, affording an immense circulation.] Subscribers will please notify us if they do not receive the edition they prefer. Both editions furnished to one address for \$7 per annum.

San Francisco:

Saturday Morning, Oct. 22, 1870.

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Gold and Legal Tender Rates.

San Francisco, Thursday, Oct. 20, 1870.—Legal Tenders buying @88½; selling @89¼. Gold in New York to-day 113.

Montana Subscribers.

Over three hundred new subscribers in Montana have entered their names on our books within the past two months. This, with a large increase of names from other quarters, is very encouraging to us, and we are induced to give a larger amount of reading than we otherwise could afford to. The recent changes in our paper—i. e., furnishing in its columns more reading that is of general interest to all intelligent industrial citizens of the Coast, has rendered the Press more popular in the mines as well as elsewhere. Mr. W. H. Murray, our corresponding agent, who has just visited Montana, is now furnishing our readers with a good deal of real interesting and useful information about that territory. We regret to state that one of his letters, containing a list of subscriptions between the 1st and 5th of Sept. last, has never come to hand. We now have its duplicate, and the subscribers who have been disappointed, will receive the back Nos., and we hope that each will accept this as a personal and satisfactory explanation.

Work at the City Foundries.

The foundry business is still evidently improving. Not only does it show the effects of the betterment of the mining interests, but it likewise denotes an increase in building, and the general development of the manufacturing interests. In our walks about the iron works this week, we were shown more fully the details of the different departments than we have been for a long time previously,—a fact in itself of considerable significance.

The Vulcan Works are building a very handsome beam engine, 20 in. x 30 in. through, with two air-pumps, 20 x 24 in. through, of brass, for the S. F. Pacific Sugar Refinery. They are building a horizontal engine, 16 x 36, with boiler, 54 in. x 16 feet and with 48 tubes 4 inches in diameter, also with a steam drum 30 in. x 6 feet, all in the best style, for the State

Prison at San Quentin. With these go several hundred feet of heavy line shafting, hangers, pulleys, etc. Two Hephurn roller pans and 2 settlers, of the latest construction, are being made for the Hope M. Co. of Nevada State. All the iron work for the Oakland drawbridge is being made here. The draw will have a roller circle 28 feet in diameter, and on it will be used 7,000 to 8,000 lbs. of castings, besides those for the other parts of the bridge. A 15 horse power engine with hoiler, 40 in. x 12 feet, has been ordered by Mr. O'Donald. Machinery is being fitted up for the Pacific Stone Manufacturing Co.. boiler repairs made for the Pacific Rolling Mills, castings made for the front of the new armory on New Montgomery st., etc. Six tons of castings are produced daily, and 175 to 180 men are employed.

The Golden State works are making a large lot of Knox pans for Angels Q. M. Co., in Calaveras county. These, which are slow working pans, are used for treating sulphurets, and are said to give equally good results, at less than one half the cost, as are obtained by the chlorination process. The pans, we are told, are giving excellent satisfaction where employed, and are coming largely into use. The works are doing considerable in the way of agricultural machinery; are busy on work for the Cal. Peat Co., at Sherman Island; for the Golden Gate Sugar Refinery; and are making a very large amount of shoes, dies, etc., for the mines at Gold Hill and Virginia City. They have on hand bridge work, machinery castings for the Knoxville Quicksilver mines, etc., etc. They drew off 18,000 lbs. of hard iron at one melt on Tuesday.

The Fulton Works are still engaged on Severance & Holt's Diamond Drilling machines, to work with four drills in tunneling. These have two engines and a compressor with two 7-inch cylinders. They are making shafting and gearing for Vance's mill at Mountain City, Nevada. The hydrants for the Oakland Water Works are made here, etc. Their foundry has some 8 tons of castings for shoes and dies.

The Pacific Works have just completed this week their large job for the Lane and Kurtz Cariboo M. Co., to which we have previously referred. They are busy on house work for Goodman's bank at Napa. They are making a set of furnace irons, slag pots and the like, for Mr. Dunne of the Nevada Land and M. Co. These are for a smelting furnace to be put up at Eureka. They have on hand a large amount of work for mining machinery to go by the Mexican steamer, of shoes and dies for the Owyhee M. Co., of Idaho, repair jobs for steamers, etc.

The Miners' Foundry keeps the full complement of men hard at work. They have lately shipped a quartz mill with a Howland crusher to Howland & Co., at Salt Lake, and have built a fine 10 stamp mill, with 5 pans, 3 settlers and 3 agitators, for Rye Patch, Nevada, whence comes the announcement of a big strike, an 8-foot ledge with very rich ore. Orders have come in for their hydraulic hose covering of seamless rope. They are building a beautiful beam engine for the new gas works at the Potrero, which engine will be finished in the handsomest style. They are making some very neat presses and are doing a large amount of miscellaneous work. But their biggest job is making the castings for the State Capitol at Sacramento, the construction of which is being pushed under the supervision of the State Architect, Mr. Henry Keitzer. Twenty-four huge columns for the portico, 42 in. at the base, 36 in. at the top and 30 feet long, weighing 12 tons apiece, are being cast; and these with the cap and base will be some 37 feet high and weigh about 20 tons. They have also the iron work for the large cupola, 50 feet in diameter and 125 feet high, which will contain considerably over 300 tons of iron, and whose top will be some 225 feet above the level of the surrounding streets. For this, 20 columns, 2 ft. 8 in. at the base, 20 in. at the top, and 20 feet high, are to be cast, besides a large amount of other work to make up the amount stated above.

Patents and Inventions.

A Full List of Patents Issued to Pacific Coast Inventors.

[FROM OFFICIAL REPORTS TO DEWEY & CO., U. S. AND FOREIGN PATENT AGENTS, AND PUBLISHERS OF THE SCIENTIFIC PRESS.]

FOR THE WEEK ENDING OCTOBER 22D.

GAS CARBURETER.—John L. Bartlett, Stockton, assignor for one-half his right to William Biven, San Joaquin county, Cal. CANDLESTICK.—Francis C. Cone, San Francisco, Cal., antedated October 5, 1870. FOUNTAIN PEN.—Francis C. Cone, San Francisco, Cal., antedated October 8, 1870. POTATO-DIGGER.—William Dillon, Sonoma Cal. FEED-CUTTER.—Charles R. Donner, Sonoma, Cal. GRAIN-SEPARATOR.—Anthony Duus, San Francisco, Cal. TRUNNION FOR STEAM ENGINE AND CALENDER.—Thomas Hill, Vallejo, Cal. VALVE-GEAR FOR STEAM-ENGINE.—Thomas Hill, Vallejo, Cal. PISTON-ROD PACKING.—Edwin Adison Richmond, San Francisco, Cal., assignor to himself and Charles Watson, same place. WASH FOR THE CUR OF SCAB IN SHEEP, &c.—Hugh Smith, San Francisco, Cal. SAW MILL.—David G. Gay, Eugene City, Oregon. MAIL-BAG FASTENER.—David G. Gay, Eugene City, Oregon. DOOR SPRING.—William F. Kells, San Francisco, Cal.

NOTE.—Copies of U. S. and Foreign Patents furnished by Dewey & Co., in the shortest time possible (by telegraph or otherwise) at the lowest rates. All patent business for Pacific coast inventors transacted with greater security and in much less time than by any other agency.

Doubtful Patent Agents.

Whenever an inventor receives a patent now-a-days, he is he-set by a storm of circulars, cards, etc., through the mail from a myriad of patent agents located in the Eastern States, who are anxious to do his business for him in future, and some of them go so far as to offer to take him into co-partnership in securing business from other inventors. The more incompetent and unreliable the agent, the more extravagant are his promises in contrast with those of first-class agents. In rendering a decision in a recent patent case, Commissioner Fisher shows up one of the rascally sort of tricks by which not a few inventors are swindled. A certain letter [written by a solicitor named Curtis] was offered in testimony, to which the Commissioner alludes as follows:

"The first remark which this statement demands is that it is false in fact. No solicitor or any other person has 'a way of obtaining the allowance of a patent in six hours after it reaches the Patent Office.' Cases are received, recorded, and examined in their regular order. They do not reach the examiner until a day or two after they are filed, since they must pass through other rooms, when the fees are received, the cases classified, the application completed, the fees made up, and other formal matters attended to. The examiners, under the great pressure of the numerous applications submitted to them, cannot reach a new case under a week or after it comes into their rooms, so that, under the most favorable circumstances, the thing asserted in this letter is simply impossible. No order is ever granted, under the present administration of the office, to take cases up out of turn, except as provided in the printed rules, even when inventors have come to Washington to attend to their own application, and this because it is simply just that those who send their cases to the office, and trust to the operation of its rules, shall not be set aside at the demand of the clamorous few who chose to attend in person or demand special privileges by friends or attorneys. The rule is imperative, and it has been faithfully and rigidly adhered to.

"But the writer of this letter intimates that this just rule may be set aside by the payment of money. Cases may go through in six hours, he says, 'by the payment of \$75,' and the advantage of knowing this secret he deems to be so great, that he intends to have large fees paid to him for accomplishing this sort of thing.

"This insinuation is also false. It is simply a libel on the Patent Office, a libel which has no foundation in fact. Mr. Curtis never had a patent allowed in six hours

after the application reached the Patent Office, and he never paid to the Patent Office, or any officer thereof, \$75 or any other sum, to secure the allowance of cases out of their regular order.

Inventors ought to know that if they are foolish and wicked enough to pay their money on such pretenses, it will never reach the pockets of the Government officials for whom they suppose it to be designed. It goes no further than the unscrupulous attorney or agent, who, assuming to trade upon the supposed corruption of sworn officers, is willing to slander honest men, and destroy public confidence in the administration of public affairs, in order that he may enrich himself at the expense of his credulous client.

"Instances have come to my knowledge where money has been extorted from clients by agents after patents had actually been allowed but not yet issued, upon the pretense that it was necessary to bribe the examiner. I know of no case where the money went beyond the solicitor. No practitioner can assert with truth that he possesses any facilities by which he is enabled to procure patents in advance of any of his competitors beyond his knowledge of the forms and routine of the office, and his skill and care in the preparation of his cases. To take money from his clients under the pretense that it is to be used to procure such facilities is to add theft to falsehood."

Steam Plows for California.

The Standish Steam Plow, to which we referred last week, is expected to continue its journey to California, after being exhibited and tested at Cincinnati. Thompson's Road Engine and Steam Plow for the Tide Land Reclamation Co., to which reference has been made in the Press, has arrived and is in the bonded warehouse in San Francisco, where it will remain until the recent Act of Congress comes in force, permitting the first importation of improved agricultural inventions free of duty, which occurs on the 1st of January, 1871. This machine has a gang of eight plows, capable of cutting some 14 inches each, in width, and advancing at the rate of about four miles an hour. Its weight is some eight or nine tons, and its engine 25 horse power, American rate. The engine and plows were tested very satisfactorily before being shipped from England and are pronounced suitable for the hardest of soil. We look forward with interest to its first trial, and with confidence that the day is not far distant when our State will be materially benefited by the success of steam plowing.

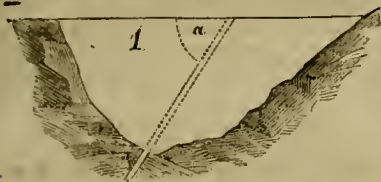
MECHANICS' INSTITUTE FAIR.—The managers of the Mechanics' Institute, being determined to make the next Fair as excellent as possible, have already commenced preparations, although the Fair will not be held before September, 1871. They are desirous of having it on a broader basis than ever before, and are corresponding with interested persons in various countries. The directors have appointed a committee to report a plan of action, consisting of Messrs. H. C. Kihbe, H. L. Davis & B. P. Brunner. Among other prizes, two have already been determined upon,—for the best essay on the Timber of the Pacific Coast, having reference to its strength, durability, texture, fibre, grain, etc., as ascertained by actual experiment, and proved by illustrations and data; and for an essay on the Stone of California, showing its peculiar properties and adaptation for street improvements and building purposes.

LOSS OF THE CONTINENTAL.—The North Pacific Transportation Co's Steamer Continental, on her return trip from Mazatlan to San Francisco, sprung a leak on the 28th of September and was abandoned on the 30th, the passengers and crew taking to the boats for Cape St. Lucas, which was 30 miles distant, where they arrived in safety. Seven passengers and the cook refused to leave the vessel, through fear, and were lost. The Continental had \$140,000 in treasure, 700 tons of salt, and a large amount of mail matter.

Gunpowder and Dynamite Blasting.

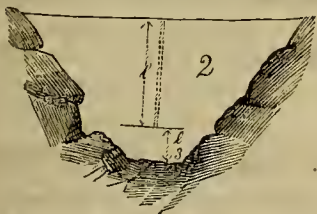
The effects obtained by exploding certain bodies depend on the suddenness of the combustion. Chemical calculations, we are told, show that, for a given result, the expansion produced by the explosion of nitro-glycerine, giant powder and other aluminates is no larger than that produced by gunpowder. But in the case of the former, the effect is concentrated in a very short space of time, and hence they are preferable for blasting in mines, and, in general, where a destructive agency and not a propelling force is required; and for the same reason they have not as yet been introduced in gunnery.

Although much has been said of late concerning the merits of various explosive compounds, the number of which is legion yet we think that our readers will find it interesting to hear the results of some comparative experiments made in Germany. In a railroad tunnel, now being driven near



Vienna, Austria, after certain progress had been made, the nature of the rock suddenly changed, the material becoming so very hard that the engineers were compelled to give their attention to more powerful blasting powders. Their experiments were concerning the relative merits of gunpowder and dynamite. The result has been published, but we consider it proper to acknowledge our indebtedness to the *Manufacturer and Builder*, whose condensation we have used.

In using gunpowder, it is necessary to incline the bore-hole to the surface, sometimes even as much as 45°, in the hardest rock, in order to obtain the greatest advantage; the bore-hole is therefore always one quarter to one third larger than the distance from the charge to the surface of the rock. Moreover, the explosion never removes the rock further than the depth of the hole, and often in hard rock, the lower part of the bore-hole remains intact. Both of these points are illustrated in Fig. 1. With dynamite, on account of the suddenness of the explosion, no inclination of the hole is necessary, even in the toughest rock; the length of the bore-hole is therefore shorter, producing a saving of time. But what is more important in this respect, the dynamite acts not only to the full depth of the hole, but also usually below for an additional depth equal to one quarter to one third that of the hole. This is illustrated

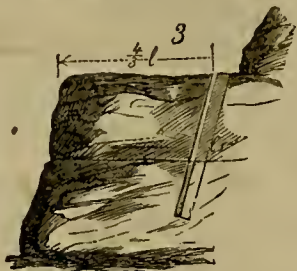


in Fig. 2. Again, a considerably smaller volume of dynamite produces the same effect as a larger volume of gunpowder, and hence the hole may be made smaller—another saving.

Experience has shown that, with dynamite, the most advantageous depth of the bore-holes in very hard rock is from two to four feet, in case they are bored in a flat surface, surrounded on all sides, where the blast can remove the material only in the direction of the hole. It was shown that with deep holes the effects became less. Two bore-holes, eight feet deep and two inches in diameter, were drilled and then several smaller holes, two or three feet deep and one inch in diameter; the number of the latter being such that they together contained the same charge as the two larger

holes. The result was that the effect of the greater number of smaller holes was sixfold that of the two large ones. When, however, the rock has two or more free surfaces, bore-holes of eight and 12 feet, and even deeper, have proved useful. Such a case is represented in Fig. 3.

The most striking illustration of the economy of dynamite was obtained when

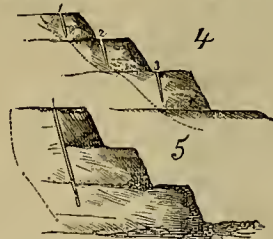


the rock is situated in layers, as shown in Figs 4 and 5. With gunpowder several blasts are necessary (Fig. 4), while with dynamite a single hole will produce more effect (Fig. 5), the dotted lines indicating the limit of action in the two cases. Another advantage is that dynamite never wastes its force between these layers of rock as gunpowder often does.

The most convenient and the safest form in which to use dynamite is that of cartridges. Nobel's cartridges are cylindrical, three quarters to two inches in diameter and one to eight inches long, covered with parchment paper. These must fit in the bore-hole and be firmly pressed down with a wooden ramrod; as they are soft and plastic, they are easily made to fill the whole space, which is necessary in order to obtain the full effect. A cartridge of the smallest size is placed on top, the explosion of which serves to set off the whole mass.

There are three ways to ignite the charge.

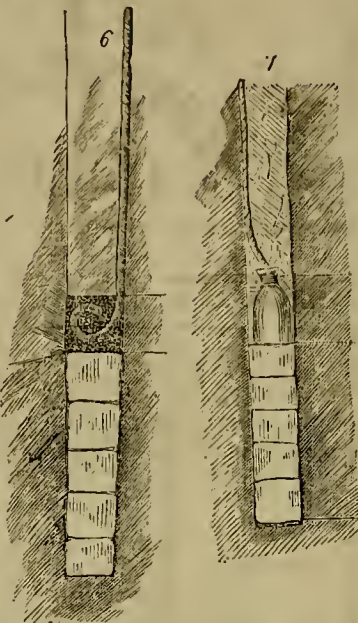
1. With gunpowder (Fig. 6). Five cartridges are placed in the hole, and on top of these is poured gunpowder, to the height of one or two inches, in which is placed the end of a slow match. The hole is then filled with sand firmly rammed down; if it is loose, so that it can be displaced by the powder charge, the latter will not transmit sufficient pressure downward to the dynamite which will, in this case, not explode but only burn slowly. The use of gunpowder is not so good as the following means:



2. With Nobel's safety match (Figs. 7 and 8). This is at the end provided with fulminating powder inserted in the small top cartridge spoken of above. For this purpose, one end of the cartridge is opened and the match so inserted that it does not touch the dynamite of the cartridge, else the force is lost and more suffocating fumes (chiefly carbonic oxide) evolved than by the regular simple explosion. The cartridge thus prepared is then enveloped in paper, tied to the fuse and lowered into the hole; sand, earth or even water may be loosely poured on top. This method is simple and rapid and seldom fails.

3. With frictional electricity. This is particularly advantageous where several charges are fired at once. Three kinds of fuses are used:—those of Abegg, of Bohemia, made of sheet iron with iron wire conductors; of Trauzl, of Bohemia, made of paper with copper wire; and those of Farmer, of Boston, of wood and copper wire. The first are very cheap, being sold in Germany at the rate of 120 for \$1. They are represented in Fig. 9. Two thin iron wires attached to a strip of thick paper, have

their upper ends bent outward, while their lower ends are, with the paper, immersed in the fulminating powder contained in the bottom of a smaller cylinder of tinned iron. The fuse of Trauzl is represented in Fig. 10. This is more expensive, and consists of a paper envelope below, containing the fulminate, covered with a cork, through which pass two copper wires, touching the fulminate below, while the greater part of their upper ends are protected and isolated by a covering of vulcanized rubber or gutta percha. The Boston fuse is simpler,



consisting of a small oval capsule, filled with a fulminate, in which the free ends of two copper wires terminate. These are firmly attached to the wood, and their very long projecting ends are covered with a sealing material. When the hole is tamped with water, the wires must be isolated with a covering of gutta percha, or by placing them in two separate grooves in a stick and filling up with hard fat or some other non-conducting material. Experience has shown that the conducting wire outside the hole does not require careful isolation.

Mr. Abegg has carefully and extensively studied the business of blasting, the manufacture of cartridges, fuses, etc., the comparative merits of different methods and the attendant expenses, and has obtained



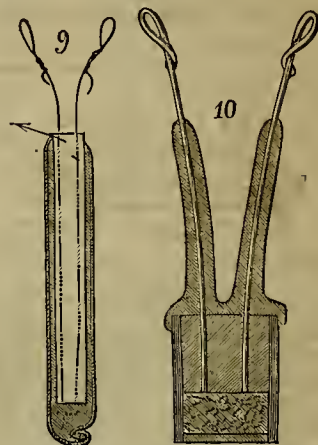
very valuable results. He found that the effect obtained by the action of the dynamite and the electric fuse is, on an average, double that obtained by the common blasting method, using dynamite and the gunpowder fuse, or Nobel's safety fuse. Hence the electric method has been exclusively adopted in the operations near Vienna, and in many other localities. The effect is violent and single pieces of rock are projected with such force, that extraordinary care must be taken for the protection of the laborers. The explosions are accompanied by a very loud report, and a pungent odor which is not injurious to the health. In the works near Vienna, no sickness has

been observed among the workmen. At the Hoosac Tunnel, Mass., it is said that the laborers have often suffered from poisonous effects of the odor of nitro-glycerine, or dynamite. The symptoms are violent pains in the head and neck, which are magically relieved by the use of good strong coffee.

The electric machine used is of the frictional kind, and costs only \$24 in Germany. Such a machine will ignite from 8 to 12 charges (at once) in dry weather, and from 6 to 8 in wet weather.

In America various frictional electric machines are made, of different sizes, some small enough to be handily carried about. But the great trouble with all frictional machines is, that so much care must be taken to render them independent of the atmosphere. Without considerable precaution they are utterly useless in rainy weather or damp localities. They are objectionable where the common miner wishes to use them, without being obliged to have an electrician to manage the machine, as they are too liable to leakages, unless carefully handled.

The Beardsley machine is used by the U. S. Engineering corps on this coast, and was employed at the blowing up of Blossom Rock. The principal objection against



it appears to be that it wears out rapidly, does not retain its power any length of time. The best machine we know of in use in California is the "Dynamo-Electric Exploder," manufactured by the Siemens Bros. of London. One has been used for a considerable time at Smartsville for the big blasts without ever failing. It will explode 25 charges at once, and has been used over 80 miles of wire successfully. It has been dropped and otherwise undergone considerable hard usage, but is as good as ever. The price in London is 22£. 10s. (about \$112 50).—With it the Abel fuse has been employed. The fulminate is composed of 10 parts sub-phosphide of copper, 45 parts sub-sulphide of copper and 15 parts of chlorate of potassa. It costs about 10 cents apiece.

SHERMAN ISLAND.—A number of the land owners of Sherman Island have earnestly protested against the damming or closing up of Myberry Slough, on the ground that not only would it injure the interests of a large number in a commercial point of view, the slough being navigable for vessels of 300 tons burden for a distance of eight miles from its mouth, but it would also be wrong and dangerous in sanitary respects, as by preventing the free flow of water in and out, a stagnant fever and malaria breeding pond would be formed.

COTTON FACTORY.—It is stated that certain parties are intending to establish a cotton factory in this city. The subject of cotton culture is exciting very considerable interest throughout the State, and very much of interest has appeared in the columns of the Press.

THE AMOUNT of silver yearly used for photographic purposes is estimated at 500 cwt., which certainly seems enormous.

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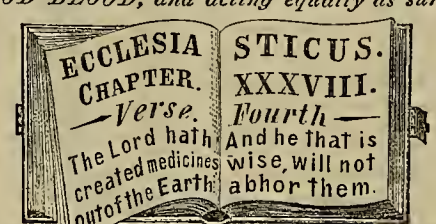
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Office Board of City Hall Commissioners, southeast
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The Commissioners, in order to obtain the very best
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First—For the design and plan selected and
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The premiums payable in City Hall warrants.
As a guide to architects in the preparation of the de-
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Pamphlets can be had on application at the office of
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Any design or plan in which the requirements of the
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been reasonably complied with, will be rejected from
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P. H. CANAVAN, Chairman,
JOS. G. EASTLAND,
CHAS. E. McLANE,
City Hall Commissioners.
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terms. Descriptive and Illustrated price Catalogues
sent prepaid on receipt of stamps, as follows:
No. 1—Fruit..... 10 cents.
No. 2—Ornamental Trees..... 10 cents.
No. 3—Greenhouse..... 5 cents.
No. 4—Wholesale..... FREE.
Address, ELLWANGER & BARRY,
5 21-1-1 ROCHESTER, N. Y.

W. B. WEST,
NURSERYMAN AND FLORIST,
Evergreens, Fruit Trees,
—AND—
GREENHOUSE PLANTS.
Wine and Table Grapes a Specialty.
Nursery and Greenhouses: one mile North of the Asy-
lum. 15v21-4m.

"CALIFORNIAN"
SEWING MACHINE,
SAWDON & GRAY,
MANUFACTURERS,
Corner Mill and Neal Streets,
GRASS VALLEY, CALIFORNIA.
Patent applied for.
It is the simplest, most durable, easiest understood,
and strongest built, and 30 per cent. cheaper than any
of the prominent ones now in the market.
Examine before purchasing elsewhere, or send for
Circular.
AGENTS WANTED.
14v21-3m.

PAIN KILLER
PROF.
1840 1870
DR. J. C. DAVIS & SON, PROVIDENCE, R. I.

This celebrated medicine has won a deservedly high
reputation as an alleviator of pain and a preserver of
health. It has become a household remedy, from the
fact that it gives immediate and permanent relief. It is
a purely vegetable preparation, made from the best and
purest materials, safe to keep and to use in every fam-
ily. It is recommended by physicians and persons of all
classes, and to day, after a public trial of thirty years—
the average life of man—it stands unchallenged and unex-
ceeded, spreading its usefulness over the wide world.
Its large and increasing sale affords positive evidence of
its enduring fame. We do not deem it necessary to say
much in its favor as one small bottle will do more to
convince you of its efficacy than all the advertisements
in the world. Give it one fair trial and you will not
be without it for ten times its cost.
Directions accompany each bottle.
Sold by all Druggists.
Price 25 cts., 50 cts., and \$1 per bottle.

MONEY
EASILY
MADE
With our Stencil and
Key-Check Outfit.
CIRCULARS FREE.
7v21-3m

Travellers' Guide.

Central Pacific Railroad.

Time Schedule, September 2, 1870.

EASTWARD.

Express Train Daily. Pass per Sunday excepted. Mixed.*

San Francisco Leave 8:00 A.M. 8:00 P.M. 7:00 P.M.
Oakland " 7:45 A.M. 4:50 P.M. 6:40 P.M.
Stockton " 7:00 A.M. 4:00 P.M. 6:00 P.M.
Sacramento " 6:15 A.M. 3:15 P.M. 5:15 P.M.
Marysville " 5:30 A.M. 2:30 P.M. 4:30 P.M.
Colfax " 4:45 A.M. 1:45 P.M. 3:45 P.M.
Reno " 4:00 A.M. 1:00 P.M. 3:00 P.M.
Winnemucca " 3:15 A.M. 12:15 P.M. 2:15 P.M.
Battle Mountain " 2:30 A.M. 11:30 A.M. 1:30 P.M.
Carlin " 1:45 A.M. 10:45 A.M. 12:45 P.M.
Elko " 1:00 A.M. 10:00 A.M. 12:00 P.M.
Kellon " 12:15 A.M. 9:15 A.M. 11:15 A.M.
Ogden " 11:30 A.M. 8:30 A.M. 10:30 A.M.

WESTWARD.

Express Train Daily. Pass per Sunday excepted. Mixed.*

Ogden Leave 6:00 P.M. 6:00 P.M. 6:00 P.M.
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Reading for the Hour.

The Bruges Belfry Chimes.

The author of "Stories from My Attic" gives the following readable sketch of the chimes heard pealing from the belfry towers in the quaint old Belgium town of Bruges:

A long, dark staircase leads, step by step, within the tower to its top. At last, a narrow ladder leads into the chamber where the bells are hung. There is the great bell of all, and there besides are forty seven other bells, of different weight, ranging from twelve to nearly twelve thousand pounds, and it is on these that the chimes are rung. They have the sweetest tone of all the bells in Belgium. In our country, a chime is a rare thing; and when Mr. Ay-liffe rings the chimes at Trinity Church, in New York, on public days, the programme is published in the newspapers, and at the hour people stand about the head of Wall street, to hear with all their might, while as far as the bells can be heard people are listening as to something quite unusual. It is different in Belgium, and indeed in other European countries, where they are most common.

It would not be possible for any one standing at the foot of the tower to ring the chimes at Bruges by pulling now upon one rope, now upon another, as he wished to ring a particular bell. To make it possible for the performer, there is a very ingenious contrivance in the chamber below that containing the bells, by which the musician sits at a great key-board, like that of a piano, the keys of which connect with the hammers that strike the bells. He strikes the keys, not with his fingers but with his fists, which are guarded by leathern coverings; and though great force is required, sometimes being equal to two pounds' weight on each key, musicians have acquired marvelous skill in playing on these colossal instruments; they can indeed play music in three parts, the base being played on pedals, and the first and second trebles with the hands.

But the chimes are sounded every fifteen minutes, and it is plain that no musician could be so constantly at work. In fact, it is only occasionally, upon Sundays chiefly, that any one plays upon the bells; for generally the bells play themselves. There is a great cylinder in the chamber, from the circumference of which project pegs placed at proper intervals, according to the order in which each bell is to be struck. This is made to revolve by clock-work, and the pegs are thus brought into contact with levers operating upon the bell-hammers. The whole is a sort of gigantic music-box, only, instead of the steel comb which one there sees producing the music by vibrating after the contact with the pegs, the music here is produced by a lever connected with the comb, as it were. And just as the airs in the music-box can be changed, so those in the belfry can be and are changed—once a year, I think—by altering the relation between the pegs and the hammers.

One of the Impositions of the Day.

Some few days since we received a letter from New York, signed "The American Sewing Machine Co., of 86 Nassau st." requesting us to insert the inclosed advertisement one year, and send bill, at expiration of each quarter, for payment. We replied, giving price for such insertion, that we required cash in advance from strangers who did not furnish us with satisfactory reference. A subsequent letter from them said our terms were satisfactory, and they would refer to J. W. Delamere & Co., 208 Broadway, Delamere, Norton & Co., 102 Nassau st., and to N. A. Niele & Co., importers of watches, 40 Ann st.

We at once forwarded their letter to a friend in New York to make the necessary inquiries. He reports: "J. W. Delamere & Co. are not, nor have they ever been, at 208 Broadway; Delamere, Norton & Co. have never been at 102 Nassau st., nor N. A. Niele & Co. at 40 Ann st. There is not now, nor has there ever been, any such concern as the 'American Sewing Machine Co.,' in the city, or at 86 Nassau st. I have been all through such building as above from basement to attic, on a 'spirit of inquiry.' Not one of the above names are in the New York Directory, but they are in the Dictionary, under the head of 'myth.'"

We publish the above as a warning to our brethren of the press, and to the public. They may be classed with the "Retired clergyman, whose mode of life are nearly run out."—*Mechanic and Inventor.*

A Magnificent State.

Take a map of the United States—a borrowed one is best—and carefully cut out the State of California. Invert the slip and move it over to the Atlantic side, keeping its northern end upon the forty-second parallel, and making its irregular western—now become its eastern—line conform as nearly as possible to the coast—which it will do with tolerable accuracy. The slip will then extend from the north line of Pennsylvania nearly to Savannah, Georgia, into which State its southern end will cut as far as the city of Macon. Having drawn a line round it with a pencil remove it. The experiment is an interesting one, and the result somewhat surprising. You will find that you have enclosed a corner of New York, about half of New Jersey, two-thirds of Pennsylvania, nearly all of Delaware, Maryland, Virginia, North Carolina and South Carolina, and a third of Georgia! We will imagine, if you please, that this portion of the Atlantic seaboard, owing to some political necessity, has been erected into a single State—say the State of Delaware. What a variety of climate the State of Delaware would possess; what an assortment of vegetable productions it would yield; how vast and varied its mineral resources; how manifold its manufacturing possibilities, and how magnificent its scenery! Look at its coast, indented with splendid harbors and cut up with navigable rivers. What a magnificent State—this State of Delaware—its north tawny with wheat, and its south white with cotton! Clearly, it is capable of supporting an immense agricultural, manufacturing and commercial population, and there are splendid sites for great cities. But the main things which smite us with wonder are its select and complete assortment of climates and agricultural products. In this respect it reminds us of California, only the latter is every way inferior to it. Truly, the Man of Delaware hath good reason to be proud of his *habitat*. Alas, for him! this blessed section of the earth's surface has eight names instead of one. Our own, praise God! has but one. We have a trifling advantage of the Man of Delaware—at whom we mock.—*News Letter.*

THE CORNER LOAFER.—The following sketch of a specimen of the corner loafer tribe, taken from the *Daily Saratogian*, of Saratoga, will no doubt be fully indorsed as correct in every respect by all who have come across any of this shiftless, corner-obstructing class:

"That young squirt on the corner, with his hat a little on one side, the stub of a cheap cigar in his mouth, and a stare for every lady that passes—is a loafer. Do you know where he gets his money? His mother earns it for him taking in washing. Pool soul! She thinks her boy will get work soon. He could find work enough to keep him busy fifteen hours a day, if he wanted it. But he is a lazy loafer, and don't want to work. If he gets a place, he shirks, or does his work so poorly that he is soon discharged. He never works for the same man twice. Or, perhaps, he is particular what kind of work he does. He is willing that his mother or sister should sew or wash to earn money for him to spend, but he is a little particular, *he is*, what work he does with his hands. He looks down on that sweaty carpenter who hurries by him, nods condescendingly to his friend, the shoemaker, and sends a whiff of smoke into the eyes of the head-daubed painter, with both hands full of paint pots and brushes. He couldn't borrow ten cents of any one of them. They know he never would pay it. They earn their money. He begs of his mother.—Stylish, boy isn't he?"

MOLTKE.—A remark which the King of Prussia made at the depot at Kaiserslautern characterizes the immense respect he entertains for his Chief-of-Staff, the great Moltke.—He was about to enter the reception room to receive a deputation of citizens, when somebody remarked that Moltke had already entered the train. "So he has got on, has he?" said the King. "Well, then, gentlemen," added he, turning to his suite, "we cannot wait any longer. If he is in his seat, we must get on at once."

The following printed valedictory of a Southern editor is from the *Yazoo* (Miss.) *Democrat*: "I quit the *Democrat* with this issue, because its large increase of subscribers renders it impossible for me to meet all their views in so small a space. I am at the service of any publisher who has a larger paper or fewer subscribers. Exchanges please copy, and send bill to Captain Joe Sublett. HARRY MOSS."

Lode and Placer Claims.

[CONTINUED FROM PAGE 276.]

The following are the instructions issued by Commissioner Wilson on this subject. We have already published the bill referred to.

15th. Proof of citizenship is required. Where the applicant is a corporation, a copy of their charter or certificate of incorporation may be filed in lieu of evidence of citizenship. In case, however, the applicant is an individual or an association of persons unincorporated, affidavits of citizenship or of having filed declaration of intention to become citizens should be filed.

16th. Upon filing these papers, the Register and Receiver will give the same careful examination, and if found to be regular the Register will order the publication of the "Notice" for ninety (90) days in a newspaper published nearest the location of the claim, but, before ordering such publication, the Register will, in future, require the claimant to enter into an agreement with the publisher, to the effect that no claim or demand shall be made against the United States for the payment of such publication, and the Register will decline to order the publication until such written agreement shall have been filed in his office. The cost of the publication of notice will therefore not be estimated by the Surveyors General in future cases.

17th. The Register will also post copies of said "Notice" and "Diagram" in his office for ninety (90) days, and upon forwarding the case to this office will certify that they were posted.

18th. On the expiration of the ninety days, the claimant or his duly authorized agent, must file with the Register his own affidavit supported by that of at least one other person cognizant of the fact, that said "Notice" and "Diagram" were posted in a conspicuous place upon the claim for the period of ninety consecutive days, giving the date of the same. The affidavit of the publisher must also be filed to the effect that the "Notice," a printed copy of which should be attached, was published in his newspaper for ninety days, giving the dates on which such publication commenced and ended, and that he has received payment in full for the same.

19th. These affidavits may be taken before the Register and Receiver or any officer authorized to administer oaths within their district, but if taken before a magistrate without an official seal, his official character must be authenticated under seal by the County Clerk in the usual manner.

20th. If all the proof furnished is satisfactory to the Register and Receiver, and no adverse claim has been filed, those officers will, at the end of the ninety days, so inform the applicant for patent, and the Surveyor General, which last named officer will make an estimate of the cost of surveying and platting the claim, except in case of placer claims on surveyed land where no further survey is required, and when the claimant shall have deposited the amount so estimated with any Assistant United States Treasurer or designated depository in favor of the United States Treasurer to be passed to the credit of the fund created by "individual depositors for surveys of the public lands," and shall have filed with the Surveyor General one of the duplicate certificates of deposit, that officer will order the claim to be surveyed and platting in accordance with the regulations of this office governing mineral surveys, except in cases where the claimant has had a preliminary survey made by the United States Deputy Surveyor, for the purpose of perfecting the diagram and notice posted on the claim, in which case such preliminary survey may be platting and adopted by the Surveyor General for the final survey. Copies of plat and field notes of survey are to be sent to the Register and Receiver and to the General Land Office, the latter accompanied by the certificate of deposit.

21st. The Register and Receiver will examine the returns of the survey, and, if found satisfactory, will allow the entry to be completed at the rate of five dollars per acre, or fractional part of an acre, for lode claims, or two dollars and fifty cents per acre, or fractional part of an acre, for placer claims, and transmit all the papers on their files bearing upon the case to the General Land Office, together with their joint opinion thereon, so that a patent may be issued if all is found regular.

22d. In regard to placer claims on surveyed land, where the claimant applies to enter one hundred and sixty acres in legal subdivisions, no survey and plat of the claim are required; the entry in that case being allowed to be completed at the local land office as soon as satisfactory proof has been made after the expiration of ninety days' notice and publication, provided no adverse claimant has appeared in the meantime.

23d. Where the claimant of a Placer mine desires the subdivision of a quarter section, the service may be performed by county and local surveyors at the expense of the claimant, as required by law.

ADVERSE CLAIMANTS.

24th. The 6th section of the mining Act of July 26th, 1866, provides that "whenever any adverse claimants to any mine, located and claimed as aforesaid, shall appear before the approval of the survey as provided in the third section of this Act, all proceedings shall be stayed until a final settlement and adjudication in the Courts of competent jurisdiction, of the rights of possession to such claim, when a patent may issue as in other cases."

An opposing claimant must file his adverse notice with the Register and Receiver, and in order that it may appear to those officers whether or not the adverse claim is such a one as is contemplated by the said 6th section, they will require the opposing claimant to present his affidavit, setting out in detail the nature of his adverse claim, stating when and how it originated, whether by purchase or by location, the names of all the original locators with a certified copy of the original location from the Mining Recorder's office, and if he claims as a purchaser, an abstract of the title certified by the said Recorder, tracing the title to the possession from the original locators to the claimant, should be furnished.

Such affidavit and accompanying papers will be carefully examined by the Register and Receiver, and if in their judgment, an adverse claim is made out, they will suspend all further action on the application for patent until an adjustment is had in the local Courts; if they find otherwise they will refuse to suspend, but in either event the papers filed both by the applicant for patent, and the adverse claimant, will be referred to this office for review, when the decision of the Register and Receiver will either be affirmed or set aside, and all parties in interest notified of the result.

25th. In the case of Placer claims upon surveyed lands where no survey is required, the adverse claim should appear before the entry is made; but if from any cause such adverse claimant should be unable to appear within the time specified, and should appear before the patent is issued, the Register will nevertheless take his sworn statement, and transmit it to the General Land Office for such action as the Commissioner may deem proper.

26th. When the parties are notified that an adverse claim is made out, it then becomes the duty of the adverse claimant immediately to commence action in Court, and to prosecute the same to final judgment or decree, by which the further proceedings of this office will be governed; yet in default of such suit being instituted within a reasonable time, the original claim will be dealt with as if no adverse interest had been asserted.

You will afford every facility to parties desiring to avail themselves of the privileges accorded by these enactments, and when the cases are completed, promptly report them to this office.

Monthly returns must be made of all entries of lode and Placer claims, with details specifically showing what lands have been so entered.

Copies of both the mining Acts of July 26th, 1866, and July 9th 1870, are herewith appended.

Very respectfully your obedient servant,

JAS. S. WILSON, Commissioner.

To the United States Registers and Receivers

and Surveyors General.

Department of the Interior, August 9th, 1870.

Approved.

J. D. Cox, Secretary.

Destructive Fire.

Our city was visited, on Thursday, by one of the most disastrous conflagrations which has occurred here within the last six or seven years. It was first discovered by officer Hagerty at 9 o'clock in the evening, in the Empire Planing Mills, owned by Miller & Haley, on Fremont st., between Mission and Market. The fire spread with great rapidity through the block, to Beal street, destroying everything on the southern half of the block. Three large mills and nine other buildings were reduced to ruins. The last which was swept away was the extensive Hard Wood and Carriage Trimming establishment of Geo. T. Casbolt & Co. The total loss is about \$350,000. Over 200 men have been thrown out of employment. It is reported that three men lost their lives in vain efforts to save their tools.

A NEW SULPHURET SAVER.—John Pattison, of Nevada, says the *Transcript*, has invented a new sulphuret saver, which has been tried at the Pittsburg mine and works to a charm. It consists of an ordinary square trough, closed at one end, and supplied with a sliding door at the lower end. The pulp from the battery is run through the trough, and as the sulphurets settle at the bottom, the sliding door is raised at the rate of three quarters of an inch per hour, so that as the sulphurets are deposited they are thus held back. The heavier sulphurets all settle at the upper end and the lighter ones at the lower end, while the sand is carried off. The sliding door is raised by means of a wheel and shaft, with a screw running around it. The one tested at the Pittsburg has given an entire satisfaction that another is to be put up.

THE SARATOGA PAPER MILLS had a narrow escape from destruction. All the straw was burned up, but the mill itself was saved by great exertions.

BLOE TIE AND SOLDER WIRE, broom wire, piano covering wire, etc., manufactured by Joshua Gray, 437 Brannan street.

THOMAS O'NEIL Ornamental Glass Cutter, No. 10 Ste venson street, up stairs. Stained, Ground and Orna mental Cut Glass to order on reasonable terms. 14v20

HAVING had numerous applications to purchase the right to manufacture CHAMPAGNE MEAD (the great tem perance drink), we will state that we are now prepared to sell State and County Rights on reasonable terms. KENYON, GARR & Co. 2v21-3m

"SPOTTED LIKE DOMINOES."—The teeth soon become spotted if every dentition is not removed from them every twenty four hours. To do this effectually, there is nothing like SOZ-DONOR. It literally renders the ena mel impervious and indestructible.

"SPAUDLING'S celebrated Glue, useful and true.

FROM A READER.—Duncan's Mill, Sonoma Co., Oct. 10, 1870.—Messrs Dewey & Co: Don't stop my paper. Your Journal is very valuable. No better investment for \$4. Recpt. B. C. B.

77 MARAVILLA COCOA, For Breakfast.—The Globe says: "Various importers and manufacturers have at tempted to attain a reputation for their prepared Coconuts, but we doubt whether any thorough success has been achieved until Messrs. Taylor Brothers discovered the extraordinary qualities of 'Maravilla' Cocoa. Adapting their perfect system of preparation to this finest of all species of the Theobroma they have produced an arti cle which surpasses every other Cocoa in the market. Entire solubility, a delicate aroma, and a rare concen tration of the purest elements of nutrition, distinguish the Maravilla Cocoa above all others. For homopaths and invalids we could not recommend a more agreeable or valuable beverage." Sold in packets only by all Gro cers, of whom also may be had Taylor Brothers Orig inal Homoeopathic Cocoa and Soluble Chocolate. Steam Mills Brick Lane, London. 6v20-ly

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[Issued July 1870.]

ROASTING OF GOLD AND SILVER ORES AND THE EXTRACTION OF THEIR RESPECTIVE METALS WITHOUT QUICKSILVER.

BY G. KUSTEL, MINING ENGINEER AND METALLURGIST, Author of "Nevada and California Processes of Silver and Gold Extraction," and "Concentration of all kinds of ores."

CONTENTS:

I. INTRODUCTION. Classification of Ores; Important Silver Ores; Differ ences between Real Silver Ores and Arseniferous Ores; Important Combinations; Means of Desulphur ization; Means of Reduction; Desulphurization of Ores Not Efficient; What a Chloride is, and How Chlorination is Effected; Means of Separating the Metals from Chlorine.

II. ROASTING OF ORES. A. Chloridizing Roasting; Necessary Amounts of Sul phurets; Amount of Salt Used; Permanent Stirring Not Essential; Signs of a Good Chloridizing Roast ing; Means of Destroying Base Metal Chlorides; Steam Decomposers; Base Metal Chlorides; Application of Steam in Roasting; Lead has a Bad Influence; Dif ference in Roasting Processes; In what condition the Metals are after Roasting; Charges in Roasting. B. Oxidizing Roasting; Chemical Changes in Roasting; What Process requires Oxidizing Roasting; Roasting Furnaces; Furnaces managed by Handwork; Reverber atory Furnaces; Single Roasting Furnace; Double Roasting Furnace; Long Roasting Furnace; Muffle Furnace; Furnaces with Mechanical Apparatus; Re volving Hearth Furnace; Ernst's Rotary Furnace; Parke's Furnace; Buckner's Furnace; O'Hara's Chain Furnace; Stetefeldt's Furnace; Chimneys and Flues.

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Heads of Table of Contents.

I. INTRODUCTION.—The Dressing; The Separation; Cleansing and sizing Contrivances; Rotary Sizers, etc. II. REDUCTION.—Reduction of Ores; Description of Batteries; Details of a Battery; Speed, Curve and Order of Lifts; The Discharge of Batteries; The Feeding of Batteries; Reduction by Rolling Mills; Grinding; Pans with Plane Mullers; Pans with Conical Mullers; Pans with Tractory-Conical Mullers; Pans with Per pendicular Mullers. III. CONCENTRATION.—Concentration of Reduced Ore; A Concentration of Ore Grains, (Jigging Stuff); Movable Jiggers; Stationary Jiggers; Continual Jig gers; Rotary Machines; Concentration of Ore Sand; Assorting of Sands; Feeding of Concentrator; Station ery Concentrators; Percussion Table; Oscillating and Shaking Tables; Steady Moving Concentrators. IV. SPECIAL CONCENTRATION.—Concentration of Gold Ores; Concentration of Silver Ores; Concentra tion of Lead and other Ores. V. CHLORINATION.—Extraction of Gold from Sulphurets by chlorination; Assay ditto; Loss of Gold in Roasting; Roasting Furnaces and Operation; Roasting with Salt; Dampening of Roasted ores; Sifting; Pro duction of Chlorine Gas; Lixivation; Precipitating Vat; Precipitation; cost of Process; Remarks; Other methods of Dissolving and Precipitating the Gold from Sulphurets, etc.

This work is unequalled by any other published, em bracing the subjects treated. Its authority is highly es teemed and regarded by its readers. Containing as it does, much essential information to the Miner, Mill man, Metallurgist, and other professional workers in ores and minerals, which cannot be found elsewhere in print. It also abounds throughout with facts and in structions rendered more clearly by being clearly rendered together and in simple order. Price, postage paid, \$7.50, in gold or its equivalent.

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Mining and Company Adv'ts.

Columbus Mining Company.—Location: Roach Hill, Placer County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the twenty-eighth day of September, 1870, an assessment of seventy-five (75) cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary, 419 California street, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on the second day of November, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Saturday, the nineteenth day of November, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

A. NOEL, Secretary. Office, 419 California Street, San Francisco, Cal. oc8

Julia Gold and Silver Mining Company.—Location: Virginia Mining District, Storey County, State of Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 14th day of Oct. 1870, an assessment of fifty cents per share was levied upon the capital stock of said Company, payable immediately in United States Gold coin, to the Secretary 419 California Street, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on the 16th day of November 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Thursday the 1st day of Decem ber 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

A. NOEL, Secretary. Room No. 15, Hayward's Building, Office, 419 California street, San Francisco, California, oc22

Silver Sprout Mining Company.—Location of Works and Mines: Kearsearge District, Inyo County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 25th day of August, 1870, an assessment of twenty-five (25) cents per share was levied upon the capital stock of said Com pany, payable immediately, in United States gold coin, to the Secretary, at the office of the Company, No. 408 California street, San Francisco, Cal.

Any stock upon which said assessment shall remain unpaid on the eighteenth day of October, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Thursday, the first (1st) day of December, 1870, to pay the delinquent assessment, to gether with costs of advertising and expenses of sale. By order of the Board of Trustees.

T. B. WINGARD, Secretary, Office, 408 California street, San Francisco, Cal. se17

Kincaid Flat Mining Company, Tuolumne County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 20th day of October, 1870, an assessment of \$2.50 per share was levied upon the capital stock of said Company, payable im mediately in United States gold and silver coin, to the Secretary San Francisco.

Any stock upon which assessment shall remain un paid on the 21st day of November 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Saturday the 3d day of December, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees. D. H. CROWE, Secretary, oc22 Office 220 Clay street, San Francisco.

La Blanca Gold and Silver Mining Com pany. Location of Works: District of Ures, State of Sonora, Mexico.

Notice is hereby given that the annual meeting of the Stockholders of the above named company will be held on Monday the tenth day of October 1870, at the office of the Company, No. 312 Front Street, San Fran cisco California, for the purpose of electing Trustees for the ensuing year, and for the transaction of such other business as shall properly come before the meet ing. By order of the President, JOS. GOLDMAN, Secretary. se17

Mountain City Mining Company.—Location of Mine: Cope District, Elko County, State of Ne vada.

Notice is hereby given that at a meeting of the Board of Trustees of said Company, held on the 28th of Sep tember 1870, an assessment of fifty cents per share was levied upon the capital stock of said Company, payable immediately in United States gold coin, to the Secretary at the office of the Company, No. 206, Front Street.

Any stock upon which said assessment shall remain unpaid on the seventh day of November 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made be fore will be sold on Monday the 28th day of Nov. 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

T. B. WINGARD, Secretary. Office, No. 206, Front Street, San Francisco, oc8-1t

Land Purchasers' Association.

NOTICE.—At a meeting of the Board of Trustees of the Land Purchasers' Association, held Oct. 1st 1870, the following resolution was adopted by unanimous vote:

Resolved, That an assessment of ten dollars per share, gold coin, be, and the same is hereby levied upon each and every share of the capital stock of the Land Purchasers' Association now held by subscribers there to; being for the monthly installment falling due and payable Oct. 1st, 1870. Said assessment is payable on or before the thirtieth day of Oct. A. D. 1870, to JAMES F. CROSETT, Secretary, at the office of the Association, No. 304 Montgomery street, San Francisco.

Any stock upon which said assessment shall remain unpaid on the thirtieth day of October, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on the 26th day of November, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. J. F. CROSETT, Secretary. oc8

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50,000 Season Tickets \$2 50 each. 25,000 Prizes amounting to \$85,000 will be awarded to Ticket Holders during a Grand Fair to be held, commencing Oct. 27th and to continue two weeks.

This grand Enterprise is gotten up in Aid of the NEVADA SCHOOL DISTRICT, NEVADA CITY, CALIFORNIA.

TRUSTEES: HON. J. I. CALDWELL, JUDGE NILES SEARLS, and A. B. GREGORY.

Treasurer: Bank of Nevada County.

References residing in this city: G. VON SCHMITZBERG, Postmaster; JUDAS T. H. ROLFE, A. W. POTTER, ex-Sheriff; J. A. LANCASTER, National Exchange.

Responsible Agents Wanted.

Liberal commissions allowed. For full particulars and terms to Agents, Address

R. L. GRINNAN, Secretary, Nevada City, California 1v21-3w

TREATMENT OF REBELLIOUS SILVER ORES by Charles H. Aaron—a pamphlet of eight pages of concise reading, of practical value to parties in terested in the subject. Printed and sold by Dewey & Co., at this office, for 25 cents, post paid

San Francisco Metal Market.

PRICES FOR INVOICERS

Jobbing prices rule from ten to fifteen per cent. higher than the following quotations.

THURSDAY, Oct. 20, 1870.

IRON.—Duty: Pig, \$9 per ton; Railroad, 80c @ 100 lbs.; Bar, 1 1/2c @ 1b; Sheet, polished, 3c @ 1b; common, 1 1/2c @ 1b; Plate, 1 1/2c @ 1b; Pipe, 1 1/2c @ 1b; Galvanized, 2 1/2c @ 1b.	
Scotch and Eng. Pig Iron, @ ton...	28 @ \$30 00
White Pig, @ ton...	26 00 @ 28 00
Rebbed Bar, bad assortment, @ lb...	03 @ —
Rebbed Bar, good assortment, @ lb...	04 @ —
Boiler, No. 1 to 4...	04 1/2 @ —
Plate, No. 5 to 9...	04 1/2 @ —
Sheet, No. 10 to 13...	04 1/2 @ —
Sheet, No. 14 to 20...	05 @ —
Sheet, No. 24 to 27...	05 @ —
Copper.—Duty: Sheathing, 3 1/2c @ 1b; Pig and Bar, 2 1/2c @ 1b.	
Sheathing, @ lb...	26 @ —
Sheathing, Yellow...	20 @ —
Sheathing, Old Yellow...	10 @ —
Composition Nails...	21 @ —
Composition Bolts...	21 @ —
TI PLATES.—Duty: 25 cent. ad valorem.	
Plates, Charcoal, 1X, @ box...	12 00 @ 10 60
Plates, 1 1/2 Charcoal...	10 00 @ 10 60
Roofing Plates...	10 00 @ 10 60
Banca Tin, Slabs, @ lb...	— @ 42
STEEL.—English Cast Steel, @ lb...	— @ 15
QUICKSILVER.—@ lb...	— @ 13
LEAD.—Pig, @ lb...	7 1/2 @ 8
Sheet...	10 @ —
Pipe...	11 @ —
Bar...	9 @ —
ZINC.—Sheets, @ lb...	10 1/2 @ 11
BORAX...	35 @ 38

Machinists and Foundries.

FULTON

Foundry and Iron Works.

HINCKLEY & CO.,

MANUFACTURERS OF

STEAM ENGINES,

Quartz, Flour and Saw Mills,

Hayes' Improved Steam Pump, Brodie's Improved Crusher, Mining Pumps, Amalgamators, and all kinds of Machinery.

N. E. corner of Tehama and Fremont streets, above How and street, San Francisco. 3-47

THE RISDON

Iron and Locomotive Works.

INCORPORATED.....APRIL 30, 1868.
CAPITAL.....\$1,000,000.Corner of Beale and Howard Streets,
SAN FRANCISCO.

Steam Engine Builders, Boiler Makers, Machinists, Foundrymen, and Manufacturers of Car Wheels equal to the best imported, and guaranteed equal to Eastern Wheels.

Directors:

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Wm. Norris, Joseph Moore, Chas. E. Melane,
John N. Risdon, John N. Risdon.JOHN N. RISDON.....President.
JOSEPH MOORE.....Vice President and Superintendent.
LEWIS R. HEAD.....Secretary.

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Sacramento.

WILLIAMS, ROOT & NEILSON,

MANUFACTURERS OF

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CROSS' PATENT BOILER FEEDER AND SEDIMENT COLLECTOR.

WILCOX'S PATENT WATER LIFTERS,

Danbar's Patent Self-Adjusting Steam Piston

PACKING, for new and old Cylinders.

And all kinds of Mining Machinery.

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ESTABLISHED 1851.

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And all other classes of work generally done at first-class establishments, manufactured by us at the lowest prices, and of the highest quality.

Particular attention paid to Jobbing Work and Repairs.

Sole Agents for sale of HUNTOON'S CELEBRATED PATENT GOVERNOR.

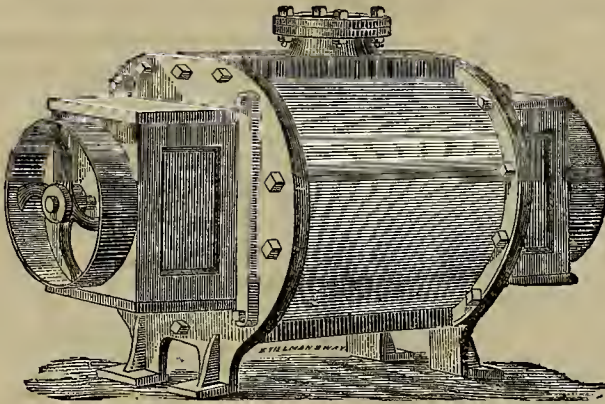
18720-3m GODDARD & CO.

ROOT'S PATENT FORCE BLAST ROTARY BLOWER.

MANUFACTURED BY KEEP & BARGION,

At the Globe Iron Works, Stockton, California.

Awarded the First Premium at the Paris Exposition.



Patented Nov. 1st, 1864; July 2d, 1866; and Oct. 9, 1866.

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Smelting.

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Mining

and

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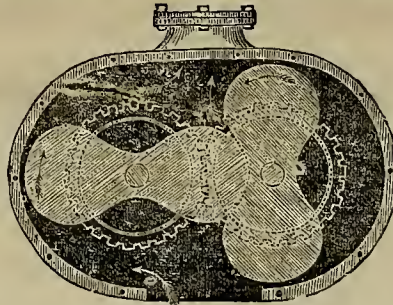
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Fifty Per Cent.

LESS POWER

Than any Blower

Now in use.

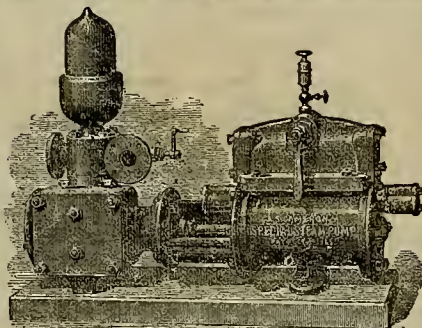


One of these Blowers may be seen on exhibition at W. T. Farratt's Brass Foundry, corner of Mission and Fremont street. They are also in use at the Almaden Quicksilver Mine; Gridley's Foundry, Gold Hill, Nevada; Anna Iron Works, San Francisco, and many other places.

CAUTION.—Purchasers will find it to their advantage to apply direct to the Stockton Agency, as certain parties, not authorized to manufacture the Blower, have put in the market machines of inferior construction, which do not answer all the requirements of the genuine article.

Quartz, Saw and Grist Mill Irons, Steam Engines, Horse Powers, High and Low Pressure Steam Engines, Steamboats and Propellers, made at short notice.

For circulars and further information address

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CONDENSERS.DAVID STODDART,
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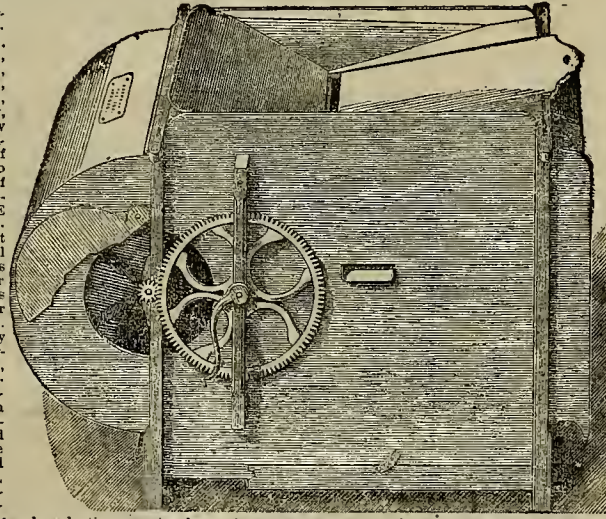
NOVELTY MILL AND GRAIN SEPARATOR.

THE undersigned having purchased of the Patentees, WILTS & SWIFT, of Hndson, Michigan, their right to this mill, Patented June 22d, 1869, for California, Oregon, Washington Territory, Montana, Utah, New Mexico and Arizona, wishes to call the attention of FARMERS, MILLERS and GRAIN DEALERS to one of THE GREATEST IMPROVEMENTS OF THE AGE for cleaning and separating grain. While it combines all the essential qualities of a first-class FANNING MILL, it also far exceeds anything that has ever been invented for the separation of grain. It has been thoroughly tested on all the different kinds of mixed grain, separating all the different seeds in almost a magical manner, placing them in their respective compartments in the mill arranged for their reception, at the same time taking out all the Mustard, Grass Seed, Barley and Oats, and making two distinct qualities of wheat if desired, thereby selecting superior, large plump and perfect kernels for SEED WHEAT, and all the small and cut kernels, such as merchantable wheat, is deposited in another compartment. By the use of this Mill a great quantity of wheat usually sown that has been cleaned in the common mills will be saved to the farmer, as the cut or shrunken kernels will never germinate.

The above mentioned Novelty Mill is the only mill known to possess all these superior qualifications, and was exhibited and tested at the last Michigan State Fair held at Jackson, Michigan, September 31, 22, and 23, 1869, and bore away the palm over some thirty other different mills from all parts of the United States, including the famous Dickey Mill of Racine, Wisconsin. All who have witnessed here the operations of the NOVELTY MILL, declare its perfection, and the most beneficial invention to the Farmers, Millers, and Grain Dealers ever introduced on the Pacific Coast. The farmers in Santa Clara County, are loud in its praise, and also in other parts of the State where it is being introduced. No. 1 Mill, complete, is capable of cleaning 25 tons of grain per day; No. 2 Mill, 16 tons; No. 3 Mill, 8 tons. A large number of recommendations and certificates of the practical working of the mill will be furnished. Circulars containing references sent free by mail. N. B. Town, County, or State Rights for sale on favorable terms. For further particulars apply to

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Lathes, Planers, Drills, Boring Mills, Milling Machines, Etc.,

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MORSE'S TWIST DRILLS,
AND CHUCKS OF ALL KINDS.

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And are thereby enabled to manufacture

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AT EASTERN PRICES.

And better adapted to the wants of the Pacific States

Ascertain our prices before purchasing. 8v20q

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BOILER MAKERS

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Fine or Tubular Boilers, with plain circular or spiral courses. Upright Fine or Tubular Boilers, Locomotive and Marine Boilers, and Wrought Iron Tanks of every description.

Hydraulic Pipe supplied at reasonable rates. In order to give the quantity of water to be supplied, height of the fall, and total length of pipe, so as to enable the firm to determine the selection and of iron for Boilers, Pipes and other purposes.

Repairs.—Boilers, Smoke Stacks, Pipes, etc., put in repair with promptness.

To Boiler Makers and Machinists in the Interior.—The firm is prepared to furnish estimates of Boilers, supply new Heads, drilled and punched, and attend to the selection and forwarding of iron for Boilers, Pipes and other purposes.

Plans, Drawings and Specifications.—The firm is prepared to make out Plans and Specifications, receive estimates, and superintend the Erection of any Machinery that may be entrusted to their care.

To Inventors.—The firm is prepared to assist in developing the plans of those who have the ideas, but not the practical experience necessary to put the same in form, by making Drawings of their Inventions, giving them the benefit of their practical knowledge in the construction of Machinery, and attending to the manufacture and introduction of their Inventions. 1v16f

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AGENTS FOR

Thomas Firth & Sons' Cast Steel.

Sledges, Hammers, Stone Cutters', Blacksmiths' and Horse-Shoers' Tools.
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[ESTABLISHED 1820.]

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Having increased their facilities, expect in future to keep on hand a full supply of Transits, Levels, Compasses, Solar Compasses &c. Manufacturers of Young's celebrated Shifting Tripod for Transits. Original manufacturers of Burts Solar Compass. 14v21-2m

New York Metal Market.

[COLLECTED WEEKLY FROM THE AMERICAN ARTIFAN.]

New York City, Saturday, Oct. 8, 1870.
IRON.

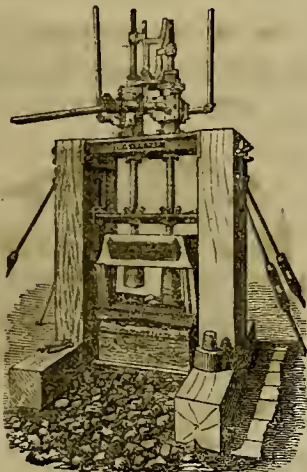
Pig, Scotch, No. 1 (cash), per ton	\$33 00	@	\$36 50
Pig, American, No. 1 (cash)	33 00	@	34 00
Pig, American, No. 2	29 00	@	31 00
Swedish, ordinary size	110 00	@	125 00
Common	73 00	@	80 00
Refined	77 50	@	95 00
Hot	85 00	@	120 00
Horse-shoe	95 00	@	—
Hoop	105 00	@	150 00
Scroll	97 50	@	125 00
Nail-rod, per lb	7 1/2	@	7 1/2
Spring	—	@	—
Wire	8 1/2	@	—

STEEL.

Bars, best cast, warranted, per lb	17	@	18
Sheet, best cast	18	@	—
Sheet, second quality	16	@	—
Sheet, third quality	14	@	—
Saw-plates, circular	27	@	—
Double-shear, warranted	23	@	—
Single-shear	19	@	—
Montague & Co. (cast bars)	18	@	—
Machinery, round	11	@	—
German, best	11	@	—
German, good	10	@	—
German, eagle	9	@	—
Blister, warranted	16	@	—
Blister, common	15	@	—
Jacks & Sons, common	17	@	—
Double-rolled	26 1/2	@	—
Stone-ax shapes	26 1/2	@	—

Machinery.

THE WILSON
Patent Steam Stamp Mill.



This extraordinary Mill, now so justly popular in the East, is now offered to the miners of the Pacific Coast. Having been in operation now for about two and a half years, the Company feel confident that the

WILSON STEAM STAMP MILL.

For Durability, Efficiency,
AND ECONOMY OF WORKING,
HAS NO EQUAL.

The Wilson Steam Stamp Mill is the only Steam Mill that has had the severe ordeal of practical working, and proved itself eminently successful. It is now in operation in several of the Eastern States and Territories, and gaining an enviable popularity. The whole machine is so simple as to be readily understood by the most ordinary minds. In fact, its simplicity is its durability. The expense of crushing rock or cement with this Mill is less than one-half the expense of any other Stamp Mill, and less than one-half the cost. For further particulars inquire of

FURMAN R. WILSON,
San Francisco.

Or of THE WILSON STEAM STAMP MILL CO., 326
Walnut street, Philadelphia, Pa.

NOTICE.—All persons are hereby warned not to manufacture or use any Steam Stamp Mills that are an infringement on the Wilson Patents, as they will be prosecuted to the utmost rigor of the law.

F. R. WILSON,
Supt. W. P. S. S. M. Co., Philadelphia.

HYDRAULIC CHIEF.



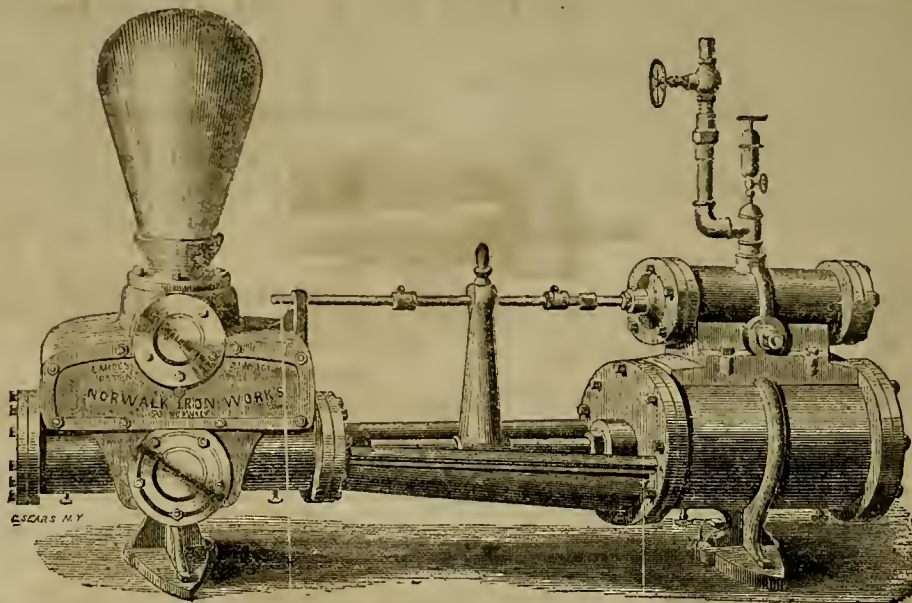
FISHER'S KNUCKLE JOINT AND NOZZLE,
Is the Best Hydraulic Machine in Use.
Will throw water in any direction. Works with ease under any pressure.

MACHINES MANUFACTURED TO ORDER,
To throw from one to seven inch stream.

F. H. FISHER,
NEVADA CITY.

Stiles' Factory, South end Suspension Bridge.
16v21-1m

Earle's Patent Steam Pumps.



FOR MINING OR FIRE ENGINES.

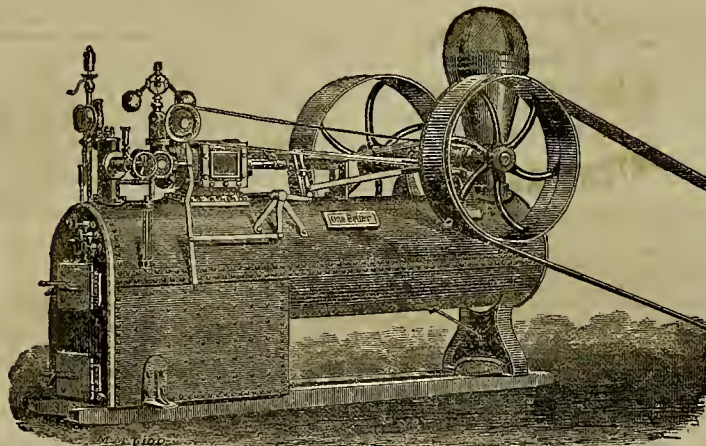
All sizes in store at manufacturers' cost. Send for Circular and Prices.

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HOADLEY'S PORTABLE ENGINES!



3 to 20 Horse Power on Carriages and Beds.

These Engines are in use all over the United States, and are regarded as the best in use. They are self-contained Engines, without the running gear and appurtenances, for driving

Saw Mills, Grist Mills, Tanneries, Machine Shops, Planing Mills, Factories &c., and for all other purposes under seventy-five horse-power, to which Stationary Engines are applied. For Agricultural uses they are unsurpassed. For Circulars or pamphlets, describing dimensions and price address

TREADWELL & CO., Sole Agents,

15v21-3m

SAN FRANCISCO.

Varney's Patent Amalgamator.

These Machines Stand Unrivalled.

For rapidly pulverizing and amalgamating ore, they have no equal. No effort has been, or will be spared, to have them constructed in the most perfect manner, and of the great number now in operation, not one has ever required repairs. The constant and increasing demand for them is sufficient evidence of their merits.

They are constructed so as to apply steam directly into the pulp, or with steam bottoms, as desired.

This Amalgamator Operates as Follows:
The pan being filled the motion of the muller forces the pulp to the center, where it is drawn down through the aperture and between the grinding surfaces. Thence it is thrown to the periphery into the quicksilver. The curved plates again draw it to the center, where it passes down, and to the circumference as before. Thus it is constantly passing a regular flow between the grinding surfaces and into the quicksilver, until the ore is reduced to an impalpable powder, and the metal amalgamated.

Settlers made on the same principle excel all others. They bring the pulp so constantly and perfectly in contact with quicksilver, that the particles are rapidly and completely absorbed.

Mill-men are invited to examine these pans and settlers for themselves, at the office, 229 Fremont Street, San Francisco.

SALT LAKE CITY Oct. 11, 1870.—Messrs. Dewey & Co.—I wouldn't care or the missing number of the SCIENTIFIC PRESS particularly if I did not keep them on file. I think a great deal of it and consider it worth keeping. I never invested four dollars to better advantage in my life.

Respectfully Yrs, A. G. B.

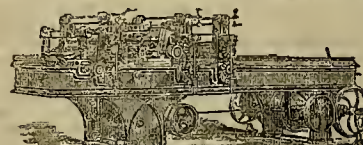
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For Mining, Quarrying, Shafting, Tunneling, Prospecting, Draining, Grading and Submarine Blasting. Special attention given to Deep Boring for testing the value of Mines. Also to Boring Artesian Wells. Office, 33 CALIFORNIA STREET, San Francisco. 25v20-3m

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Smith's Patent Wood-working Machinery in all descriptions. Sole Agents, BERRY & PLACE, 112 and 114 California St., San Francisco

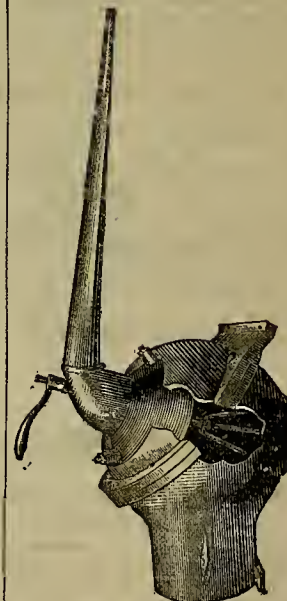
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PLATES, plated with fine silver in an improved manner, at the very lowest rates. The best American copper furnished and cut to order. Old plates bought or worked. Old plated goods, of all kinds, repaired and replated. Work guaranteed and at Eastern prices. Articles can be sent and returned by Express, by

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Ever offered to the public in shape of a
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for mining, as it is the only one that is sure to bear its guarantee with it, and protect its purchaser from liability to infringement suits; it is the oldest, best and cheapest in use, as all will testify who have used it.

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11v21-3m

The Stetefeldt Furnace.

For information of any description respecting this process,

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RENO, NEVADA.

ON AND AFTER OCTOBER 1st, 1870,
THE NEVADA LAND AND MINING
Company—Limited,
WILL PURCHASE SILVER ORES IN ANY QUANTITY
At the following NET Rates:

For ores assay- lug per ton.	We pay on assay val.	For ores a-say- lug per ton.	We pay on assay val.
\$10.....30	25 per ct.	\$20.....30	25 per ct.
\$10.....30	30	\$20.....30	30
\$10.....30	35	\$20.....30	35
\$10.....30	40	\$20.....30	40
\$10.....30	45	\$20.....30	45
\$10.....30	50	\$20.....30	50
\$10.....30	55	\$20.....30	55
\$10.....30	60	\$20.....30	60
\$10.....30	65	\$20.....30	65
\$10.....30	70	\$20.....30	70
\$10.....30	75	\$20.....30	75
\$10.....30	80	\$20.....30	80
\$10.....30	85	\$20.....30	85
\$10.....30	90	\$20.....30	90
\$10.....30	95	\$20.....30	95
\$10.....30	100	\$20.....30	100

NO CHARGE for milling, sampling or assay.
Assays guaranteed to correspond with United States
Mint.
Ores sacks returned to shippers free of railroad charges.
Ores sampled by Battery or Crusher, at option of shipper.
J. D. DUNN, Manager
Reno, Oct. 1st, 1870.

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Vertical Engines
Manufactured by the
Albany St. Iron Works,
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These Engines are simple, compact and durable, and in point of economy of fuel and space are excelled by none, and are cheaper than any other first-class cut-off Engines in the market. Descriptive pamphlets and price lists mailed free on application to the proprietors, **HANDREN & RIPLEY**, Corner Albany and Washington Sts., New York. 26v20-ly16p

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Canned Fruits and Vegetables of superior quality.
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Between Jackson and Pacific, San Francisco. [16p]

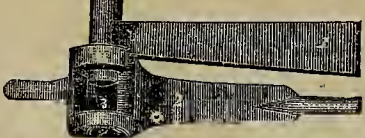
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Rolling Mill Company,
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Established for the Manufacture of
RAILROAD AND OTHER IRON
—AND—
Every Variety of Shafting,
Embracing ALL SIZES of
Steamboat Shafts, Cranks, Piston and Connecting Rods, Car and Locomotive Axles and Frames
—ALSO—
HAMMERED IRON
Of every description and size.
Orders addressed to **PACIFIC ROLLING MILL COMPANY** Post Office, San Francisco, Cal., will receive prompt attention.
The highest price paid for Scrap Iron 9v143m9p

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References on application. **E. E. ROBERTS & CO.,**
Consulting Engineers, 15 Wall street, New York.
14v213m16p

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PATENTS BOUGHT AND SOLD ON COMMISSION.
Barnes' Thill Holder.



This coupling can be attached in a few minutes and it is absolutely certain that it will not release itself while the horse is attached. It is durable, noiseless, ingood taste, and in short, a perfect Thill Coupling in every respect. The best recommendation that we can send out is the Coupling itself. A full set will be sent to any one for \$5, and the money will be returned if they are not liked. Shop Rights for sale.

Dennis Combination Gridiron.
No one who has studied the laws of Health will fail to appreciate this valuable culinary implement. It is well adapted for cake baking and other purposes, as well as for broiling meats. Foundry-men will find it to their advantage to examine it. The right to manufacture and sell is for sale cheap. Send for circular, or call and see sample Gridiron.

Steam Cooker.
This simple and practical Cooker can be attached to any Cooking Stove, and prevents the possibility of scorching or burning food. It facilitates cooking and saves fuel. Don't fail to call and see the model or send for descriptive circular.

P. Davis' Wire and Picket Fence.
Although about two hundred different styles of fences have been invented and patented in the United States within the past ten years, yet this Fence, for GENERAL FARM USE, stands at the head of the list. This is a Virginia invention, and the actual cost of the Fence complete in that State is less than fifty cents per rod. These men can put up six hundred yards per day. You men who are idle, why hang about this city talking hard times when you can make from five to eight dollars per day building this Fence? We will make a present of ONE FARM RIGHT in each county on the Pacific coast to farmers who will erect one hundred rods of the fence in good style within thirty days after the privilege is granted. We wish to employ several working men to travel in this State and Oregon. Price of territory, and circular with full description of fence sent on application.

New Gas Light.
This Light takes the place of the Candle, the Kerosene Lamp and Coal Gas. Each Lamp is a perfect Gas Factory, making its own gas as fast as it is required. It is a safe, cheap and beautiful light. Circulars and full particulars sent on application.
A few good traveling agents wanted to sell this and other valuable Patents.

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Having had large experience, and gratifying success with the great variety of cases emanating on this coast, we feel confident of our abilities to assist inventors in patenting their inventions, saving them from vexatious delays, and from receiving worthless papers by reason of imperfect preparation of their claims before being sent to the Patent Office.

In early days but little preparation was needed, but ordinary skill required to obtain a patent; but now, by reason of the multiplicity of inventions, and the numerous Acts of Congress, found necessary to protect the inventor while the patent lasts, and to do justice to the people after it expires, the utmost care and skill are requisite in managing cases and obtaining a patent that will be of real value to the Patentee, and stand the test of passing through the legal ordeal of an infringement suit.

The general practice of the Patent Office regarding the examination or issue of Letters Patent for inventions has not been materially changed for many years, yet there have been amendments added to the laws of 1861, 1863, and 1866, and which it is necessary for all parties managing an application to be conversant with. Old inventors invariably advise the employment of none but agents of responsibility and experience. As agents with such qualifications, we solicit honest patronage.

Saving of Time.
In urgent cases for an immediate patent, persons can deposit the amount of the last fees with us, in San Francisco, and have our Washington agent procure the issue of the papers as soon as granted, saving at least several weeks time which would otherwise be required for the inventor to receive notice and then forward the money. Money advanced for this purpose will be returned, should the application be rejected. By adopting this course, we are enabled, with our other advantages, to secure the receipt of patent papers to inventors on this Coast several months sooner than can generally be done, through agents in the East, without the applicant going to the risk and expense of sending on the last fee before it is known whether the patent will be granted.

Dangers of Delay.
Situated so remote from the seat of Government, delays are even more dangerous to the inventors of the Pacific coast than to applicants in the Eastern States. Valuable patents may be lost by the extra time consumed in transmitting specifications from Eastern agencies back to this coast for the signature of the inventor, or by reason of return for amendment when addressed directly by the inventor to the Government.

Expense of Applying for Patent.

The Government fee, on filing an application for a patent in the United States, is fifteen dollars; and if the patent is allowed, twenty dollars additional is required. If rejected, the first fee of fifteen dollars is all that is demanded.

To the foregoing official fees must be added fees for preparing the various documents and expense of drawings. Our charge for preparing the documents for a case, presenting it to the Government, and attending to all business connected with it, is \$25 and upward. For cases demanding extra work and attention, only a reasonable fee in accordance with the services required, to do full justice to the case, will be charged.

Following is the list of Government fees, payable in currency:

On every caveat.....	10
On every application for a patent, for seventeen years.....	15
On every application for a design, for 3 yrs and 6 mos.....	10
On every application for a design, for seven years.....	15
On every application for a design, for fourteen years.....	30
On issuing each original patent.....	20
On filing a disclaimer.....	10
On every application for a re-issue.....	30
On every additional patent granted on a re-issue.....	30
On every application for an extension.....	50
On the grant of every extension.....	50
On appeal to the Examiners-in-Chief.....	10
On appeal to the Commissioner from Examiners-in-Chief.....	20
On every appeal to the Judges of Circuit Court, D. C.....	25

Inventors on the Pacific Coast, located at great distance from the Patent Office, of all others, should be careful to avoid inexperienced, dishonest, or otherwise unreliable and irresponsible agents.

Inventors having models in our possession must send written orders when they desire any particular friend to see them.

Advancing Cases.
If any case placed in our hands meets with rejection, we do not wait to write and inform the inventor of this fact, (as is the case with most agents,) but our representative at Washington proceeds at once to examine the stated objections, and if it be not a just and unavoidable decision, the claims of the inventor will be persistently argued before the Examiner, and if possible the decision reversed.

By Telegraph.

In cases of immediate importance we can have their progress reported by telegraph, so that applicants know immediately the result of the examination and decision of the Patent Office. We also make examinations by telegraph regarding the patentability of inventions; examine patent assignments on record at Washington; obtain copies of patents or claims, and also derive other information desired instantly from the Patent Office.

DEWEY & CO.,
Publishers and Patent Agents, Scientific Press Office, San Francisco.

KUSTEL'S NEW BOOK.—We have received from the publishers, Dewey & Co., a copy of Kustel's work Roasting of Gold and Silver Ores. It abounds in valuable information upon the subjects which it treats, and no person engaged in mining should be without it. Mr. Kustel's writings are based upon actual accomplishments with the ores of the Pacific slope, are not mere theoretical propositions. Sold at the Scientific Press office S. F. Price \$2.50 coin, post paid.—Marysville Appeal.

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Mining, Farming and Mechanic Arts.

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VOLUME XXI.
Number 14.

Mining Edition.

Narrow Gauge Railways.

This subject seems gradually to be attracting on our coast the attention which it deserves, and is being constantly handled in the papers here and there. We have already spoken at length on it, but have by no means said all which ought to be uttered. We believe that the system can be introduced much more extensively and with much more beneficial results than is commonly thought. We incline strongly to the opinion that a system of narrow gauge roads could be introduced in our Western States and Territories with immense results.

Mr. Robert F. Fairlie read a paper at the late meeting of the British Association, to show to some extent in what degree the cost is affected by the gauge, and how it would be possible to profitably extend roads to thinly peopled districts. It has been assumed that lines of narrower gauge than 4 ft. 8 1/2 in. would be limited both in carrying capacity and speed of trains. If it is necessary to run trains at the rate of 60 or 70 miles an hour, the argument so far is strongly for the broader gauge, but with bogie engines 35 to 40 miles can be obtained on a 3 foot gauge, about as high a speed as we usually need in a new country. Mr. Fairlie asserts that fully as heavy merchandise trains can be run at the same speed with such engines and gauge, as are now taken on the broad gauge in England, and on far lighter rails which will be fairly worn out instead of crushed and ground out; and this will apply equally well here.

The proportion of non-paying to paying weight in passenger trains in England is as much as 29 to 1, and in goods trains as 7 to 1. On the Festiniog Railway with its gauge of 1 ft. 11 1/2 in., wagons weighing 12 cwt. frequently carry loads of over 3 1/2 tons at a speed of 12 miles an hour. Thus the cars carry as much as six times their own weight, while on ordinary roads the cars carry only twice their own weight. This shows how the amount of dead weight is dependent on the gauge. And this denotes also the difference in the wear and tear of the rails.

Mr. Fairlie attempts to prove by figures (and we have nowhere seen his attempt called a failure) that, if the 3 ft. gauge should be substituted for the broader one of the London and North Western Railway (selected as an example on account of

its excellent management), the present goods traffic could be hauled at one half the present cost, with half the present motive power and half the tennage. He shows that with a traffic requiring the same number and weight of trains now worked, the 3 ft. gauge would carry, without increasing the cost of haulage by a penny, a paying load of 25 million of tons as against the 10 millions now carried. He proceeds further to apply the case to the East Indian Railway, in India, which has a gauge of 5 ft. 6 in. He shows that the proportion here is 5 tons of dead to 1 ton of paying load, and asserts that this proportion on a 3 ft. gauge would be only 1 1/4 to 1, instead of 5 to 1. Let us imagine, he says, he saving which this change would effect

row gauge has been adopted also in other countries. It is time that we go-ahead people of the Pacific slope should take up the matter. And we are happy to say that, from several inquiries and communications sent us, we have some reason to believe that there is some prospect of the subject's getting a good ventilation on our coast.

We give in this connection, an illustration of one of the engines employed on the new famous Festiniog Railway in Wales, (from the *American Artizan*), which will be noticed as being a little giant of peculiar construction, with piston and cylinder arranged between the wheels. Another engine on this road, called the "Little Wonder" weighs but five tons, has hauled a load of 101 tons, made up of a train of a

it as the duty of every man in the old country to assist these of the new by pointing out how they may benefit by our dear-bought experience, and may avoid the pitfalls into which only too many of our railway shareholders have fallen.

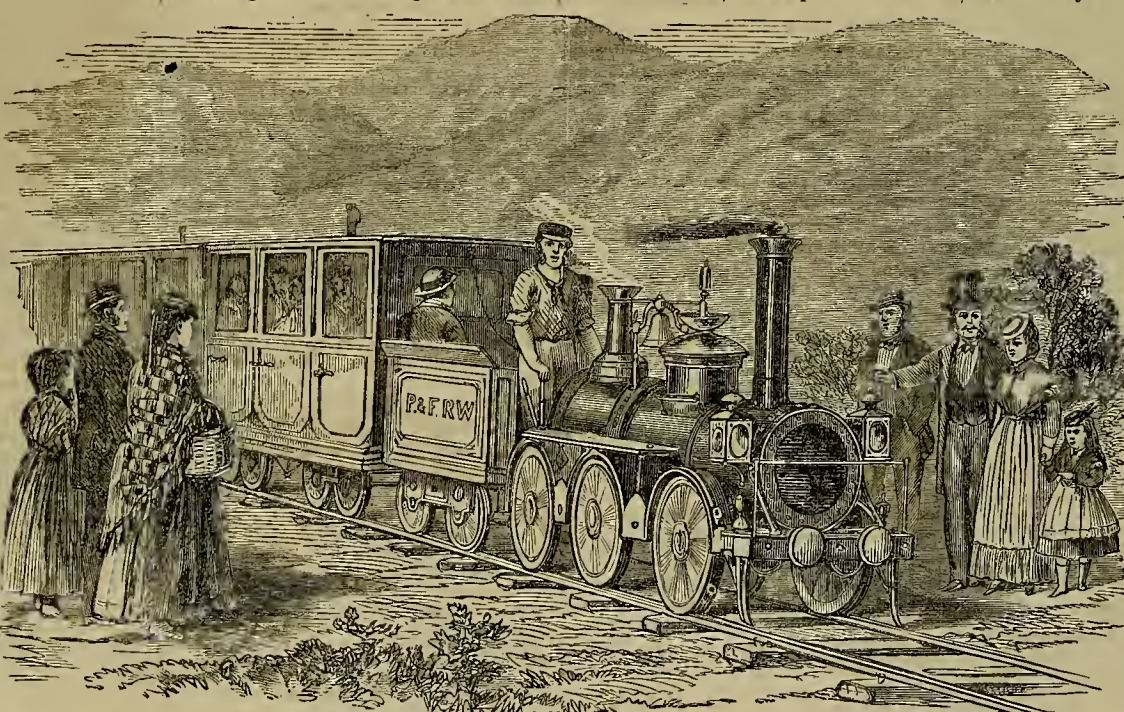
TEHUANTEPEC SHIP CANAL.—The expedition organized by the Government for the survey of this canal was to have sailed on the 10th. Mr. J. J. Williams has estimated the value of the trade, which must pass through the canal when completed, (and he regards it as a perfectly feasible undertaking) at over 451 million dollars, including value of ships and cargoes.

LECTURES.—Dr. C. F. Winslow lectured last Saturday evening on the "Theories of Creation" before the Mechanics' Institute. The subject was handled, we are told, in a most interesting and instructive manner, and with great ability. Sickness necessitated the absence of the editor of this paper, whose duty and pleasure it would otherwise have been to have attended.

We are glad to see that the Young Men's Christian Association are moving so well in the matter of the popular lectures, by securing excellent speakers and throwing the course open to the public at a very low price. The second lecture of the course was delivered on Tuesday by Prof. E. S. Carr on "the Influence of Physical Causes on Human Development."

Prof. Carr is remarkably fortunate in his treatment of subjects for the people. We hope that these and other courses will awaken a strong lecture-going spirit in our city, for we are strong believers in this method of education.

A FEARFUL ACCIDENT occurred lately at Mineral Hill, Nevada, at the Stetefeldt furnace. It would appear that the apparatus for conveying cold water around the hopper (to keep it cool) must have become clogged in some way, so that this water was heated until it generated steam, and an explosion followed which must have thrown over the feeding arrangement. Two men were busied at the top of the furnace and one, in some manner, fell down the hot shaft, and was drawn out below. Of course he was fatally injured: the only wonder is that he was not killed outright. He is said to have lived, however, four hours, but his flesh was terribly burned and presented a sickening sight. The accident is one which never would be expected to happen. The name of the deceased was William Dreary; the survivor was Joseph Pringle.



NARROW GAUGE ROADS—THE FESTINIOG RAILWAY IN WALES.

in fuel alone; considering that less than one fourth of the tonnage now hauled would afford precisely the same accommodation to the traffic which now exists, and would produce the same paying results.

We hear from all parts of our great West demands for railroads. But with the broad gauge system, either immense subsidies must be granted, whereat many grumble, or immense districts must be left out in the cold. But if the first cost of building the railways can be reduced one-half, and if the cost of maintaining these roads can be cut down in the same proportion by the introduction of a system which would afford the same accommodations for traffic, why should we delay to take steps in the matter? The Government of Russia, anxious to extend the railroad facilities of that country, sent a number of the most scientific men of the Empire to Wales to investigate the matter of the narrow gauge. The result is that a railway is to be built on the new system, which has also been adopted for some of the old lines. A nar-

quarter of a mile in length—so long that there were parts of the road on which it ran on no fewer than *five reverse curves*—and has attained frequently a speed of thirty-five miles an hour.

We can, perhaps, do no better than to conclude our article with one of Mr. Fairlie's paragraphs. That gentleman says: In moderately temperate climates, gauges of 2 ft. 6 in. will be found ample for any traffic in any part of the world, and will sustain a speed of 30 miles an hour; while 3 ft. is sufficient for either very hot or very cold climates, and will sustain a speed of 40 miles an hour. Railways can be made cheaply and at the same time, to be thoroughly efficient, and those who aver to the contrary are, in fact, enemies to progress and civilization. There is no country too poor to have railways sufficient for its requirements; and railways furnish the cheapest possible mode of transport, when they are not horne down by the results of incompetence and extravagance which we so often see associated together. I regard

Communications.

IN THIS DEPARTMENT we invite the FREE DISCUSSION of all proper subjects—correspondents alone being responsible for the ideas they advance.

Notes of Travel in Nevada County.

[WRITTEN FOR THE SCIENTIFIC PRESS.]

Grass Valley

Contains (together with its environs) about 7,500 inhabitants. Its mines are among the best in the State—certainly the most of them within the same area—and the most extensively worked.

The Hope Gravel mine, $\frac{3}{4}$ of a mile S. W. of town, is owned in San Francisco. There are 3,000 shares, the controlling interest of which is held by Wm. H. Sharp, atty. of S. F. Geo. Bower is Superintendent. This is a deep channel blue gravel lead, but the claim has been badly (or unluckily) managed for some two years back, the company having spent upwards of \$100,000 upon it. Lately under the management of its present Supt., it has been paying not only well but fabulously! A few weeks since, while I was on a visit to this mine, the men at work below got so excited over what was in sight, that they filled their hands and left to inform the Supt., who went down, and then reported \$25,000 in sight. The channel runs east and west; the width averages 100 feet; the pay gravel is $2\frac{1}{2}$ ft. deep over the bed-rock. They have a shaft down 250 ft., splendid hoisting works, and work 25 men. Before this big strike for some time they were averaging \$18 per day to the man.

The Empire Mill & M. Co.'s works (which were burned Sept. 20th, and suffered a loss of \$160,000, with only \$40,000 insurance upon them) are situated about one mile S. E. of Grass Valley, and are owned principally in S. F. J. F. Nesmith is Supt. and Wm. Clift underground foreman. The claim, 1,600 ft. in length, is secured by U. S. Patent. The shaft is down 960 ft. with 10 levels. They worked 68 men. The hoisting works and mill were the finest in the State; the mill had 30 stamps and reduced 40 tons of rock every 24 hours. I understand the reconstructing of these works is being pushed forward energetically.

The Eureka G. M. Co., have their shaft down 730 ft., with six levels. Their mill has 30 stamps, crushing 66 tons per day (24 hours). The rock averages \$34 per ton the year round. They have 4 engines,—one 16-inch in mill, two 12-inch on the mine, and one small one driving a Varney & Rix rock breaker. They concentrate all their own sulphurets by Paine & Stevens' Concentrator, and have Chlorination works of their own. The sulphurets average about \$200 per ton. The length of Eureka proper is 3,700 ft., the balance of 1,700 ft. having been purchased of the Roanoke lead. The vein averages three feet. The last clean up, in September, after 12 days' run, was \$28,176 without sulphurets. The mill and hoisting works are lighted by "Pneumatic" gas. The works for this purpose, I understand, were erected by the Pacific Pneumatic Gas Company and have more than answered all expectations. The monthly cost is no more than it was for coal oil when lamps with their miserable lights were used. In the breakage of glass there is a further saving, and a greater in the wages of the man formerly employed to fill, clean and trim them. Indeed this last item alone cost nearly as much as gas does.

But there is another and unexpected saving behind all these. It is well known that oil is a miserable article in a quartz mill. It steals gold, it seduces quicksilver. Let a little get into the pulp (and with oil lamps you cannot prevent some from getting in) and so much quicksilver loses its amalgamating power and a certain amount of fine free gold goes over into tailings, to be wholly lost, or at best to be saved by double labor. Hence the value of gas light in quartz mills passes far beyond the mere improvement of light or saving in the cost of preparing it.

The North Star is $2\frac{1}{2}$ miles South of G. V. This Co. own 10 separate ledges, from 120 feet to 1,250 in length each. D. Hoyt is Supt. They have a 24-stamp mill, and crush 36 tons of ore per day; a splendid hoisting works with an incline shaft down 1,300 ft. on an angle of 22 deg.; are now working on the 9th level, and employ 120 men. Thos. Lancy is day foreman and Mr. Beumallek underground foreman. The principal stock is owned in S. F. The Green Mountain Co., working the Green-horn ledge on Osborn Hill, after some up's and down's, are now making it pay. Since the commencement, they have taken out between \$20,000 and \$25,000.

The California Sewing Machine factory at Grass Valley, Sawdon & Gray, proprietors, employs six men and turns out three machines per week at present; but as they are creating a considerable demand, more force will soon be put out. The principle is a plain crank and eccentric engine motion. Success to them, and all other manufacturing interests in the State; they are just what we need. In my next, at the request of many miners, I will say something about the Diamond Drill.

L. P. Mc.

Iron Sponge in Amalgamation of Silver.

[WRITTEN FOR THE SCIENTIFIC PRESS.]

In my adaptation of the Fonda process to the reduction of cuprous silver ores, I find the use of iron sponge economical; and in the treatment of roasted ore in barrels, it would be equally advantageous. By rapidly reducing the silver chloride, the time of treatment would be much shortened, and a smaller quantity of scrap iron would be required; hence the wear of the barrels would be lessened. Scrap iron would only be necessary from the difficulty of knowing just the quantity of sponge requisite. If, however, the latter be used in positive excess, scrap iron may be dispensed with.

If copper and lead chlorides are present in the ore, they will be reduced, to a certain extent, but unless the sponge be in great excess, they will, in great part, be redissolved by reduction of silver chloride.

For my small operations I make the sponge in crucibles made from quicksilver flasks. Finely pulverized iron ore is mixed with one tenth its weight of pulverized charcoal (not too fine) and exposed in a wind furnace to a red heat for several hours. Bog iron ore is excellent for the purpose, owing to its porosity.

For large operations, the sponge may be made in a reverberatory furnace, suitably constructed, and managed with a view to the fact, that the result desired is the reverse of that in the roasting of silver ores, that is, de-oxydation instead of oxydation. I commend the subject to the consideration of parties working by the Freiberg process. C. H. A.

All About Montana.

[WRITTEN FOR THE SCIENTIFIC PRESS.]

Cedar Creek Mines—Conclusion.

I have noticed in my letter some (but not all) of the few claims which are paying well, and have stated the facts as I have been told them here. I think that there are many good claims which will yield handsome returns, although, as is usually the case, altogether too glowing accounts have been spread abroad concerning the camp. On the other hand, many have come here with extravagant hopes, have been disappointed and have gone away and given too gloomy a description. Everybody cannot strike it rich immediately, even if great wealth is at hand.

It is to the deep ground that the place must look for its permanent success. Up at Forest City the claims are down from 10 to 50 feet. From "50 below" down to Cedar Junction, shafts are sunk much deeper and a few have reached pay. Below "68 below" the creek breaks off deep, and from that point down for about three miles the claims are consolidated, generally 2 to 5 going together, and are being opened with drain tunnels and pumps. Good prospects have been obtained in places and the miners all express great confidence. The ground is from 25 to 40 feet deep. When a shaft gets some 6 feet down, the water gives great trouble and tunnels must be run in, often for a considerable distance. A. J. Simmons & Co., owing from 88 to 95 (inclusive) below, are running a large drain tunnel, commenced (about May 1st) half a mile below their claims. They have struck pay in the gravel, but have not reached bed-rock. The work is slow, but conducted systematically and energetically.

I certainly wish the miners all success. If any one deserves good fortune, it is the energetic, but too often poor, prospector. Leaving the comforts of home and the society of friends, he wanders about new fields, suffering hardships and undergoing toils, the mere recital of which would frighten the common man. The most persevering and enduring of men, opening up ever fresh regions for others, venturing where the boldest hunter of romance would turn aside, the fore-runner of civilization, and too often the only one to derive no benefit from his labor,—who can wish anything but the best for that character peculiar to our coast,—the American prospector.

Back again I go to Superior City, whence I have the opportunity of riding on horseback, if I wish, to Walla Walla over the famous Mulvey wagon road, impassable, I am told, on account of its bad condition, to wagons, but traversed by horsemen and pack trains. But I shall retrace my steps to Deer Lodge.

Deer Lodge.

This flourishing county seat, located in the

heantful Deer Lodge Valley, show many signs of increasing prosperity. One of these is the number of new buildings going up. That just erected by the Masonic lodge is a nice structure which has cost some \$8,000. A fine hotel, the Scott House, kept by the enterprising and gentlemanly Mr. Scott, is quite an important feature of the place. Wells, Fargo & Co., have an office here. The U. S. Government is building a large penitentiary for the accommodation of a certain class of free lodgers. This is located about half a mile outside the city. The contractor for the building is Mr. Geo. McBurney, a gentleman who has in the course of a long practical life achieved a high reputation. The iron work is furnished by Mr. Alex. Kemp of Helena. The General Superintendent is Dr. A. H. Mitchell.

The left wing of the building is to be about 70x40 feet, 3 stories high and with 14 cells, 6x8 feet, built of brick. The total number of cells is to be 42, but the present contract calls only for 14. The granite used is found 10 miles from here and the rubble stone for the walls 4 miles off. The roof will have dormer windows. The work was commenced May 20th. The cost is estimated at \$39,000. Fifty thousand feet of lumber and two hundred thousand bricks are used.

There are two papers published at this place. The *New North West* (daily and weekly) is a fine, well conducted sheet, well printed and well edited, and altogether a credit to the place. The *Independent* (weekly) is also an excellent publication which deservedly has a large circulation.

While in this city I visited the manufacturing establishment of Mr. John O'Neil. This gentleman started in three years ago, and by his energy and ability has built up a large business. He manufactures articles needed at all stages of life, literally: cradles for the babes; chairs, lounges, bedsteads, furniture of all kinds for older married and unmarried persons; and even coffins for the dead. He has now eight men employed, and last week, he so told me, turned out over \$1,000 worth of work. His machinery was made here and is adapted for turning, planing, finishing, etc., all kinds of woodwork. His workmanship is excellent and thorough, and he is himself of the proper character to deserve and earn the highest success. W. H. M.

[TO BE CONTINUED.]

The Origin of Life.

[CONTINUED FROM PAGE 232.]

At this time, Cagniard de la Tour made a remarkable discovery,—that common yeast is a vast accumulation of minute plants. Fermentation in the manufacture of wine or beer is always accompanied by the rapid growth and increase of these. So far it is similar to petrification of ordinary animal or vegetable matter, and the suggestion was obvious that organisms were somehow the causes of both fermentation and putrefaction. Chemists at first laughed at the idea, but, in 1843, Helmholtz reduced the matter to a test by a conclusive method. He separated a putrefying, or a fermenting liquid from one which was merely capable of putrefying, or fermenting, by a membrane which allowed the fluids to pass through and intermix, but stopped the solids. Now while the putrescible, or the fermentible, liquids became impregnated with the results of putrefaction or fermentation going on at the other side of the membrane, they neither putrefied (in the ordinary way) nor fermented, nor generated any organisms which abounded in the other liquids. This showed that that which excites fermentation and putrefaction, and at the same time gives rise to living forms in a fermentable or putrescible fluid, is not a gas nor a diffusible fluid; therefore it is either a colloid or a matter divided into very minute solid particles.

This matter was cleared up by Schroeder and Dusch, in 1854 and 1859, who found that all of the putrefiable materials which they used (except milk and the yolk of eggs) an infusion boiled, and then allowed to come in contact with no air but such as had been filtered through cotton-wood, neither putrefied nor fermented, nor developed living forms. It is hard to imagine what the fine sieve formed by the cotton wool could have stopped except minute solid particles. Still the evidence was incomplete until it had been positively shown, first, that ordinary air does contain such particles; and, secondly, that filtration through cotton-wool arrests these and allows only physically pure air to pass. But within the last year Prof. Tyndall's remarkable experiments have demonstrated this;—have shown that common air is no better than a sort of stir-about of excessively minute solid particles, which are almost wholly destructible by heat, and are strained off, and the air rendered optically pure, by being passed through cotton wool. And M. Pasteur found in the cotton wool, used as a strainer, microscopic germs, which gave rise to living forms when sown in a proper solution; while he showed that the incapacity of the air to give rise to life, was not due to any occult change caused by the wool, by proving that this last might be dispensed with altogether. He drew the neck of his flask into a tube and bent it downward, boiled the contained fluid and heated the tube sufficiently to destroy any germs in the air which enters as the fluid cools. No life will now appear in the flask. For contact between the germless air and germ-holding atmosphere occurs only in the tube, and as there are no currents and the germs cannot fall upwards, these cannot reach the interior of the flask.

So much for the history of the progress of Redi's great doctrine of no life without ante-

cedent life, which appears to me to have had altogether the best of the dispute.

Redi offered another problem,—whether living things exist which produce offspring of a totally different character from themselves; and as regards this the researches of two centuries have led to a different result. In respect to grubs found in galls, tape-worms, bladder-worms and flukes, every such parasite has been traced to an egg derived from a parent actually and potentially like itself; and the tendency of inquiries elsewhere has been in the same direction. A plant may throw off bulbs, but these, sooner or later, give rise to seeds or spores, which develop into the original form. But pathology, on the other hand, offers some remarkable approximations to the affirmative answer to this problem. It has been long known that galls in plants and tumors in cattle are caused by eggs laid by insects; that mere pressure on the skin will give rise to corns. Now the gall, the tumor and the corn are parts of the living body which have become to a certain extent independent organisms. From such innocent production as corns and warts there are all gradations to the serious tumors which, by their mere size and the mechanical obstruction they cause, destroy the organism out of which they are developed; while, finally, the terrible cancer has acquired powers of reproduction and multiplication, and is only morphologically distinguished from the parasitic worm, the life of which is neither more nor less closely bound up with that of the infested organism.

If there were a kind of diseased structure whose tissues were capable of maintaining an independent existence out of the body, it seems to me that the shadowy boundary between morbid growth and the generation of foreign offspring would be effaced. And I am inclined to think that the progress of discovery has almost brought us to this point already.

You are all familiar with what happens in vaccination. A minute cut is made in the skin and an infinitesimal quantity of vaccine matter is inserted. Soon a vesicle appears distended by a fluid a hundred or a thousand fold that originally inserted. Experiments have proved that the active element is this, in non-diffusible and consists of minute particles exceeding 1-20,000 of an inch in diameter. Similar experiments have proved that the diseases, sheep-pox and glanders, are also dependent for their existence and propagation upon minute living solid particles called *microzymes*, which, moreover, explain the contagiousness of the terrible diseases. And now arises the question whether these *microzymes* arise by the development of existing germs, or as the result of a modification of the tissues of the body,—a most important practical question. A parasite may be stamped out by destroying its germs; a pathological product can be annihilated only by removing the conditions which give rise to it.

I think this problem will have to be solved for each zymotic disease separately, for analogy cuts two ways. But as I have dwelt on the analogies in favor of one side, I must now speak of those in favor of the other,—the generation of life from life.

It is a well established fact that certain diseases, both of plants and animals, which have all the characteristics of contagious and infectious epidemics, are caused by minute organisms. This is the case of smut of wheat and the potato-disease. Insects are wonderfully liable to such diseases caused by microscopic fungi. In autumn it is not uncommon to see flies motionless on the window pane, with a sort of magic circle in white drawn around them, which consists of innumerable spores thrown off in all directions by a minute fungus, whose spore-forming filaments stand out like a pile of velvet from the fly. These filaments are connected with others which fill the fly's body, having eaten away the viscera. A spore falling on a healthy fly, germinates, sends out a process which bores its way through the fly's skin and gives off minute corpuscles which float in the blood. These last multiply and strengthen into filaments at the expense of the fly's existence, and when they have killed the victim, grow out of his body and give out spores.

A most terrible disease of the silkworm is the Pebrine. The gravity of the injury done by it may be denoted by a few facts. In 1853, the annual production of French sericulture was estimated to amount to 1-10 of that of the whole world, and was valued at \$23,000,000. The city of Lyons is built upon silk. But this disease reduced the silk crop in 1856 to $\frac{1}{2}$ that of 1853, and up to within the last year or two it has never attained half the yield of 1853, and this means poverty and misery to a vast population. It is now certain that this Pebrine is the effect of the growth and multiplication of minute bodies in the blood of the silkworm. Mr. Pasteur examined the subject and came to the conclusion that these bodies came from germs in the ordinary way, and, guided by his theory, devised a method of extirpating the disease which has been extremely successful whenever properly carried out.

There can be no reason, then, for doubting that many contagious and infectious diseases of insects are caused by minute organisms produced by existing germs; and there is no reason that I know of for believing that this may not apply to the highest animals, including man. Indeed, striking evidences of the truth of this have been adduced, and Prof. Lister's publications seem to prove almost that, in the hospitals, the deadly consequences of wounds are due to the importation of minute organisms into these wounds, and it would seem that the surgeon who saves the most lives will be he who best works out the consequences of the hypothesis of Redi.

Mechanical Progress.

LATEST IMPROVEMENT IN THE CARBON PROCESS.—Mr. Joseph Albert, of Munich, is the author. The *American Chemist* describes it as follows:—"A piece of plate glass, after being cleaned, is flowed with a mixture of albumen, gelatine, and bichromate of ammonia, and placed in a horizontal position to dry; when dry it is laid upon a piece of black velvet, with the coated side down, and exposed for a short time to the light from the side upon which there is no film. The plate is then removed to the dark room, and immersed in cold water for half an hour, or until all traces of bichromate are removed. The object of placing the glass, during the exposure, upon black velvet is to absorb the penetrating rays as much as possible, so that the coating of gelatine may retain adhesive properties sufficient to secure the second film of gelatine firmly attached. We have thus far obtained upon the glass a coating of gelatine firmly attached and rendered insoluble in warm water, as a foundation for the second coating, which consists of isinglass, gelatine, and bichromate of ammonia. This is then dried and exposed to the light, under a negative, in a pressure frame, as in the ordinary photographic process; the action of the light is watched from the back, and the plate removed at the proper moment. It is then washed to remove the unchanged chromates, the film hardened with chrome-alum, chlorino-water, or any other coagulating material, and set aside to dry. When dry it is printed from, as with a lithograph, in a press adapted for the purpose. As many as 2,000 impressions have been made from a single plate, without any perceptible difference in their quality."

CHROMATIC PRINTING PRESS.—The following is from the *Scientific American's* report of the American Institute Fair:—"We noticed a novel and ingenious printing press, call the 'Chromatic' press, which prints in three colors with a single impression, and does its work as rapidly as any platen press can print in single color. The surface of the inking cylinder is divided into three equal parts, which are supplied with adjustable sectors (or color strips) of various sizes, to correspond in width with any line or part of line of type. Each part is supplied with a color from one of the distributing rollers. The cylinder has lines struck on its surface which are numbered to correspond with lines and numbers on the chase, making it simple work for the pressman to set his sectors to correspond to the lines of the type which he may wish to print in colors. Thus, having the sectors arranged, they receive their proper colors and transfer them to the type rollers, corresponding in width and position with the lines of the type to be printed. Within one minute the press may be changed from two or three colors to one, by throwing two polished shells or half cylinders over the color arrangements, which enables the pressman, if he desires, to use three times the amount of distribution and inking surface that he now has in any one-color job press."

DEPOSITION OF GOLD ON GLASS.—Böttger has modified Wernicke's process for throwing down gold on glass as follows: He prepares the soda solution by dissolving 6 grammes caustic soda in 100 c. c. water; the reducing fluid, to be made when washed, by dissolving 2 grammes common starch sugar (glucose) in 24 grammes distilled water, and adding 24 c. c. alcohol of 80 per cent., 24 c. c. Aldehyd of 0.870 specific gravity; neutral solution of chloride of gold, one gramme of gold in 1200 c. c. water. Four volumes of the gold solution are mixed with one vol. soda solution and 1-16 vol. of the reducing liquid, and the liquid rapidly poured into the hollow glass globe to be plated. Five minutes is sufficient to insure the deposit of a thin film of gold, but it is better to allow more time. Flat plates of glass can be laid upon the surface of the liquid, as in the silvering process; the surfaces of the glass should be carefully cleaned with soda and alcohol, and not with acids. The greater part of the gold is thrown down in flocculi, and can be recovered for subsequent use—the amount deposited upon the glass being very small. The mirrors are to be well washed and dried in the air. Where the baths are heated, the deposition of gold takes place more rapidly, but not so fine; it is better to keep the temperature below 140° F., and to allow the metal coating to form slowly.—*Jour. Applied Chemistry.*

NOVEL ROAD ENGINE.—A road engine, recently invented by D. J. Lake, of Chicago, is thus described by the *Times* of that city:—"In an ordinary locomotive, the steam power is communicated directly to the crank of the driving wheels. In Mr. Lake's machine, when desirable, the motion can first be communicated to balance wheels. When these wheels have reached a very high rate of speed, the power can be communicated by a 'clutch' to the driving wheels. Suppose the vehicle in a place where it requires extra force to start it. By applying the power at once no movement is effected; but by storing it up in the balance wheels, and then communicating it to the drivers, one gets the same benefit that he would by getting a heavy wagon under rapid motion just before running it up an incline. The machine has two sets of driving-wheels, one considerably smaller than the other. By a screw, either set can be raised, leaving the other on the ground. In hauling heavy loads, the small wheels will be used, and in excursions, where there is no great weight to be hauled, rapidity is secured by the employment of the large drivers. A pump and air-chamber furnish a complete apparatus for throwing water; while a band wheel allows the transfer of power to a threshing machine, or any other article of the kind. The engine weighs about three tons, moves without difficulty, and guides as easily as a well-trained horse."

"SWITCH" FOR GALVANIC BATTERIES.—The *American Artisan* for Oct 12th, describes a recently patented invention, by means of which two separate batteries may be brought into action in turn, without any interruption in the continuity of the circuit, and each in turn thus allowed time to recover its activity. An upright armature called the "switch," is so pivoted at the lower end, that the upper end may move to and fro between two set screws. To this switch is attached a small local battery and electro-magnet, having a rotary circuit breaker operated by clock-work. So long as the circuit is complete, the switch is drawn by the magnet against one set screw, completing the circuit of one of the main batteries; while so long as it remains broken, the switch is kept by a spring against the other set screw, completing the circuit of the other. Thus the effective time of the batteries being known, and the clock set accordingly, they are in this way automatically "spelled."

ELASTIC TIRES.—The *London Engineering* describes a new form of elastic tire, consisting of india-rubber segments attached to iron plates by a patented process,—the nature of which is not intimated,—these plates being then bolted to the wheel tire. We quote:—"The front pair of driving wheels of the engine are 3 ft. 6 in. in diameter, and are fitted with india-rubber segments 12 in. long, 4 in. wide, and 3 in. thick. The rear pair of driving wheels are 5 ft. in diameter, and are fitted with india-rubber segments 12 in. long, 6 in. wide, and 3 in. thick. The rubber is firmly attached to $\frac{1}{2}$ in. steel plates, which are bolted on to the $\frac{1}{2}$ in. wrought-iron tires, the segments being still further secured by $\frac{1}{2}$ in. wrought-iron rings placed on each side of the wheel. * * * The great advantage of Messrs. Sterne's method of attaching the india-rubber in segments over the solid ring is, that if a segment gets damaged it is easily and quickly removed and replaced by a spare segment at a moderate cost. The motion of the engine during the run was easy, and the india-rubber readily impressed itself into the inequalities of the roadways. Traction engines with their wheels thus tired will prove useful under special local circumstances, such for instances, as where they have to traverse paved or very uneven roads. But here, to our mind, the advantage of rubber tired wheels ceases, and we believe that the engine would work as well without as with this addition, and that in most cases the 130% or 140% which these appliances cost, could be more profitably expended on the engine in other ways."

ALLOY OF COPPER AND MANGANESE.—A Connecticut man has patented an alloy made from copper and black oxide of manganese, which "presents a beautiful white appearance, is malleable, ductile, and admirably adapted as a substitute for German silver, and as the basis for silver plate."

Scientific Progress.

TEMPERATURE OF THE SUN.—We take the following from Prof. Roscoe's opening address before Section B., of the British Association at the late meeting: "Starting from the fact of the eruptive nature of a certain class of solar protuberances, Zöllner thinks that the extraordinary rapidity with which these red flames shoot forth proves that the hydrogen of which they are mainly composed must have burst out from under great pressure; and if so, the hydrogen must have been confined by a zone or layer of liquid from which it breaks loose. Assuming the existence of such a layer of incandescent liquid, then applying to the problem the principles and methods of the mechanical theory of gases, and placing in his formulae the data of pressure and rate of motion as observed by Lockyer on the sun's surface, Zöllner arrives at the conclusion that the difference of pressure needed to produce an explosion capable of projecting a prominence to the height of 3.0 minutes above the sun's surface, a height not unfrequently noticed, is 4,070,000 atmospheres. This enormous pressure is attained at a depth of 139 geographical miles under the sun's surface, or at that of 1-658th part of the sun's semi-diameter. In order to produce this gigantic pressure the difference in temperature between the inclosed hydrogen and that existing in the solar atmosphere amounts to 74,910 deg. Cent. In a similar way Zöllner calculates the approximate absolute temperature of the sun's atmosphere, which he finds to be 27,700 deg. Cent.—a temperature about eight times as high as that given by Bunsen for the oxyhydrogen flame, and one at which iron must exist in a permanently gaseous form."

SULPHURIC ACID FROM GYPSUM.—A hundred weight of gypsum contains about 57 lbs. of sulphuric acid. H. Reinsch states that if there be mixed two parts of pulverized gypsum with one part of carbonate of ammonia, and water poured over this mixture, complete decomposition of the gypsum ensues, sulphate of ammonia is formed, and carbonate of lime. The sulphate of ammonia is, in its turn, decomposed by means of common salt, the result being the formation of sulphate of soda and chloride of ammonium, which can again be converted into carbonate of ammonia by means of chalk.

DISSIPATION OF ENERGY.—"One of the most remarkable results of the progress of molecular science is the light it has thrown on the nature of irreversible processes,—processes, that is, which always tend towards, and never away from, a certain limiting state. Thus if two gases be put into the same vessel they become mixed, and the mixture tends continually to become more uniform. If two unequally heated portions of the same gas are put into the vessel, something of the kind takes place, and the whole tends to become of the same temperature. If two unequally heated solid bodies be placed in contact, a continual approximation of both to an intermediate temperature takes place. In the case of the two gases, a separation may be effected by chemical means; but in the other two cases the former state of things cannot be restored by any natural process. In the case of the conduction or diffusion of heat the process is not only irreversible, but it involves the irreversible diminution of that part of the whole stock of thermal energy which is capable of being converted into mechanical work. This is Thomson's theory of the irreversible dissipation of energy."

SODA ALUM.—J. Berger Spence read a paper before Section B. a note upon which, in *Nature's* report, we copy:—"Mr. Spence said that hitherto many scientific chemists had doubted the possibility of producing soda alum; but the results of upwards of fifty experiments which he has made conclusively showed that this salt can be produced under certain circumstances. The principal point of interest in Mr. Spence's paper consisted in the discovery, made by him, that the crystals are produced from an amorphous mass, which is formed when the solution is prepared at high densities. The immediate result of this discovery may be that the large quantity of ammonia which is now used in the production of alum will be displaced in favour of soda, and that the valuable fertiliser, ammonia, which has no intrinsic value in alum, will be given to the soil, which, in an economic point of view, will be of considerable advantage to the country."

TOPOGRAPHICAL FEATURES OF THE TWO HEMISPHERES.—At the recent meeting of the American Association, J. W. Foster, LL. D. read a paper upon "Recent Advances in Geology," from which we make the following extract:—"In the Austral region we meet with projecting headlands and peninsula-like terminations of continents, and groups and chains of islands in the Pacific and Indian oceans extending over vast areas, which rise up like the peaks and crests of mountains. These are the evidence of a gradually engulfed hemisphere. In the Boreal region we have wide expanses of land diversified by mountains, prairies, and plains; elevated sea-beaches and river-terraces, most conspicuously displayed on the borders of the Arctic Sea; vast oceanic shoals; a marine fauna of a northern type preserved in beds of 1,400 feet, and stratified beds of gravel and sand 2,000 feet, above the ocean-level; clusters of lakes yet retaining their bitter waters; shallow seas once salt, but each decade becoming more brackish; vast desert tracts which up to a recent time formed the ocean bed;—all these phenomena indicate a hemisphere gradually emerging from the waters. Perhaps the physicist can discern in these great periodic oscillations, the method by which Nature perpetually renews the youth of our planet, and maintains its fertility."

PERMANENT STANDARDS OF MEASURE.—"The earth has been measured as a basis for a permanent standard of length, and every property of metals has been investigated to guard against any alteration of the material standards when made. To weigh or measure anything with modern accuracy, requires a course of experiment and calculation in which almost every branch of physics and mathematics is brought into requisition. Yet, after all, the dimensions of our earth and its time of rotation, though, relatively to our present means of comparison, very permanent, are not so by any physical necessity. The earth might contract by cooling, or it might be enlarged by a layer of meteorites falling on it, or its rate of revolution might slowly slacken, and yet it would continue to be as much a planet as before. But a molecule, say of hydrogen, if either its mass or its time of vibration were to be altered in the least, would no longer be a molecule of hydrogen. If, then, we wish to obtain standards of length, time, and mass which shall be absolutely permanent, we must seek them not in the dimensions, or the motion, or the mass of our planet, but in the wavelength, the period of vibration, and the absolute mass of these imperishable and unalterable and perfectly similar molecules."—*Prof. Maxwell.*

A NEW BATTERY.—"Another important addition made to chemistry since our last meeting is a new, very powerful, and very simple form of galvanic battery discovered, though not yet described, by Bunsen. In this second Bunsen's battery only one liquid, a mixture of sulphuric and chromic acids, and therefore no porous cells, are employed. The plates of zinc and carbon can all be lowered at once into the liquid and raised again at will. The electromotive force of this battery is to that of Grove—the most powerful of known forms—as 25 to 18; it evolves no fumes in working, and can be used for a very considerable length of time without serious diminution of the strength of the current, so that Bunsen writes me that no one who has once used the new battery will ever think of again employing the old forms."—*Prof. Roscoe, F. R. S.*

PHOSPHATES FOR SEWAGE.—David Forbes, F. R. S., read a paper at the late meeting of the British Association, in which, after briefly alluding to the numerous plans which had been tried for the purification of sewage, all of which had been practical failures, he called attention to what he said was an entirely novel process, brought forward by Dr. Price and himself. It was founded on the fact that certain mineral phosphates, especially those containing alumina, eagerly combine with the organic matter of sewage. A solution of the phosphates and milk of lime was added to the sewage, and the ammonia was precipitated in the shape of a double phosphate. Mr. Forbes illustrated the process with a bottle of Liverpool sewage, and the result was that in a few minutes the precipitate was seen falling to the bottom, leaving the water perfectly clear and free from smell. In fact, he contended that the sewage water so purified could be drunk without offence, and he caused some amusement by drinking a wineglass of the water."

Mining Summary.

The following information is gleaned mostly from journals published in the interior, in close proximity to the mines mentioned.

California.

ALPINE COUNTY.

THE TARSHEISH.—*Chronicle*, Oct. 15th: We learn that this mine looks well in the lower tunnel. It is intimated that the buildings at the upper tunnel are to be removed to the lower.

LEVIATHAN.—*Miner*, 15th: Twelve tons of the 300 contracted for from this mine by the Birdsall's mill started to-day. It will be used in making bluestone, for the mill.

GLOBE.—S. F. Ahmher, M. E., has been during the week in preparation for the erection of Reduction works for the company. After a careful examination of the property Mr. A. says that the prospects more than meet his expectations.

AMADOR COUNTY.

The *Ledger* of the 22d says: Work at the mines is vigorously prosecuted, and preparations for the winter are being made everywhere.

BUTTE COUNTY.

FORESTOWN.—Cor. of Oroville *Record*, 22d: "Gaskell & Bowers' claim is drained by a flume over a mile long, and the cost of opening has been \$24,000. Two-thirds of that amount was taken out of a piece 150 feet square. They have 2,887 feet of ground on the lead ahead of their pipe; they have 800 feet of 12-inch iron pipe, and a pressure of 125 feet.

The editor has been shown by Mr. Gaskell three nuggets, which were part of the first clean up. One weighed 19 ounces, one 9, and one 3 ounces.

EL DORADO COUNTY.

MUD SPRINGS.—Cor. of Placerville *Democrat*, 22d: The Pocahontas at Logtown, cleaned up one hundred and one pounds of amalgam from a run of eleven days, equal to fifty pounds gold. Mr. March, of the N. Y. & El Dorado, has struck a splendid lead six feet in width, and improving. Our Supt. of the Eureka Canal, Mr. Morrelle, is enlarging and improving. He has nearly two hundred laborers on the ditch.

INYO COUNTY.

THE NEW FURNACE.—*Independent*, 17th: The furnace of Mr. Beaudry, at Cerro Gordo, is working in the most satisfactory manner. The cupola started September 29th, and on October 6th had 781 bars averaging 87½ pounds each, making 111 per day. October 9th, 433 bars, making 144 1-3 per day.

STRIKE.—The tunnel that Hannah & Co. have been driving for the Osceola, after passing through one promising ledge, struck the main one 1,000 feet from the surface, from which prospects most flattering have been obtained.

PLACER MINING.—We have been shown a nugget of gold, free from quartz, weighing 2 oz., 9 dwt., taken out at Big Pine creek. Gold from these diggings assays \$18.25 per ounce.

BULLION.—The amount of fine bullion shipped from the Kearsarge mine last week, per Express, was 8,730 ounces. For the week previous, 2,235 ounces.

BELSHAW.—Furnace will be stopped for a day or two to make some improvements.

RICH.—We have been shown, by Don Fermin of Deer Spring Valley, a piece of rich ore from the San Francisco Lode; also, a button of silver weighing 18 oz., which he extracted from 3 lbs. of rock.

EOLIPHE Co.—The machinery of the steam-stamp mill is on the ground. An immense boiler has been constructed at the mill, from sections brought from England.

From the Swausea and Belshaw furnaces, the shipments of bullion to Los Angeles for the ten months ending Sept. 27th, amounted to 1,419,387 pounds.

KERN COUNTY.

STRUCK IT.—Los Angeles *News*, 22d: A rich vein of gold-bearing quartz has been struck in the Jo. Walker mine, at Walker's Basin, and the water that heretofore obstructed the working is avoided by the new shaft.

MARIPOSA COUNTY.

PRINCETON MINE.—*Gazette*, 21st: The Mariposa Co. has now eight or ten men at the Princeton, taking out rock for a thorough prospecting with a view to recommencing operations. Several tons were crushed at the Mariposa mill last week.

SEBASTOPOL.—The John Snow mine is increasing in value. We are informed by one of the owners, that the result of last week's work was about \$1,200. The yield since July has been \$6,000. A one-half

interest was recently purchased by Mr. D. Hart for \$2,000.

We learn that the machinery for a part of the new mill being erected by the Mariposa Co. at Benton Mills, was put in position on Monday. Twenty stamps will be used now, and more when necessary.

ARASTRAS.—Supt. Fleming is about constructing arastras for re-working the sand, a large amount of which has accumulated.

NEVADA COUNTY.

A DIFFERENCE.—*Gazette*, Oct. 20th: Ten years ago each of the principal ditches in the county could supply water enough to keep 30 or 40 hydraulic claims in operation; now the largest could not furnish enough for one-fifth as many. Improvements in hydraulic mining have effected this result.

PREPARATIONS FOR MINING.—Same of 21st: R. B. Gentry & Co. have been running a tunnel for several years from the old American Hill outlet into Woods ravine to reach the ground formerly known as the Rogers' claims. The tunnel is now in nearly a 1000 feet, and will be completed in time to commence hydraulic mining as soon as water can be had. When completed it will be 40 feet lower than any ground that has been worked in the vicinity; and will open up for mining some 30 acres of gravel that has not been worked for lack of drainage. The owners intend using 1,000 feet of 15 inch pipe, and will have a pressure of 180 to 200 feet. The ground is known to be valuable. By means of this tunnel the Messrs. Craig will also be able to work a large amount of ground.

ORLEANS CONSOLIDATED.—Same of 24th: This Co. struck it rich on Saturday. In the bottom of the shaft, at depth of 75 feet, they have the vein a foot in width, exceedingly rich. The gold can be seen through all the rock.

CEMENT HILL G. M. Co.—The Cement Hill Gravel Co. are making arrangements for extensive operations. The lumber, pipe, and all material will be on the ground in ten days. Their flume will be 750 feet long, four feet wide and two deep. They have purchased 1,000 feet of 15 inch and 11 inch iron pipe, and expect to use 500 inches of water. Their perpendicular pressure will be 180 feet.

GRAVEL PROSPECTING.—*Transcript*, 21st: The Grass Valley Co., prospecting on the ridge above the Pennsylvania, have found large pieces of petrified wood, and have indications for an extensive gravel deposit.

Same of 22d says, the new steam hoisting and pumping works on the Orleans started up for regular work yesterday.

The Kansas is taking out first rate gravel.

The Cement Hill Co. own the canyon for a mile from the claims to the Yuba, and have sufficient fall to work to the very best advantage to the gravel bank.

HOPE GRAVEL MINE.—*Grass Valley Union*, 20th: For the week ending last Saturday the Hope took out 104 ounces of gold dust. This is worth \$17 per ounce. The prospects underground are as good as ever.

TORNADO MINE.—A crushing has recently been made, and the rock gave \$11.37 per load. The shaft is down 54 feet. Work has been suspended temporarily, in order to square up accounts.

EUREKA MINE.—Same of 25th: The report for the year ending Sept. 30th is published. Mr. Wm. Watt, Supt., says: "We have driven 747 feet of drifts, and sunk 89 feet of winze and 86 feet of main shaft. We have hoisted 19,962 tons of quartz, and crushed 20,562 tons in 306½ days, averaging a little over 67 tons per day with 30 stamps. We have concentrated 203 tons of sulphurets, and worked 267 tons, leaving six tons on hand, which I value at \$1,000. There are 1,198 tons of quartz on the surface, and 1,200 broke in the mine ready for hoisting."

The Assets of the company are valued in cash at \$194,497.70. There are no liabilities. The mine has been in operation, under its present management, since October 1st, 1865. In the five years the bullion taken out amounted to \$2,805,282.77. The ore (including sulphurets) paid for the year \$31.75 per ton against \$27.80 per ton for the year before. The company have paid 53 consecutive dividends in 51 months. The cost of mining has been \$8.32 per ton. The cost of milling, \$1.84 per ton. The cost of milling and concentrating the sulphurets has not exceeded \$2 per ton.

PLACER COUNTY.

BUCKEYE.—*Stars and Stripes*, 20th: On Tuesday Hon. D. W. Spear permitted us to examine some quartz from the Buckeye claim, Ophir District, owned by Judge Spear and W. B. Lyon. This rock now being taken from a depth of eighty feet, shows free gold and rich sulphurets. The Buckeye has been prospected with

caution. Of the quartz taken out this season, they have made four workings. The first, of twenty-two and a half tons, yielded \$810, or \$36 per ton. The second, of twenty tons yielded \$540, or \$26 per ton. The third, of twenty-three tons, yielded \$555, or \$24 per ton. The last from the greatest depth, consisted of twelve tons, which yielded thirty-five dollars in free gold, and seven hundred pounds of clean sulphurets, that assay \$436, which will fetch this lot up to \$45 per ton.

THE GRAVES-PUTNAM MINE.—*Herald*, 22d: Mr. Graves informs us that they have boxed some six tons of rich specimens and have enough in sight to make fully fourteen tons of gold-quartz nuggets. From the samples, we should say that this rock would yield from \$3,000 to \$10,000 to the ton, and that a man might make \$200 or \$300 per day by reducing in a hand mortar. The company have out some 300 tons of rich milling rock, all of which has been raised within five weeks. This claim is on the Marcellus ledge, at Baltimore ravine. The ledge runs from six to twenty inches thick so far as opened. Mr. Putnam is now below to purchase a mill, which will be at work if possible, by the 10th of December. This will do for an exhausted mining district.

THE MINES.—We looked at a few on Tuesday. At the mine of Green & Co., we found the boys taking out ore some of which was one-fifth gold. There are four hundred tons on the dump from which specimens can be picked up at almost any place showing free gold. There has been systematic work done on this mine for the past two years, all of which has been paid for from time to time by reducing small lots of ore in a small arastra or in a hand mortar. The pumping and hoisting works are propelled by water power at a cost of about \$60 per month. The main shaft is down 120 feet, and another 80 feet, a tunnel connecting the two. There has been no quartz milled, nor will there be until they erect their own mill. This mine is not for sale.

At the Buckeye, the old shaft is down 140 feet, and the new one 70, showing free gold and rich galena and sulphurets. The ledge at this point is 14 inches thick, and the last crushing of 12 tons, yielded \$30 per ton in free gold. At the St. Patrick, Mr. Henry, Supt., has 13 men at work. The main shaft is down 145 feet and levels have been run at various depths, all of which have shown good, and in some instances astonishingly rich rock. The ledge is two feet thick. There is now upon the dump forty or fifty tons of good milling ore. The Shipley ledge is two feet thick. The mill is on Doty's ravine and the ledge can be cut with a tunnel of 200 feet at a depth of 100, and the quartz run directly into the batteries. The mill is 10-stamp and will be run by an overshot wheel of forty feet diameter. It will be completed next month. The shaft on the Battis mine is down 50 ft. They have out 15 tons that will yield \$30 to \$40 per ton by mill process.

SAN DIEGO COUNTY.

The Nevada *Transcript* of Oct. 20th says: Peter Gravius, formerly of Moore's Fiat, an experienced miner, has just returned from San Diego. He has visited all the mines in that locality, having been there since the first excitement, and he says of the three hundred men now about the mines two hundred and fifty would leave if they had money enough to get away. The Coloma district is a placer mining country of limited extent and little value. The Julian has several rich quartz ledges, but the gold is hard to save, and the whole country is claimed under a Spanish grant. There are two quartz mills, one of ten and one of two stamps in the district. The miners are paid \$2.50 per day, and get employment about a third of the time.

TRINITY COUNTY.

THE DEEP SHAFT.—*Journal*, 22d: This is now down one hundred and twenty odd feet, and the workmen have struck a layer of seamy clay bedrock that will not stand. In sinking two feet and a half, all of one side slid in, and the shaft will have to be timbered. No gold is found in this formation.

Nevada.

COPE DISTRICT.

INDEPENDENCE VALLEY.—*Elko Independent*, Oct. 22d: At Tuscarora, the Chinese are packing dirt to water, some making considerable money. One Co. has taken out \$5,000 from dirt packed on their bamboo sticks. These claims pay from \$5 to \$10 and \$20 per day, during the rainy season. Mr. Drumm says one nugget of 25 ounces was found last Spring—another of

15 ounces, and several pieces of four or five ounces.

HUMBOLDT.

RAILROAD DISTRICT.—*Elko Independent*, 19th: The Palisade Smelting Co.'s furnace has been in constant operation for a week, turning out large quantities of bullion, which has been shipped to San Francisco, via Carlin.

REESE RIVER.

BULLION.—*Reveille*, Oct. 18th: Since Sunday, 16th, the Manhattan Co. has shipped to New York through Wells, Fargo & Co., 14 bars of bullion, weighing 1,291 pounds, and valued at \$20,273.

SILVER BEND.—Same of 19th: We were informed to-day that Caulfield's new 10-stamp mill at Belmont was progressing rapidly. It will be supplied with the Stetefeldt furnace and will amalgamate in barrels, and will be second to no silver mill in the State.

MONTEZUMA.—Same of 20th: We learn from J. M. Dawley, who returned yesterday, that the 10-stamp mill of McGlew & Dawley would be running within thirty days. Ore is accumulating rapidly.

WASHOE.

YELLOW JACKET.—Oct. 22d: Daily yield, 175 tons, all from the three lowest working levels. The drift north at the 1,000-foot level has 30 feet further to go to make connection with the winze from above. Some good ore was found in the face of this drift night before last, and the indications are that the drift is about cutting into the ore body already developed.

SAVAGE.—Daily yield 70 tons. The good body in the old upper mine, near the Gould and Curry line, holds out well, showing an improvement in the character of the ore. Nearly 20 tons per day comes from this, and the balance, of lower grade, from the lowest working level, which also shows improvement.

CROWN POINT.—Upper levels yielding 40 or 50 tons of fair ore per day. The incline is down 90 feet below the 1,100-foot level, the bottom being in barren quartz.

IMPERIAL EMPIRE.—The 1,300 foot station is opened, and drifting east is progressing. The shaft is 1,325 feet deep. An assessment of \$4 per share was last Tuesday levied, delinquent November 22d.

GOULD & CURRY.—Daily yield 120 tons; average assays from car samples, about \$50. The Potosi section is not yielding quite as well. The first class ore is pretty much exhausted.

VIRGINIA CONSOLIDATED.—Main drift west from the new shaft, at the 500-foot level, in 680 feet. No water to trouble, and rock favorable.

BELCHER.—The raise above the 200-foot level still shows improvement. The ore seam is five feet wide. At the south end of the 420-foot level, quartz of favorable quality is found, which improves.

HALE AND NORCROSS.—Daily yield 175 tons, principally from the seventh level. The ore hereabouts south of the shaft at that level show improvement. The other producing points look finely.

SACRAMENTO AND MEREDITH.—The mill is yielding satisfactory bullion returns. This mine contains a vast amount of good paying ore, easily got at.

CALEDONIA.—Daily yield 80 tons from the 200 and 300-foot levels, keeping the Pitute and Sapphire mills running.

SILVER NEVADA.—The last shipment of bullion, made on the 15th, from a twelve days run, yielded nearly 10,000. The ore deposits are looking as good as ever.

CHOLLAR-POTOSI.—Daily yield 280 tons. No change to note in the ore sections. They are all looking well, especially the Belvidere.

OPHIR.—Nothing new in the upper mine. Drifting south at the lowest level has nearly reached the south line.

OVERMAN.—Yielding 70 tons daily. The south part of the 300-foot level looking well.

HOPE.—Daily yield 43 tons of \$26 ore, keeping both mills running.

OCCIDENTAL.—Mine and mill running as usual.

BUCKEYE.—*Enterprise*, 21st: Hill & Co. having succeeded in having the injunction of Booth & Co. set aside, are now working this mine, in Devil's Gate District, successfully. They are getting out a large amount of excellent ore, which is being crushed at the Atlanta mill, below Silver City.

WHITE PINE.

ITEMS.—*News*, 23d: The Eherhardt still employs a force of 15 men, who are not only developing the mine, but are taking out sufficient good ore to keep the Oasis mill, in Swausea, constantly employed. South Aurora shows by its bullion returns that it is one of the main etays. Ward Beecher is an extraordinary piece of property. The large vein of ore developed is

proving of greater extent and richness daily. Fifty tons and more are being daily extracted and hauled to the Sheba and Big Smoky Mills. The company is working all the men they can conveniently place. The mine has cleared \$20,000 over all expenses for the past month, and will clear \$40,000 next. O. H. Treasure has 30 men employed, and developments are being made. Some good ore coming out of Noon-day. But little work is being done on Chloride Flat. The mines of the Consolidated Co. are being let out on lease in small parcels. Some good rock is brought to light. On the Base Range, the Jennie A. Co., has started the Hamilton Furnaces—on ore from their own mine. A sufficient quantity is being taken out to keep the two constantly employed. A few men are at work on the Imperial taking out rich ore. Gov. Matteson's mines, on the other side of the Jennie A., are producing a large amount of good smelting ore. Around Mt. Ophir and Monte Christo the mines are being actively worked.

MILLS & SMELTING WORKS.—All the mills in the District, with the exception of the Chicago and a little five stamp mill in Sberuautown, are running. The Big Smoky is building a dry-kiln, and a new-fangled rotary roasting machine. The White Pine mill is running with good results. Gov. Matteson's furnaces are running with success. The machinery for the separating works is on the ground, and the mason work nearly completed. The Powers' Furnace is turning out fair bullion.

PIOCHE BULLION.—Elko Independent, Oct. 22: W. F. & Co. shipped from the Pioche office, for the week ending Oct. 16, bullion to the value of \$45,365.

ENREKA.—Sentinel, 15th: At Spring Valley, the Curtis & Co. is becoming one of the noted mines. Some specimens are very rich. The Ida is improving. Ditto the Independence. The Reeves & Berry is idle, because the owners cannot agree upon the plan for working it.

Idaho.

ITEMS.—Analanche, 15th: The Belle Peck mine has a vein six inches to a foot in width, fabulously rich in both silver and gold. It is decomposed quartz, requiring no blasting. Mr. Peck now has five tons on dump. A rich chimney has been found below the discovery shaft. The first class ore will yield 50 cents to \$2 to the pan. Sands, Cheshiro & Co. are prosecuting work on the Illinois Central. A drift is in 30 feet on the 30-foot level, where the ledge is increasing in width. They have 50 tons ready for crushing. Gilmore & Dolberg are taking ore from the Silver Wave, in almost any of which free gold can be seen with the naked eye. There are three or four veins, the largest of which is six inches in width. The Chipmunk ledge is only four inches wide, but rich. Jones & McMahon are taking fine looking ore from the Red Mountain. The new shaft is 31 feet deep. Skokum ledge is 10 inches wide; no blasting required. Will soon work 100 tons 2d class ore at the Minear mill. The first class will be worked at the C's arrastra. Pete Nick has found a 2½ ft ledge in the Mahogany mine. Oro Fino engine is being repaired, and everything will be in working order in a few days.

LOON CREEK.—Boise City News, 15th: Jo Smith returned this week, and avers that the "bottom has fallen out of that country." He says work on all the mines has been suspended, and houses are selling in Oro Grande at two hits apiece.

Montana.

ITEMS.—Helena Gazette, 17th: All the mines of the Whitlatch Union lode are worked, and all the mills running. On Big Indian gulch the Gold Hill vein is worked by the Parkinson Bros. & Co., and the old mill on Clark's Creek is crushing the rock. Highland and Moose Creek were never looking better, and in the vicinity of Virginia City and the old Hot Springs District, more activity than ever is manifested. Green Campbell lode is doing finely. The mill has been running steadily. Half a dozen parties at the same place are working by arrastras, and doing well.

DIAMOND CITY.—Cor. of same: The Co. at Trout Creek, whose mine is so thoroughly drained by the great 22-inch pump were on Monday breasting out in gravel prospecting 50 cents to the pan, with every indication of increased pay. It is believed they have a fortune. The gulch mining in New York, Oregon, Cave, Cooper, and other gulches in the neighborhood of the Missouri river, is carried on with such energy as the supply of water will justify.

MISSOULA.—Pioneer, 13th: A quartz-lead has been discovered four miles above this locality. A cut fifty feet long has been run across it, and no wall-rock struck. Jim Sweeney & Co. have bought all the ground at the mouth of the creek. They cleaned up \$20 a day to the hand last week, on the river beach. Texas Bar will be

laid over until spring. The McKay Company are bringing water on their claims.

CEDAR CREEK.—New North West, 14th: M. Farrell & Co. struck a good pay streak at a depth of 22 feet. Pay gravel is 18 inches deep. This is on No. 99 below, in Barrett's District.

The upper portion of the gulch about Forrest City is developing well, some eight or ten claims paying. In the Lower gulch—about Kiyuse Bar—a number of Companies have reached bedrock. Among these the Co. on 80 struck it at 26 feet, on 87 at 16 feet, on 95 at 20 feet, and on 98 at 22 feet. This latter is the Simmons. On Monday they began running across for the channel. No. 98 are on the channel, have two feet of gravel prospecting from 5 to 25 cents to the pan, and two feet of soft bed rock that prospects well.

ITEMS.—Deer Lodge Independent, 15th: On Quartz Gulch, Charley Adlesberger, one day last week, with four hours' water, took out \$180, with two men. McClellan Gulch is pretty much worked out. Sharp, Price & Co., at the month, are making \$10 per day to the hand, and have a large lot of good ground yet. Blakeman & Co. recently discovered a new channel below the mouth of Crevice gulch, that is rich. On Carpenter's Bar, Green & Co. and Duffey and Co., are doing well. As high as \$10,000 has been taken out of these claims at one clean up, during the season. Ponds & Co., are putting up a telegraph 1,000 feet in length. Bullard & Mellen, on French gulch, near Pioneer City, strip and shovel into sluices from \$3,000 to \$7,000 per week. Their claim has averaged \$4,000 a week the entire season. Last week they found a nugget worth \$217.71.

VIRGINIA CITY.—Cor. of same: In Summit district there are two mills running—the Union, on ore from the Oro Cache lode, and the Excelsior, or How mill crushing from Caveron & Layton's Midas. One hundred ozs. of bullion were obtained from 50 tons of Oro Cache. Postlewait, is about starting up on ore from the Keystone. In Brown's gulch there are three mills running on silver ores. Cannon's—steam—and the Gormley and Bennet & Sterrei mills, run by water.

Arizona.

The Prescott Miner of Oct. 8th, learns that there is considerable stir in the mountains on the California side of the river, in silver mining. Veins have been opened containing silver chlorides that pay thousands of dollars per ton. A landing near Cottonwood Island has been purchased by a company, and preparations are making to commence shipment of ores to San Francisco.

WALNUT GROVE.—Same of 15th: Fred. Henry's Rainbow lode is yielding very rich ore. He will soon commence crushing it in Cul-lumher's arrastra.

Lower California.

SAN RAFAEL PLACERS.—San Diego telegram, 20th: Reports from the San Rafael Valley Mines are favorable. It is estimated that about thirty men arrive daily. Over a thousand miners are at work, and without pack animals make from one to five dollars each per day. The pay dirt is very rich and seems to be inexhaustible. Parties who have prospected the country, report the mines to be fully as rich as those of El Dorado County in early days.

CONTRA.—Peter Gravius, just returned to Nevada City, Cal., informs the Transcript that the San Rafael mines are of very limited extent. There is no water in the district, and the gravel has to be carried from two to five miles before it can be washed. Mr. Gravius thinks 100 men with water to wash, as our gravel mines are worked, could wash out the entire district in sixty days. He thinks himself in the biggest kind of luck to get back home.

New Mexico.

The Virginia Enterprise of 13th, gives extracts from a letter dated Aug. 10th., written by Dick Preston. We quote: "The Burro excitement has about fallen through. There are three good locations there. They show an abundance of very rich ore, so far as prospected. There are about two hundred half starved wretches hanging around Raibson, who would emigrate if they could get away. The country from Tucson to Burro is held by the Apaches."

Oregon.

BAKER CITY.—Cor. of Dalles Mountaineer, Oct. 15: quartz mining has received a new impetus in the discovery of splendid leads in Auburn. One lode owned by E. M. White & Co. has proved by arrastra so rich in gold, that the company have gone below to procure a mill. The old Ruckle Lode affords employment for a large number of hands, and shows no signs of petering. The Burnt river ditch company have sold out a large proportion of their ditch to the Chicago Co., and hundreds of men are employed in its enlargement.

The Plaindealer learns that Browning & Co. at Galesville, crushed two tons of rock the first day, which yielded one hundred dollars. The mine is on Cow creek near Leland.

Utah.

The Salt Lake Tribune of Oct. 15th says that average assays of ores from Willard District show \$200, to the ton in silver.

The Messrs. Woodhull have run out 20 tons bullion since starting their smelting works. They have 200 tons of ore on hand and are buying from all quarters. They will erect two additional furnaces.

The Herald of 21st, says that works for smelting ores are to be erected immediately at the mouth of Cottonwood canon in this valley, and of East canon Rush valley.

SAN FRANCISCO, THURSDAY EVE., OCT. 27.

Mining Stocks.

The stock market at the end of last week was quite active and firm in standard descriptions although otherwise rather irregular. On the 21st large sales were made of Chollar-Potosi, Savage and Yellow Jacket, nearly 2,000 shares of the latter changing hands, and the price reaching \$35, the highest point attained in two months. This fell the next day one dollar, recovered on Monday, advanced on Tuesday, then dropped three dollars on Wednesday and still more on Thursday.

At the beginning of the week, the market showed a good demand for mining stocks, particularly for Chollar-Potosi and Golden Chariot. Chollar reached on Monday a point before untouched in four years, \$72, managing then to get up as high even as \$75, which is the highest figure it has reached for four years. This stock has had considerable mutation this year, ranging from \$18 to \$21 in January and February, from \$22 to \$32 in March, from \$27 to \$29, in May, and from \$24 to \$30 in June. It then rose quite steadily in the next two months to \$37 and to \$47, then fluctuated wildly in September between \$46 and \$61, and now it has risen, within the last twenty days, \$26 or \$260 per foot, thus materially interfering with the plans of those who have been selling for future delivery in the expectation of a decline. It did not remain long at its highest point, however, falling \$10 the next day, and then raising \$3.

The general tone of the market was an upward tendency at first, then a reaction on Wednesday, being weak and irregular on Thursday. Golden Chariot rose steadily from Friday until Monday, then dropped suddenly \$4, but rose again still higher. Yellow Jacket rose from \$33 to \$38, then fell to \$35½.

The last weekly report of Gould and Curry showed 600 tons of ore taken out, averaging \$43.19 per ton. From Crown Point, 555 tons were extracted last week. But the details of the kind for the several mines will be found, as usual, in our mining summary.

The third annual meeting of the Enreka (Grass Valley) G. M. Co., was held on the 19th inst., when the following trustees were elected: L. S. Adams (President), W. Watt (Superintendent), M. Bulkeley, A. J. Pope and N. Booth, Treasurer, F. Benton; Secretary, S. Urgener. The Secretary's report shows thus:

RECEIPTS.

Proceeds from ores worked.....	\$617,374
Sulphurets.....	44,435
Assay chips.....	84
Working 430 tons sulphurets.....	6,564
Premium, etc.....	3,496

Total receipts for year.....	\$671,953
Cash on hand October 1, 1869.....	54,871

Total.....	\$726,824
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DISBURSEMENTS.

Dividends to stockholders.....	\$400,000
Mining supplies and labor.....	171,405
Milling supplies and labor.....	38,344
Sulphuret reduction works.....	7,922
Construction account.....	9,469
Assaying and freight on bullion.....	2,506
Wood supplies not included above.....	3,510
General expenses, etc.....	9,302

Total disbursements for the year.....	\$642,465
Cash on hand October 1, 1869.....	84,359

Balance as above.....	\$726,824
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Thus the mine has paid not only current expenses, but also dividends to the amount of \$100,000, and moreover, the cash balance has been increased by \$30,000.

The assets of the company amount to \$194,498. There are no liabilities. The assets are calculated as follows:

Cash balance as per report.....	\$84,359
Sulphurets and ores available.....	20,951
Wood, 2,642 cords.....	10,230
Supplies at mine and mill.....	5,959
Mill (estimated value).....	40,000
Mine improvements and buildings.....	30,000
Sulphuret works.....	3,000

Total assets.....	\$194,498
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The amount of ore mined during the year was 19,762 tons, and the amount reduced at the company's mill was 20,532 tons. Average yield of ore, \$31.75 per ton. There were also 430 tons of sulphurets worked, yielding an average of \$166.45 per ton. The average cost

of mining was \$8.32 and of milling was \$1.84 per ton. The net profits for the year were as follows:

Paid to stockholders.....	\$400,000
Paid for construction.....	9,103
Paid for additional supplies.....	5,360
Excess of cash on hand.....	20,487

Total net profits.....	\$434,950
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Annexed to the Secretary's report is a statement of the Company's financial operations from October 1, 1865, the date of commencing business, until September 30, 1870, during which period the receipts from bullion and other sources were \$2,822,567, and the disbursements, \$2,751,020. The latter amount was for the following purposes:

Purchase of mining claims.....	\$ 285,651
Construction.....	110,892
Dividends to stockholders.....	1,334,000
Mining, milling and other expenses.....	990,477

Total.....	\$2,721,020
Cash and supplies Oct. 1, 1870.....	101,547

Total.....	\$2,822,567
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Such a record as that of this mine is to be shown by few, if any of our mines. The net profits for the three years amounts to \$1,832,089, of which \$1,334,001 (over 72 per cent) were returned to stockholders. In 51 months 53 consecutive dividends have been paid. From Oct. 1867, to Sept. 1870 dividends have been paid every month, except in February, 1869, when \$40,000 were paid for an adjoining claim. There were paid in dividends, \$290,000 from Oct. 1867 to Sept. 1868; \$264,000 in 1868-69; and \$400,000 in 1869-70. The ore (including sulphurets) has averaged \$31.75 per ton, against \$27.80 in the previous year. Superintendent Watt reports that he has driven 747 feet of drifts and sunk 89 feet of winze and 86 feet of main shaft during the year. The mill has 30 stamps, and has been idle only 4½ days, and then for the want of water. There is 2,400 tons of quartz on the surface or broke in the mine, ready for hoisting. He estimates 27,000 tons of quartz yet on the fifth level, and above, which, with the sixth level not yet drawn from will furnish work for the mill, at the present rate, for three years, without further sinking. The proposition to increase the capital stock and number of shares was indefinitely postponed. The present number of shares is 4,000, of the par value of \$300 each. There has been no recent sales of the stock, though on the 17th of September a lot of five shares sold at \$325 per share.

Mining Stock Prices.

[S. F. Stock and Exchange Board.]

THURSDAY, OCT. 27, 1870.	
NAME, LOCATION, AMOUNT AND DATE OF ASSESSMENT	DAY DELINQUENT. OF SALE.
Alpha Cons.....	8 10
Belcher, G. H., Sept. 6, \$2.....	30 40
Belcher, C. H., Sept. 24, 250.....	30 40
Belcher, C. H., Sept. 24, 250.....	30 40
Chollar-Potosi.....	37½ 38
Confidence.....	4½ 4½
Crown Point.....	6½ 6½
Empire Mill.....	7½ 7½
Enreka.....	32½ 32½
Golden Chariot.....	2½ 3½
Gould & Curry.....	13½ 13½
Halcyon Nevada.....	34 34

Mining Shareholders' Directory—Meetings, Assessments and Dividends.

[Compiled weekly from advertisements in the SCIENTIFIC PRESS and other San Francisco journals.]

ASSESSMENTS	
NAME, LOCATION, AMOUNT AND DATE OF ASSESSMENT	DAY DELINQUENT. OF SALE.
Belcher, G. H., Sept. 6, \$2.....	Oct. 10—Oct. 22
Columbia, Cope Dist., Sept. 24, 250.....	Oct. 29—Nov. 22
Columbia, Cope Dist., Sept. 24, 250.....	Oct. 29—Nov. 22
Cherokee Flat, Butte Co., Sept. 10, \$5.....	Oct. 14—Oct. 19
Cons. Virginia, Storey, Sept. 19, \$1.....	Oct. 10—Nov. 8
El Dorado, Va. City, Oct. 24, \$2.....	Nov. 28—Dec. 17
Empire, G. H., Oct. 13, \$4.....	Nov. 28—Dec. 17
Gold Hill, G. H., Sept. 8, \$10.....	Oct. 13—Oct. 31
Ida Elmore, Idaho Terr., Sept. 10, \$5.....	Oct. 15—Nov. 5
I. X. L. Alpine Co., Oct. 18, \$1.....	Nov. 19—Dec. 7
Mountain City, Elko Co., Sept. 29, 500.....	Nov. 7—Nov. 28
Meadow Valley Ex., Sept. 19, 60 c.....	Oct. 25—Nov. 21
N. Bloomfield, Nevada Co., Sept. 25, \$4.....	Oct. 25—Nov. 11
Ophir, Virginia City, Sept. 9, \$3.....	Oct. 13—Nov. 2
Silver Sprout, Inyo Co., Aug. 29, 25 c.....	Oct. 18—Dec. 1
San Marcial, Mex., Oct. 13, \$2.50.....	Nov. 19—Dec. 5
Tallulah, Nev. Oct. 14, \$1.50.....	Nov. 22—Dec. 10
Trinidad & San Jo. e, Oct. 24, \$5.....	Nov. 28—Dec. 19
MEETINGS TO BE HELD	
Confidence.....	Annual Meeting, Nov. 11
Independent Coal.....	Annual Meeting, Nov. 9
LATEST DIVIDENDS—(Within Three Months)	
Enreka, div., \$7.50.....	Payable August, 1870
Golden Chariot, div., \$5.....	Payable Oct. 20
Halcyon Nevada, div., \$50.....	Payable Sept. 10, 1870
Sierra Nevada, div., 500.....	Payable Sept. 16, 1870
Union, div., \$1.....	Payable Aug. 9, 1870

—*Advertised in this journal

THE SCIENTIFIC PRESS.—To the miner and farmer who consider the Press the most valuable publication on the Pacific Coast. Every number contains matter of interest to the farmer and general reader; and to the miner the Press is a sine qua non.—Inyo Independent

Holloway's Self-Adjusting Gang Plows.

The gang plow which we herewith illustrate is a California invention, and is shown in the form in which it was first manufactured in San Leandro, in 1866 and '67. In 1868 and '69 they were made at San Quentin where they were sold for \$90 each.

The cheapness and simplicity of this plow has given it a great degree of prominence and success in California, and the fact that it is so well known among the early invented gang-plows, renders its illustration in our columns at this time of interest to many. The inventor advertises a standing offer of \$100 to any plow that will do better work with the same draught-power in any soil.

The plow frame has a double hinge connection with the axle, which is not shown in the engraving, but which is one of the best features of the mechanical device, as it allows the plows to run at any depth, and, also to be pointed high or low at will, by the set of the adjustable rods, which connect with the top lever. The plow can be raised and lowered independent of the seat and driver's weight.

Mr. Holloway has added another improvement, also not shown in this cut, which consists of a crank on the land side, so attached to the axle, that the plow will adjust itself to any inequality of land surface. Many gang plows are so confined in lever ratchets as to run stiff, and are subject to be thrown out or in with the motion of the wheel, over the rough ground; but this plow instead of being confined by the lever, runs perfectly flexible—adjusting itself to any surface without attention. The depth is governed by the adjustable rods which give pitch to the point of the plows.

Mr. H. is not only a practical mechanic, but he has also a practical experience in plowing, and possesses intelligent ideas of what constitutes good plowing, and which are indispensable to a thorough and practical application of correct principles.

We think that he has devised a plow well worthy of attention, and as such, we feel justified in thus speaking a good word for it. Mr. Holloway is now manufacturing his plow at his shop in Gilroy where he can be found.

Wine Making in Washoe.

Mr. Andrew Milatovich, of Virginia City according to the Territorial *Enterprise*, is making several hundred gallons of wine, by a process quite different from that generally employed. He uses grapes of California growth, mixing different varieties according to the kind of wine he wishes to produce. No pressure is used in extracting the juice; but the grapes are simply mashed up by hand. The juice and mash is then placed in large casks. After standing in the casks a certain number of days the wine is drawn off and put in barrels, where it remains till it is ready to bottle. He puts no water or sugar in his wine—it is the pure juice of the grape. After the wine is drawn off from the casks, they are filled with water, and the mash being worked over, excellent vinegar is made. Mr. M. is making port, claret and one or two other wines, using different varieties and mixtures of grapes. He claims that the wines he thus makes are far superior to those made in California. The process is certainly a very simple one; and if good wine can be thus produced, its manufacture is simpler than the manufacture of common cider, as not even a press is required.

WINE MAKING IN NEVADA.—The Nevada *Gazette* says that M. J. J. Ott, one of the leading grape growers of Nevada county, is making wine not only from grapes of his own growing; but he is also purchasing largely of his neighbors. He pays from \$40 to \$45 per ton, for grapes, and finds them scarce at that; from which we infer that the growers about Nevada city are finding a good market for their grapes this year. If Mr. Ott can afford to pay \$40 per ton for grapes, their cultivation in the foot hills ought to be about as profitable a business as any in which a man can engage. This price is about double that which is generally paid in the Sacramento and Coast

Feeding Moss to Stock.

Most of our readers are familiar with the fact that the reindeer lives almost entirely upon the moss which grows upon the rocks and barren hill sides of Arctic regions; but it is not so generally known that the moss which grows so luxuriantly upon the oaks, along the coast range and in many other parts of California and adjacent States, is readily eaten by cattle and sheep; which, in fact are very fond of it. During seasons of drought, and often indeed in the latter portion of our ordinary summers, when feed becomes scarce, herdsmen in some localities of this State are in the habit of gathering this moss and feeding it to their sheep.

The value of the mosses for food both to

makers. Some are far more nourishing, weight for weight, than the best of hay, and approach very nearly in food value to grain.

The mosses of the lower latitudes are generally less valuable for food than those produced in colder regions; being more fibrous and containing less sugar, starch, etc. We are not aware that any chemical examination has yet been made of those on the Pacific coast, whereby their food value can be estimated; yet we are informed as already intimated, that they are often used here, in times of scarcity of pasture, as food for stock. As moss in this State usually grows upon trees, herdsmen are obliged to pull or cut it off from its place of growth, in order to place it before the stock, a very slow process and one attend-

Cheese Manufacture.

Large amounts of cheese are being shipped from Lake County to this city. The Lower Lake *Bulletin* of that county claims that from one and a half to two cents per pound more is obtained for Lake county cheese than for that manufactured elsewhere in the State.

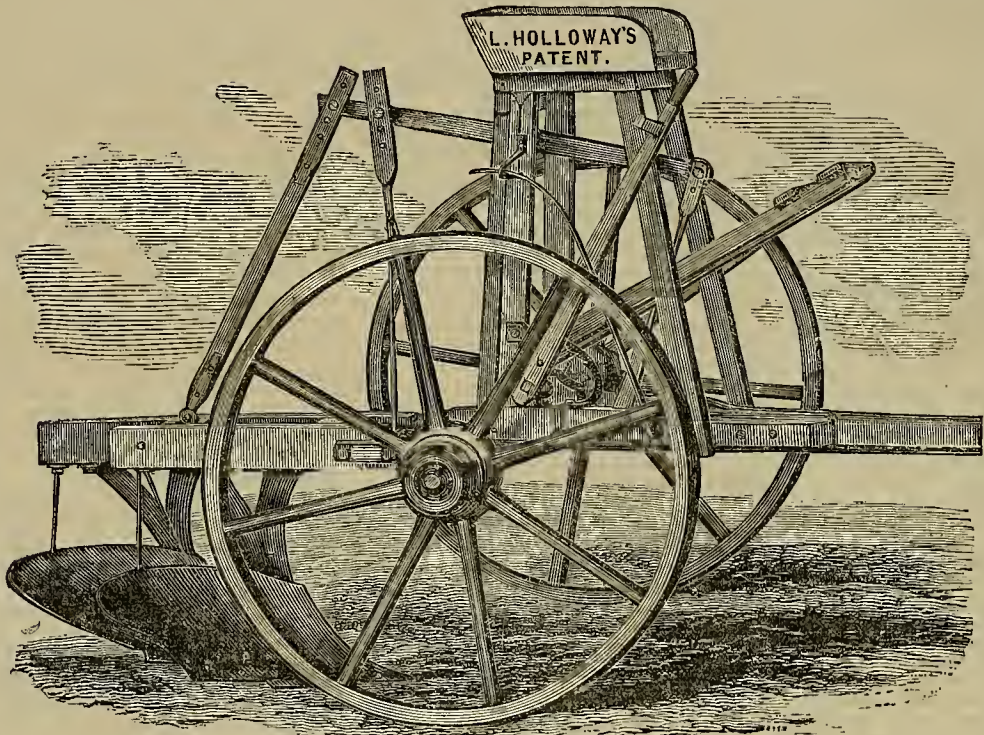
In this connection we may state, on authority of the *Pajaronian* that a cheese factory is about to be established at or near Watsonville, "to be conducted by experienced persons in the business." The milk will be furnished from different dairies in the vicinity, where small quantities of cheese are now made. By establishments of this kind a new impetus might be given in this State to this important branch of dairy business—a better, more reliable and more saleable quality of cheese might be placed in the market, such as would effectually put a stop to Eastern importations of this article. The manner of conducting such a business is given by the *Pajaronian* as follows:

The first thing to be established is to ascertain how much cheese a given amount of milk will make—the general estimate, we believe, by old cheese makers, and at the factories, being one pound of cheese to a gallon of milk. Then all those who have milk for sale, whether it is one gallon or 100 gallons per day, or even one gallon per week, are given credit for what-

ever amount they carry to the factory, and weekly, monthly or quarterly, are paid their proportion less a small percentage per pound for the making. With such an establishment in our midst, many persons who now keep one or two cows for their own use would find it a source of profit to keep as many as their pastures would accommodate,—all the trouble falling to their share being simply the milking; the factory doing the rest.

San Francisco Market Rates.

Wholesale Prices.	
THURSDAY EVENING OCT. 17, 1870.	
Flour, Extra, 50 lbs.	\$5.01
Do. Superfine, 50 lbs.	5.00
Corn Meal, 50 lbs.	2.75
Wheat, 50 lbs.	1.85
Oats, 50 lbs.	1.25
Barley, 50 lbs.	1.15
Beans, 50 lbs.	1.50
Potatoes, 50 lbs.	1.00
Hay, 50 tons.	10.00
Live Oak Wood, 50 cords.	10.00
Beef, extra, dressed, 50 lbs.	7.00
Sheep, on foot, 50 lbs.	2.00
Hogs, on foot, 50 lbs.	6.00
Hogs, dressed, 50 lbs.	7.50
GROCERIES, ETC.	
Sugar, crushed, 50 lbs.	14 1/2
Do. Hawaiian, 50 lbs.	15 1/2
Coffee, Costa Rica, 50 lbs.	20
Tea, Japan, 50 lbs.	65
Do. Green, 50 lbs.	1.25
Hawaiian Rice, 50 lbs.	7 1/2
China Rice, 50 lbs.	7 1/2
Coal Oil, 50 gallons.	40
Candles, 50 lbs.	14
Overland Butter, 50 lbs.	30
Sauerk Butter, 50 lbs.	35
Isthmus Butter, 50 lbs.	25
Cheese, California, 50 lbs.	12
Eggs, 50 dozen.	60
Lard, 50 lbs.	11 1/2
Ham and Bacon, 50 lbs.	15
Shoulders, 50 lbs.	9
Retail Prices.	
Butter, California, Fresh, 50	75
do. pickled, 50 lbs.	30
do. Oregon, 50 lbs.	20
Cheese, 50 lbs.	20
Honey, 50 lbs.	25
Eggs, 50 dozen.	60
Ham and Bacon, 50 lbs.	15
Cranberries, 50 gallons.	72
Potatoes, 50 lbs.	2
Potatoes, Sweet, 50 lbs.	2
Tomatoes, 50 lbs.	2
Onions, 50 lbs.	2
Apples, No. 1, 50 lbs.	4
Pears, Table, 50 lbs.	10
Plums, dried, 50 lbs.	10
Pearches, dried, 50 lbs.	10
Oranges, 50 dozen.	10
Lemons, 50 dozen.	10
Chickens, 50 lbs.	75
Turkeys, 50 lbs.	10
2 lbs. Pate, 50 lbs.	15
Soap, Castile, 50 lbs.	13



HOLLOWAY'S SELF-ADJUSTING GANG PLOW.

man and beast, is now becoming generally known. In Iceland they are largely employed for fattening cattle, sheep and swine; and the natives make soup and bread of them for their own use. As food for stock, one ton of Iceland moss, just as it is gathered from the rocks, is considered equal to half a ton of meal.

Moss, mixed with the roe of fishes is largely eaten by the natives of northern Asia, also by the Indians on the northern portion of this continent. The unfortunate Sir John Franklin, found it an important means of subsistence for himself and men on one of his earlier journeys to the Arctic regions.



Mosses grow upon almost every substance, when alternate moisture and dryness can be found. Destitute of roots, they depend almost exclusively upon the air for sustenance. Over 200 different kinds are known to subsist. Some varieties contain large amounts of acid principles, which render them less valuable for food than others which are composed mainly of sugar, starch, oil, resinous and waxy matters; all contain more or less phosphate of lime, and iron, which render them available as bone and manure

ed with much inconvenience, without suitable appliances for such work.

A correspondent has sent us a drawing of a convenient instrument for cutting and gathering moss which is in use among the herdsmen in Santa Cruz county, and probably in other portions of the State. A careful inspection of the engraving will readily make the mode and manner of its use apparent. The instrument, having a socket at its lower extremity, is fastened upon a long pole, so that the person operating it may stand upon the ground.

EUROPEAN ARMY SUPPLIES.—Nearly all the salt meat for the French War Fleet is supplied from American hands. It is considered the best and most wholesome of any of the class used which can be obtained.

A large portion of the flour is also from this country. It was from this flour, in a large measure, that the bread was made which was baked, in the early part of the war, for the Army of the Rhine.

Late correspondents from France report that much anxiety is felt with regard to the condition of the American bread market, as the opinion prevails that large quantities must be drawn from here during the next twelve or fourteen months, even if the war is speedily brought to a close. War makes great waste. A large portion of the present crops have been destroyed or wasted, and the unsettled condition of the country for the next few months, at the best, must prevent any very extended production of bread stuffs for the coming season.

OREGON SEED WHEAT FOR WASHINGTON.—The *Oregonian* says that Hon. A. J. Duff has 100 bushels of choice white and red spring wheat cleaned up at McLaren's mills, in this city, within a few days past, which has been forwarded to the Commissioner of Agriculture at Washington.

Household Reading.

The Staff of Life.

Bread has very properly been called the staff of life, for the average distribution of the elements of which it is composed more nearly correspond with the requirements of the human system than any other class of food; and life and health can be continued on wheat alone, when it is properly made into bread, for an indefinite period of time, provided water and good air are also present.

Composition of Wheat.

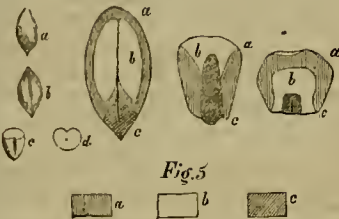
In order to understand, more fully what we propose to consider, it will be necessary first to know what wheat substantially is, and the relative proportions of its different elements. Its average composition may be given as follows:

Water.....14.0	or	(Water.....14.0
Gluten.....13.0	or	(Nitrate or Mus-
Albumen.....1.8	or	(ele Makers.....15.6
Starch.....60.2	or	(Carbonates or
Sugar.....6.5	or	(heat and fat pro-
Fibre.....1.7	or	(ducers.....68.4
		(Phosphates or
		(food for bones,
		(brains, nerves,
		(etc.....2.0
Mineral Matter 2.0	or	

100.0

100.0

The above substances are in about the proportion required to keep up the natural waste of the human system, in moderate weather and with the ordinary



use of the mental and physical faculties. In very cold weather, such as is met with in high latitudes, an excess of carbonaceous or heat and fat producing material is required, and this is most readily obtained from fat meat. Let the most fastidious person reside for a short time in Labrador and he will be astonished at his appetite for fat pork and even seal blubber.

We give, in the accompanying illustration, sectional views of grains of wheat and corn, with the relative proportions of the elements which are employed for muscle making, heat and fat producing and brain and nerve food, distinctly shown. In Fig. 5, the letter *a* represents the peculiar shading employed in each of the several grains to represent the proportions of nitrates or muscle makers in that particular grain; the letter *c* represents the phosphates or brain and nerve food so contained, while the absence of shade or white as at *b* shows the proportion of carbonates or heat and fat producers. The small figures *a*, *b*, *c* and *d*, on the left merely represent the grain of wheat of natural size. While the three large sectional figures on the right, represent the location in the grain where the elements are chiefly found, it should be also understood that these several elements are not altogether confined to the particular shading assigned to them, but they are to a certain extent, each mixed with the other.

It is also important to observe and know that different varieties of wheat vary somewhat in their relative proportions of the different elements named. Some have more nitrogenous matter and are therefore better calculated to impart muscular power; while others have more phosphate and are hence more useful in giving mental and nervous energy.

It will be observed that in the wheat grain, the chief proportion of the muscle, bone and brain producing elements are found in the extreme outer layers, or that portion, which, by reason of its fibrous or glutinous nature, it is difficult to grind fine, and which must go chiefly to bran. The fat and heat producing elements are extremely brittle and easily ground sufficiently fine to pass through the bolting cloths or sieves employed to separate the flour from the bran. These outer layers contain nearly 16 per cent. of the entire grain, (in California wheat about 18 per cent., on account of its less moisture,) nearly all of which is rejected in the milling process, in order to obtain a white at the expense of a good flour.

The germ, which is represented by the shading *c* as containing the chief part of the phosphates, is largely made up in bulk of water and gluten, and hence appears quite out of proportion to the figures given

in the table of analysis, which is made to contain only 2 per cent., while in the diagram it will appear to be fully 10 per cent. and even more in our figures. This portion of the grain although not fibrous, contains nearly all the water, by reason of which and its glutinous character, it mostly goes with the bran, in the ordinary manufacture of flour.

Lessons to be Learned.

Nothing is more self-evident than that in this use of perfectly white flour, we sacrifice the most important portion of the grain, merely to please the eye—for to the taste, except where it has been especially educated otherwise, there is no objection.

We exercise more judgment and discretion in feeding our fowls and pigs, in order to secure a supply of eggs and pork, than we do in a proper building up of the bones, muscles and brains of our children and even ourselves.

We said at the beginning that a child or an adult could live and retain health for an almost indefinite period on wheat bread properly made; and we may now add at the close that if we were to feed our children exclusively on bread made from superfine flour, the most of them would probably die inside of two months.

Who can tell the suffering brought upon the innocents, in the way of defective teeth, soft and rickety bones, etc., by the lack of the very properties which we recklessly throw away or reserve for hens and pigs? Not more than one-half of our children grow up, and nearly all who die, are lost through the violation of nature's laws in the matter of food. A large proportion, even, of those who live are, for the same reason, improperly developed in bone and muscle, and thereby rendered susceptible to disease. By a lack of nitrogenous and phosphatic, and an over-abundance of carbonaceous food, the bones, nerves and muscles become weak, while the whole system is so heated as to be easily influenced by the first spark of disease—hence, while our brutes are generally healthy, poor human nature is subjected to the numberless ails of inflammations, fevers, neuralgic pains, consumption, etc. If no more care or judgment was exercised by cattle raisers in feeding their animals than is shown by fathers and mothers in feeding their children, beef would have to treble in price, or cattle raising would be a ruinous business.

How to Make a Good Door Mat.—With the approaching advent of the rainy season some of our readers may be glad to know how they can make a cheap yet serviceable door mat.

If you have or can get some good corn husks, take, first, an inch board the size you wish your mat; dress it neatly; rule it each way, drawing the lines $1\frac{1}{4}$ inch apart; bore a hole with a $\frac{1}{4}$ -inch auger in each square; double a piece of broom twine, pass it through the holes, one at a time; have the husks dampened, take a sufficient quantity to fill the hole very tight, pass it through the loop of twine, draw it through until the double end of the husk is $1\frac{1}{2}$ inches long, draw the twine out and proceed in the same way until the holes are filled. Then take a sharp knife and cut the double husks, spread them apart, trim the uneven side, tramp it down, and set it where it is to be used, either side up.

A SHEEP SKIN MAT.—If you want something nice in this line, take two sheep skins and proceed as follows:—Make strong soapsuds, using hot water, and let it stand till cold; then wash the skins in it, carefully squeezing out all of the dirt from among the wool; then wash in cold water till all the soap is out. Next dissolve half a pound each of salt and alum in a little hot water, and put into a tub of cold water sufficient to cover them, and let them soak twelve hours; then hang over a pole to drain. When well drained, stretch carefully on a board to dry. Stretch several times while drying. Before they get entirely dry, sprinkle on the flesh side one ounce each of finely pulverized alum and saltpeter, rubbing it well; then lay the flesh sides together and hang in the shade for two or three days, turning them over every day till perfectly dry. Finish by scraping the flesh side with a blunt knife to remove any remaining flesh, and then rub the flesh side with pumice or rotten stone and the hands. Very beautiful mittens can be made of lamb skins tanned as above.

DEVELOPEMENT THEORY.—An English writer asks, "Where and when, if man ever was an animal, did he part company with his kind? And why is there no trace of any other animal who has made a similar advance, if not in degree, then in kind?"

Mechanical Hints.

To MEND TIN OR IRON WARE.—Leaky tin or iron ware is easily and quickly mended by hammering a small nail or tack of soft lead, to fit the hole; or cut off each side, and rivet it down. Rivets of soft iron or other metal may be used to mend iron kettles, etc.

CEMENT FOR IRON AND STONE.—Glycerine and litharge stirred to a paste, hardens rapidly, and makes a durable cement for iron upon iron, for two stone surfaces, and especially for fastening iron in stone. The cement is insoluble, and is not attacked by strong acids.

To CLEAN MARBLE.—Mix a quantity of the strongest soap lye with quicklime, to the consistence of milk, and lay it on the marble for 24 hours. Clean it afterward with soap and water. Or else use the following:—Take two parts of common soda, one part of pumice-stone, and one part of powdered chalk; sift through a very fine sieve, and mix with water. Then rub it well all over the marble, and all the stains will be removed. Then wash with soap and water as before, and all will be as clean as it was at first.

GAS AS A SUBSTITUTE FOR GUNPOWDER.—A Frenchman has suggested the use of common illuminating gas as a substitute for gunpowder, in forts and other stationary batteries. The "chamber" would have to be considerably larger than required for powder. The principle of loading and discharging is the same as that employed in the Lenoir Gas-engine. It is said that two cubic feet of gas will throw a 60lb ball—how far is not stated.

A HINT FOR INVENTORS.—It was stated before the late Scientific Association at Troy, N. Y., that any one who should discover a method of eliminating the phosphorus from cast-iron in the Bessemer process will have discovered something of more value in a financial direction than the original discovery of the Bessemer process itself, because it would render available pig-iron of ordinary cheapness, whereas the irons now used are very costly.

It is said that kerosene applied by means of a moistened cloth to stoves, will effectually keep them from rusting during the summer.

TRACTION ON ROADWAYS.—The force required to draw one ton on a level road is 147 pounds; on a broken stone surface, 65lb.; on a good stone pavement 33lb.; on a railway, 8lb. In other words one horse will draw on a railway more than four can draw on a stone pavement; more than eight can draw on broken stone surface and more than eighteen can draw on a common level turnpike.

Household Receipts.

ALMOND CUSTARD.—Blanch and pound four ounces of sweet almonds and a few of the bitter ones. Boil them five minutes in a quart of milk, sweeten to your taste, and when blood warm stir in the beaten yolks of eight eggs, and the whites of four. Heat it and stir till it thickens, then pour it into cups. Cut the reserved whites to a stiff froth, and put on the top.

COCONUT JUMBLES.—One pound of sugar, half a pound of butter, four eggs, one pound of flour, half a teaspoonful of soda. The milk of the nut. Just before the baking stir in the grated cocoanut. Drop it on tins.

COCONUT CAKE.—One large cocoanut grated, three cups of sugar, four eggs, one cup of butter, one teaspoon of soda, two teaspoons of cream tartar.

SOMETHING NICE.—Beat three eggs very light, stir them with one pint of milk, slice some bread, dip into the eggs and milk, fry to a nice brown, sprinkle powdered sugar and cinnamon on the top. This is a French treat.

To MAKE MOLASSES CANDY.—One teacupful of molasses, half a teacupful of any kind of sugar, a teaspoonful of vinegar, a piece of butter half the size of a nutmeg. Put the whole in a skillet, on a hot fire, and boil exactly ten minutes, stirring it all the time. Then set off to cool. Pull it as soon as it is hard enough. Boiling it twelve minutes will make it too hard. Eight minutes will not be enough. Ten minutes by the clock is the exact time.

Put dried fruit in common muslin, bags with a little saffron bark scattered through, a handful of bark to a bushel of fruit, and no worms will trouble it.

To MAKE OLD KID GLOVES NEW.—Make a thick mucilage by boiling a handful of flaxseed; add a little dissolved soap; then when the mixture cools, with a piece of white flannel wipe the gloves, previously fitted to the hand; use only enough of the cleaner to take off the dirt, without wetting through the glove.

Life Thoughts.

TEARS—Weep for love, but never for anger; a cold rain will never bring flowers.

WHEN you are angry don't write. Words when spoken are air, but when written are things.

SELF-CONFIDENCE.—Never look for your ancestors or your titles in the imperfect records of antiquity; look into your own virtues and the history of those who loved to be benefactors to society.

SPEND WISELY.—Look most to your spending. No matter what comes in, if more goes out you will always be poor. This art is not in making money, but in keeping it; little expenses, like little mice in a barn, when they are many, make great waste.

CHEERFULNESS.—The persons who in deed and truth benefit the world by their labor; who here remove a weed and there plant a flower, and must be cheerful; and they must and will take happy views of life and its contingencies.

LITTLE THINGS.—Hair by hair, heads get bald. Straw by straw, the thatch goes off the cottage, and drop by drop the rain comes in the chamber.

The day of death is scarcely more momentous than every day. Both alike close another door on the past, and open a new one for the future.

LOVE.—True and pure love is never selfish. It has for its aim the happiness of its object, and life seems to be valuable in a degree as it permits one continuous striving to effect it.

A WIFE'S LOVE is the golden chain which unites her to her husband. It has a thousand delicate links, forged by sympathy, self-respect and mutual confidence; sever but one of them, and the chain is as completely broken as though a hundred were destroyed.

FARE hard and work hard while you are young, and you have a chance of rest when you are old.

Make no Man feel his Inferiority.

Nothing is more insulting than to take pains to make a man feel his inferiority in knowledge, rank, fortune, etc. In the first place it is both ill-bred and ill-natured; and in the two latter articles it is unjust, they not being in his power. Good breeding and good nature incline us rather to raise people up to ourselves than to mortify and depress them. Besides, it is making ourselves so many friends instead of so many enemies. A constant effort to please is a most necessary ingredient in the art of pleasing; it flatters the self-love of those to whom it is shown; it engages and captivates more than things of much greater importance. Every man is, in some measure, obliged to discharge the social duties of life; but these attentions are voluntary acts, the free-will offerings of good-breeding and good-nature; they are received, remembered, and returned as such. Women, in particular, have a right to them; any omission in that respect is downright ill-breeding.

THE MAN OF PLEASURE.—He has his little clouds at the brightest; the course of his happiness is retarded by a straw; and any considerable—scarce considerable—accident puts it quite to death. Not only the necessities or conveniences, but the decorations and superfluities of life, are vital to his sickly felicity. In any of them it is possible he may find felicity. In any of them it is possible he may receive a deep or deadly wound.

SELF-HELP.—He who has not learned the lesson of resolute self-help has made little progress as a student, has grown little toward real manhood. Half the world refuses to do its own thinking, to toil through the solution of its own knotty problems; hence, half the world who will not do this must be subject to the other half who will.

FRIENDS.—Gain a friend by a quarrel, if it is possible; never lose one, however—this is possible; for there is a peculiar mode of conduct, even when dissension reigns, that commands veneration and generates esteem.

The line of conduct chosen by a young man during the five years between fifteen and twenty, will, in almost every instance determine his character for life.

Seen from the high altitudes reached by balloons, the blue of the firmament becomes an intense black, and the stars glitter in a back-ground of perfect jet.

Scientific Press.

W.B. EWER.....SENIOR EDITOR.

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Two Editions.—We now use a mining edition and a farming edition of the Press. The difference consists in changing the reading matter of the 6th and 7th pages. [All advertisements appear in both issues, affording an immense circulation.] Subscribers will please notify us if they do not receive the edition they prefer. Both editions furnished to one address for \$7 per annum.

San Francisco:

Saturday Morning, Oct. 29, 1870.

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Gold and Legal Tender Rates.

San Francisco, Thursday, Oct. 27, 1870.—Legal Tenders buying @89½; selling @90. Gold in New York to-day 11½.

THE LATE FIRE.—We understand that Messrs. Miller & Haley, whose mill and stock constituted the heaviest loss in the disastrous fire on Fremont and Besle streets last week, will soon resume work in another location. Their own workmen and business friends have offered them every encouragement. Their total loss was from \$80,000 to \$100,000; insured \$9,000. One hundred hands were employed, some one-half of whom were carpenters and mechanics, owning tools, all of which were lost, amounting probably to over \$5,000. Other losses are estimated to be as follows: Eureka File Company, \$1,000; Fisher and Jamison, blacksmiths, \$2,000; Glasgow Iron Works, \$15,000, mostly covered by insurance; Duun, grocer, \$5,000; Eureka Bating Factory, \$2,000; Summit Ice Company, not given; Geo. T. Casebolt & Co., \$50,000, insured for \$20,500; Sargent Brothers, \$4,000; Grant, and Strahan, carvers, \$7,000; Heirddink & Co., tobacco mfrs., \$8,000. The recent grading of the street caused the locations of the gearing in the basement beneath Miller & Haley's building to be dark, and it is the opinion of Mr. Miller that the fire took from a heated journal during running hours.

Since writing the above we learn that Miller & Haley have leased the large mill of some 160 ft. front on Berry st., between 3d and 4th, and commenced operations anew on Thursday. Mr. Miller is an experienced millman, and his firm successful in the past, we hope will be more abundantly so after their disaster.

THE STATE NORMAL SCHOOL.—On the 20th inst., the corner stone of the new Normal School building was laid at San Jose, under the immediate auspices of the Masonic Fraternity, assisted by the Odd Fellows. The part of the structure to be built at the present time will be 172x160 ft., three stories high, with a tower 152½ feet high. The architect is Theodore Leuzen. The ceremonies of the day passed off pleasantly, a large number of persons being in attendance. Rev. O. P. Fitzgerald, Superintendent of Public Instruction, delivered the address.

The City Census.

The United States Marshal has prepared for publication a table of the population and property of San Francisco according to the figures collected by the Census agents. These returns are exceedingly interesting both to the inhabitants of this city, and to those of the whole coast, who are all concerned, more or less directly, in the growth and progress of the chief city.

The total population is set down as 150,361. Langley's Directory made it higher, giving 161,250 as the total permanent population, with an estimated addition of 9,000 "floating." The census returns show an increase of 93,559, or nearly 166 per cent, during the last ten years, which is a considerable gain over the increase from 1850 to 1860.

We have in the city 11,817 Chinese, 1,094 colored and 49 Indians. We have, out of our 150,361, 7,667 adults who cannot read or write, that is about one in twenty. And of these 6,882 are natives of Ireland, 9 are white natives of the U. S., and the rest came from various foreign countries, principally Italy and Mexico. This leaves the Chinese out of consideration.

The valuation of the real and personal property is set down at two hundred and sixty millions of dollars, or an increase of two hundred and twenty six and a half millions in ten years, according to the figures given, which is certainly large enough to satisfy all reasonable expectations.

The few figures we have given show a most satisfactory progress in our city. How we shall continue to prosper in the future, will depend much on the settlement of other parts of the State. What San Francisco now particularly needs, is to have the interior filled up with a good industrious population, and we shall not be at all envious of the rapid growth of the interior cities and towns. Indeed, this city is large enough in proportion to the population of the Coast, and to keep up our business interests, we need a well filled surrounding country to back us up.

A Law Dictionary.

We think that Mr. J. F. Cowdery has done an excellent work in compiling, and A. L. Bancroft & Co. in publishing, the "Pacific Law Encyclopedia" which has just been laid on our desk. Similar works have been put before the public at the East, and have been shown to be of exceeding value to all classes of persons; for there are but very few individuals who do not need, at one time or another, some legal advice in their practice. Indeed the man of business—whatever that business may be—constantly finds necessary the proper forms required in the execution of his purposes, and for the proper use of these forms, a knowledge of the legal principles and rules applicable thereto is equally necessary. And as there is so much difference in the legal practice of the Eastern and the Western parts of our country, there has been hitherto, as far as we are aware, no book which covers the important field of this one. Here all the more important classes of transactions between business men, and especially such as require to be performed with legal precision and involve instruments in writing, have been considered, and explanations, rules, laws, cautions, etc., given in connection with them. We believe that the book is calculated to save expense to, and otherwise benefit, merchants, miners, farmers,—in short all who have not the inclination, time and money for consulting attorneys on every occasion when legal advice is wanted.

The suit between the Cole M. Co. and the Virginia and Gold Hill Water Co., has been decided in favor of the former.

THE OVERLAND.—The passage of the days brings again to our office this welcome monthly visitor, and in its pleasant companionship, this time we wander to the Big Trees, down to San Diego and its Gold Mines, up North to the Aleutian Islands, and awsy east to the Imperial Prison, where Napoleon sits and mourns. We come back and visit the Yuba and hear its history; we examine "the Bed of the River" for its suspected treasure; and we pass an evening in a California garden, where we can improve our knowledge of useful subjects by reading about the Angora goat; or, if otherwise inclined, hear about the Saber of Honor, or, possibly, cry over Spilled Milk, or listen to Grandmother's Story and the Iliad of Sandy Bar. And then we shall have still untouched the Career of an American Princess, and shall not have been at the "Presidio" at War Time, nor have attended to the rhymed address to the Statue on the Capitol at Washington, the story of a Hope and that of the Cocoa Tree.

THE NEW GAS.—Of the numerous classes of invention devoted to cheapening the production of artificial light, that of the "New Gas Machine" Company, 407 California street, is attracting very considerable attention. The process consists in passing hydrogen, generated in the machine, through a hydro-carbon liquid, in a series of chambers; and the resulting gas burns with a most brilliant flame. The inventor claims that his process obviates the difficulties experienced in other methods, and has received many strong testimonials with regard to its superior excellence. At the American Institute, last year, this "Dunderdale" carbo-hydrogen gas apparatus was awarded the first premium.

A CALIFORNIA INVENTION AT THE EAST.—Mr. Evan T. Rogers, of San Jose, who last year invented and patented, through the SCIENTIFIC PRESS AGENCY, a tool for marking boot counters and straps, for sewing of seams, etc., has returned from the East, where, we understand, he was successful in introducing his device. It consists of a die stamp, to be pressed or driven upon the leather. It is time saving, accurate and leaves a channel or depression that lets the stitches below the surface so as to be protected from chafing out.

MINING AND BLASTING POWDER.—The gunpowder of the Oriental Powder Company is a very carefully prepared compound, which is said to be of most superior quality. It certainly enjoys an excellent reputation and is widely used. It is claimed to be of very great strength and to have far more effect than the usual brands sold. The matter of explosives is most important to our miners, and we can recommend them to test for themselves the merits of this powder. With the testimonials given, it certainly deserves trial.

LIVERPOOL COPPER MARKET.—The copper trade is exceedingly dull. For a long time the prices have been very low and the prospects are not particularly encouraging. Lewis & Son's October report quotes ore and regulus at 12s to 12s. 6d per unit, bars at £62 to £62 10s, and ingots at £68 to £69 per ton. We see that one of the largest and most flourishing works, the White Rock Copper Works, on the Swansea River, run by Williams, Foster & Co., in connection with H. H. Vivian, has been closed. This is to be greatly regretted.

The monthly "Mail and Express Directory," published by F. R. Voigt, of San Francisco, we find a most convenient reference. It contains the post offices of California, Wells, Fargo & Co.'s Pacific Coast offices, the time of opening and closing the mails at each place, etc., and also the stamp duties.

Our Home Industries.

San Jose Woolen Mills.

This establishment, which has commenced running the present year, has been built by a joint stock company, and is probably as complete, in all its conveniences and arrangements, as any mill of the kind on the coast.

The main building, which is 50 by 110 feet, and three stories high, is thoroughly braced and supported with timber frame work, and is a substantial structure.

The machinery is of the best obtainable patterns and workmanship. Nothing necessary to the perfect manipulation of wool into the best of woolen goods seems lacking, while the object is to excel. Already the warm flannels, the excellent cloths and soft heavy blankets, made here, have an enviable reputation.

There are six complete sets of machinery in the mill, one-half of which are now in use; and the rest will be in readiness to commence soon.

On the first floor of the main building are the picker bays, burring machines, card breakers and finishers; also the wet-finisher-room, in which are the washing machines, fulling mills and jigs.

On the second floor are 24 looms—eight fancy and 16 plain—from the Compton Manufacturing Company, Mass.; also spooling machines. The dry finishing department is on this floor, including shearing machine press, heating box, etc. The shearing, or "flock" is used East to "full" the cloth—a cheat—which soon wears out. This is not used here, but is sent East and sold to "honest" manufacturers of cheap goods.

On the third floor are the spinning jacks, eight in number, each having 140 spindles, four of these are in use at present.

The engine is an 80-horse power, occupying a wing from the main building. It is a beautiful and smooth working piece of machinery, built by Todd & Rafferty, Paterson N. J., with the Wright's patent cut-off and governor. With the exception of the regular clicking of this, one standing close to the engine would scarcely be aware of its motion. It has a fly-wheel 18 feet in diameter weighing over 17,000 lbs. The cylinder is 18 inch with 36-inch stroke.

Outside the main building is the wool barn, in which the wool is stored and assorted. Much depends upon the proper assorting, as the different grade and qualities of the wool, govern the material, as to fineness and fitness.

The dye house contains four baths, with reels and all the apparatus for coloring wools and cloths.

There are also to be seen a scourer for washing wool, the reducing kettle, and bleaching house; also platforms for drying cloth and blankets; and a waste barn.

Every home enterprise that develops our resources, that encourages our intelligent industrial masses to settle, and make homes, that saves the money to our own state and people that might be sent away for labour, or goods,—adds to our civilization and progress,—and should be encouraged.

An hour spent in the examination of such an establishment, as a whole or in detail, is but a glance at something wonderfully perfect or perfectly wonderful. The reflective mind ever takes pleasure in witnessing the working of a nice piece of machinery, and a pride in the achievement of genius, whereby an idea or thought is modeled into plausible being—into living, working wood or iron, becoming material in strength accuracy and purpose.

GOLD DUST.—Mr. Rumley, of Helena, Montana, according to the *Gazette*, has made a collection of gold dust from sixteen different gulches in Montana. He has a homeopathic case with sixteen small vials, each of which contains about a quarter of an ounce of dust from some gulch, a label giving the locality and the coin value per ounce of each specimen. The highest value, \$20.09, is of dust from Highland gulch; the lowest, \$13.64, from Silver Bow; the mean value of fourteen specimens is \$18.06. Mr. R. made the collection for Mr. J. Cavannagh who intends placing it in the Mining Bureau at Washington. Such a collection is extremely interesting and instructive.

*Patents and Inventions.***A Full List of Patents Issued to Pacific Coast Inventors.**

[FROM OFFICIAL REPORTS TO DEWEY & CO., U. S. AND FOREIGN PATENT AGENTS, AND PUBLISHERS OF THE SCIENTIFIC PRESS.]

FOR THE WEEK ENDING OCTOBER 18th.

MEDICAL COMPOUND OR LINIMENT.—John D. Love, Harrisburg, Oregon.

SHOE FASTENING.—Harvey T. Loe, Marysville, Cal.

MORTISING-MACHINE.—Lowell G. Merrill, Angles, Cal.

MEDICAL COMPOUND.—William W. Oglesby, Benton county, Oregon.

PRESERVING AND HARDENING WOOD.—John Lewis Samuels, for himself and Benjamin F. Josselyn, William B. Lake, George G. Burnett, Henry S. Dent, Mary Stirling, George W. Dant, Joel S. Josselyn, and Benjamin R. Nickerson, San Francisco, Cal., and Frederick T. Dent, Washington, D. C., and Henry J. Stone, New York, N. Y., assignees of John Lewis Samuels.—Patent No. 60,794, dated January 1, 1867.

NORZ.—Copies of U. S. and Foreign Patents furnished by DEWEY & CO., in the shortest time possible (by telegraph or otherwise) at the lowest rates. All patent business for Pacific coast inventors transacted with greater security and in much less time than by any other agency.

Notices of Recent Patents.

Among the patents recently obtained through Dewey & Co.'s Scientific Press American and Foreign Patent Agency, the following are worthy of mention:

FLUTING AND BEADING TOOL.—C. E. Boynton, S. F. Mr. Boynton has succeeded in inventing a most useful device which is of particular interest to coach and carriage makers. He provides an improved tool for all fluting and beading, and more especially for finishing of the corners of coach and carriage work. This tool is a beader of novel construction, so formed that several different mouldings can be made with the same tool, and that several beads may be fitted and employed with the same handle. Moreover, an improvement is made in the manner of fastening the beader in place, and another valuable point is the use of a peculiar face-plate, which at once improves the quality of the work and increases the permanency of the tool. It will be seen from this that the invention is one of very considerable interest and importance to the workers of wood.

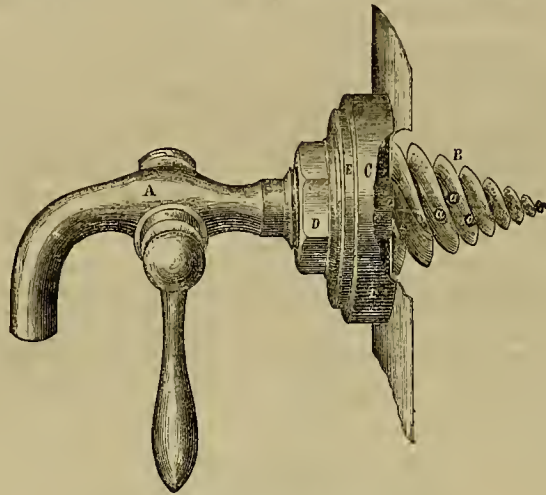
ADJUSTABLE CANDLESTICK.—F. C. Cone, S. F. Any man who can invent a candlestick which will always keep the candle upright, whatever its size, and thus prevent the disagreeable dripping to a great extent; a candlestick which will enable the candle to be used out of doors, or where there are strong drafts; one which cannot be melted out or broken by being let fall, and which can be easily cleaned; a person who can get up such a contrivance may be reasonably said to have invented a really good thing. Now Mr. Cone claims that his candlestick possesses all these good qualities. It consists of a circular base of wire, from which rise two or more wires which are brought together at the center and twisted, so as to form a sort of stem. The upper ends or hight of the wires are so spread apart and curved, as to form a support for the candle, and may be easily adjusted to suit different sizes. This is the simple device, which has a cup fastened around the central leg, to prevent any dripping of tallow or wax, and may be fitted with a chimney, where the candle is to be used in strong drafts. The material is cheap and durable, and the construction is most ingenious.

FOUNTAIN PEN.—F. C. Cone, S. F. The object of this invention might be said to be to effectually prevent the damaging of carpets or tables, or any article of furniture, by

having ink spilled over them, and to retain the fingers of a writer unstained. It effects these objects, in fact, for it does away with the inkstand, or rather it puts it out of the way inside of the pen holder. For the holder is made hollow, and with a small aperture just within the curve of the pen. A piece of india rubber extends out through this hole and along the inside of the pen to the neighborhood of the nib. This rubber is of such a size that, when contracted, it closes the hole tightly, but if extended (by the movement of a finger, operating a slide and clasp) the ink will be allowed to fill the pen; and the motion of the rubber in the hole will clear out any sediment, and insure the flow of the ink. The top of this holder may have a screw or other device, to let in air, when needed, so that its pressure will allow the ink to flow.

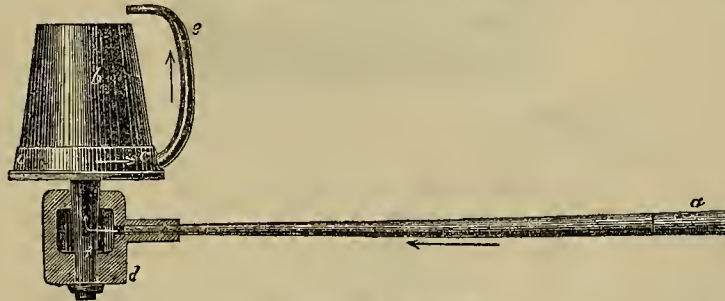
A New Faucet.

After the first problem has been solved,—of obtaining possession of a fluid which

**LORD'S PATENT FAUCET.**

wed desire, another problem presents itself,—how to get the liquid out of the containing vessel. The solution of this problem may be simple or complicated, according to the material of which the vessel is made, the necessity of preserving it in a useful condition, the desirability of no spilling of the fluid, no waste, etc. And as liquids are very often conveniently enclosed in cans of tin or other thin metal, and as it is often desirable to draw off only a portion, leaving the remainder in the vessel until some future time, this problem becomes interesting to a very large number of individuals.

The dry climate of San Francisco has,

**SPONG'S PATENT BLOWPIPE.**

perhaps, had some unexplainable agency in causing the production of the faucet which is here illustrated, and which would seem to be an excellent solution of the aforesaid problem. The construction is as follows:

The rear end of the stem of a faucet, A, of any of the ordinary kinds is provided with screw threads, and a short conical auger, B, is screwed upon its extremity. This auger is hollow, and small holes, *a*, are made through it between the threads, so as to allow the liquid to pass into it and leave through the faucet. The threads of this auger are made quite wide near the

upper end or base of the cone, so that when the auger is bored into the vessel in the usual manner, the actual diameter of the hole made will be equal to the diameter of the base of the cone, less the width of the threads, but a narrow slit will be left by the threads; which will in no way interfere with the perfectly tight joint which is required.

After being bored into the can, the faucet is turned slightly, until the face or ends of the threads bear against the metal between the slits made by them in entering. A rubber or other elastic washer, C, is forced against the metal on the outside of the can by a nut, D, and metallic washer, E, until the metal around the hole is compressed to such a degree as to be perfectly tight. Then everything is ready for use.

This manner of attaching faucets, tubes and pipes to metal cans, at once recommends itself as simple, convenient and effective, as it makes its own hole by boring it in, and can be detached when desired.

erals, and his experiments were continued by Bergman, who published a treatise on the "iron tubs" in 1779. Thence came the important researches of Gahn, forming the foundation of our present scientific use of the blowpipe, and Berzelius following, preserved, in printed form, Gahn's methods and investigations, and in 1820 published his own work on the subject, which work called the attention of the scientific world to the matter and caused many to give it their attention.

One of the most important results was undoubtedly the work of Edward Harkort, a native of Westphalia, a student at Freiberg and finally a Colonel of artillery in the United States, who fought in our war with Mexico and died at Galveston in 1836. Harkort first showed that the blowpipe could be used for quantitative as well as for qualitative analysis, and his work on the quantitative silver assay, printed in 1827, is still extant.

Plattner, then an assayer at Freiberg, where he received instruction from Harkort in preparing the silver assays, continued to study the matter with wonderful diligence, and succeeded in finding methods for quantitatively assaying gold, copper, lead, bismuth, tin, nickel and cobalt. He showed the exceeding usefulness of combining with blowpipe assays the wet method to some extent, and his book on blowpipe assaying is by far the most complete and reliable which exists.

Plattner was succeeded by Richter, who took the Professorship at Freiberg in 1836, and who continues the first in the world in his branch. Prof. Richter has done very much for the blowpipe assay, has edited Plattner's work, in which he has added much that is original with himself, and has shown himself a most excellent teacher as well as a most indefatigable investigator in the realms of sciences.

Naturally with the growth of the "chemistry of the blowpipe," the instrument itself was improved in form. Bartholin apparently had a simple "read" (fistula). Cramer, in 1744, proposed making it of copper with a hollow ball at the curve, so as to retain the moisture of the breath. Cronstedt, Bergman and Gahn all modified the instrument, and the construction adopted by the latter is the one now most commonly used. A practical modification of Gahn's blowpipe is undoubtedly the mouthpiece introduced by Plattner.

As blowing with the mouth is apt to be very tiresome, especially to those who use the instrument only occasionally, or to those with weak lungs, many devices for producing a blast have been invented. Some of these are quite good, others are too complicated to admit of extended use. One of the best is that provided with an india-rubber bag. The form of the lamps, of stands for holding the apparatus, changing the direction of the blast etc., etc., are too numerous to mention here. We close our short sketch with a description and illustration of a new blowpipe "Spong's Patent," which was first described this year in the *English Mechanic*, and to which the *Am. Artizan* has since called attention. The description given of the device, which costs about 75 cents in London, is as follows:

The part, *b*, in the drawing, is filled with sponge level with the top, and when about to use it you saturate the sponge with methylated spirit and light it; on blowing through *a*, a flame 2 inches or 3 inches long is produced, which, as *b* can be turned quite round in its socket, can be sent in any direction; *c*, air-chamber; *d*, brass socket, in which the plug, *f*, fits air tight; *e*, blowpipe. The arrows show the course of the air.

APPLES.—We have received two large boxes of apples, containing rich varieties, from San Jose. Express prepaid. We know they must have come from the choice orchard of C. W. P.

lime before such an instrument. The usefulness of this sort of apparatus was undoubtedly recognized at that time, as towards the end of the 17th century and the beginning of the 18th, we find various propositions as to the best construction of the device for causing the blast. But the blowpipe had no extended sphere, being confined principally to heating or melting on coal, only now and then borax being employed as a flux in this connection.

It was in Sweden that the blowpipe first really became an important aid in mineralogical and chemical work. Von Cronstedt used it to discover the constituents of min-

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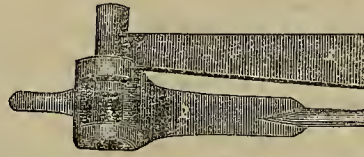
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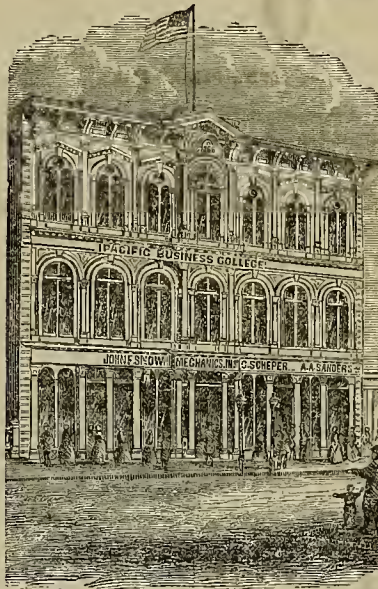
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HAVILAND, HOOPER & CO., Agents, Crochery and Glassware Dealers, 335 Pine street, near Montgomery San Francisco. All work done at the lowest prices. 1v20-3m

SCIENTIFIC PRESS.—This paper comes to us this week with a full double sheet extra. It contains a full map of California, a map of the San Joaquin valley, with a brief description and statement of the productions of each county, besides the usual mining, agricultural and scientific intelligence. It is a paper that should be in the hands of every farmer, miner and manufacturer on this coast.—New Transcript.

Travellers' Guide.

FROM THE WHEEL TO
\$65 Sewing Machine TO
\$500
WHOLE WORLD
being judges—as they
are the LATEST, and so
are BEST! Why?
Because the WHEEL
Machines
work easily
and with more
VARIETY. Buy the
LATEST always. Call
and see S. E. Hoar, 329
Kearney St. S. F. Act.

Reading for the Hour.

In the White Mountains.—No. 3.

BY ALMARIN B. PAUL.

The climate of the White Mountains is different from any I have heretofore met with in California, especially that along the borders of Wyman and Cottonwood creek. In summer it is soft and balmy, and at the same time exhilarating. In the months of July and August, no day was really uncomfortable from heat. The nights are cool and delightful.

Rains—Water Spouts.

This climate differs, however, in having frequent showers, which occur almost daily, and last an hour or so, always stopping before sundown, leaving a clear atmosphere through which the moon beams with a brightness unsurpassed. As in many high localities of the Sierra Nevada, water spouts are at times visitors. One day I started for a camp 5 miles up Wyman creek, along the side of which a good road was constructed, and arrived at the point of destination just as clouds began to gather. Soon the lightning flashed and thunder pealed, and what terrific claps! There was no confining the horses; they tore back and forth over a small meadow in perfect wildness and fear, while my companions and self sheltered ourselves as best we could. Soon a terrible crash was heard. It was the bursting of a water spout, and down came the water with a roar, tearing up the soil, rocks and trees, in some places 6 feet deep. From general appearances there had been no such deluge for probably 50 years.

Those who have wintered in the White mountains say it is the most pleasant season to work in, it not being very cold and there being little snow. As a mining locality it possesses all the desirable requisites for comfort and success:—plenty of leads, good ore, sufficiency of wood, fine water power, good climate summer and winter.

Pine Nuts—Rabbit Hunt.

My favorable impression of the country was formed under difficulties which generally breed black shadows and discontent. It may seem unreal, but nevertheless is a fact, that a combination of uncontrollable circumstances put our camp on short allowance and I lived for over three weeks on dry bread and coffee and pine nuts. Bread, I have always understood before, was the staff of life, but it's a mistake. Pine nuts have far more "staff" in them. Pine nuts will hold up your strength and grit, and bread will not. It may be asked, Is there no game? to which I will answer, Yes—rabbits. The rabbit hunt which floored our camp may not be uninteresting. The Indians make long nets of a tough weed, and stretch them for a long distance, sometimes for a mile or so. Then all gather for the hunt, bucks, squaws and papposes, large and small, every one that can toddle, hoop, halloo and keep up. They take their position on the outside circle of the plain or meadow, where the raid is to be made—a general movement begins—the rabbits flee before the multitude. The body of Indians keeps contracting the circle until the ends of the net are reached, which they in time take up, and bring finally together, enclosing sometimes a thousand or less of rabbits. The skins are used for winter robes and the meat is jerked for winter. After one of these bunts, it is idle time to look for rabbits.

High up in the mountains are mountain sheep. In one locality there was clustered together any number of horns and bones, which gave the idea of a large herd having at one time been overtaken by a great storm and huddled together and perished. Unless these sheep can be captured by accidental meeting, it is of little use to hunt them, they being now very scarce. Their nimbleness in traveling over rugged cliffs and leaping great distances, is well known.

Ancient Inhabitants—Hieroglyphics.

This country looks old, wild, romantic. There seems a past about it—a tale untold. A race has inhabited it, long, long ago. That such is the fact, several evidences present themselves. Mastodon bones have been found at the foot of the Inyo, a lower branch of the White mountains. Characters, cut on slate, I saw myself at Cerro Gordo, and this time here I found a large

granite boulder, some seven feet in extreme length and about five in breadth, on which were inscribed the hieroglyphics as shown in the accompanying drawing. It was very evident that many and many a year had elapsed since they were inscribed. The work, seemingly, was done by a blunt instrument and was deeply cut, although now, in part, some portions are faint. The gradual decomposition of the granite and their present appearance date their inscription back possibly a thousand years or more. I got the old chief and an interpreter to go with me to them. He looked, shook his head, looked up, said long time. He knew nothing. Seeing I was interested in this, I was informed that high up in the mountains was another large rock, the sides of which was full of hieroglyphics, and the top scooped out in the form of a bowl, in which water was at all times to be had. Not knowing the exact locality, I deferred the hunt for a second visit. If I don't find it, it will not rest long unknown with this wild enterprising American blood now over-running the domain where rich mines are to be found.

San Francisco, Oct 20, 1870.

The San Diego County.

[WRITTEN FOR THE SCIENTIFIC PRESS.]

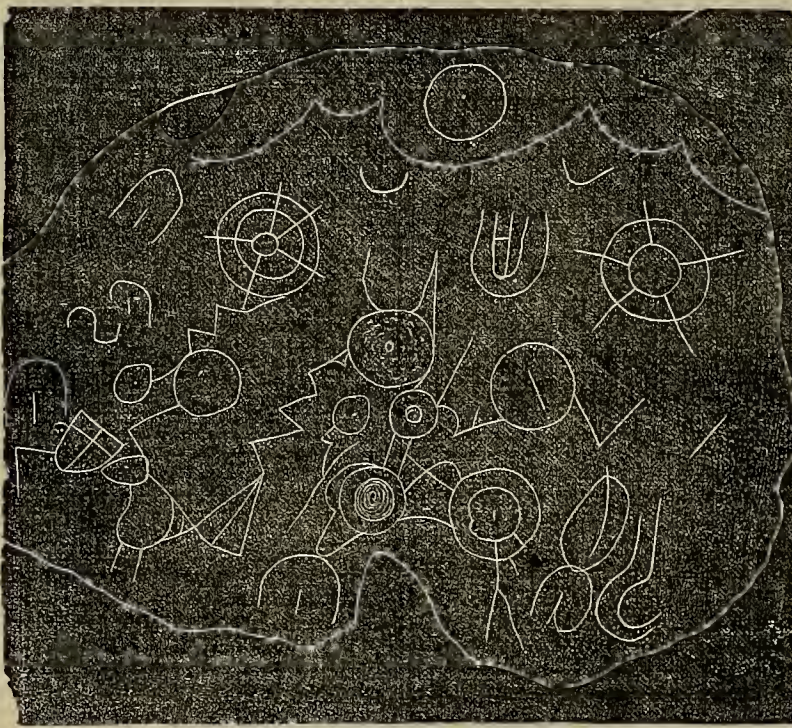
One of the most enjoyable Ocean trips which we have ever taken, is certainly the

marvel of placidity. Its surface is seldom disturbed by even a ripple, save by an occasional storm or the paddle wheel of some passing steamer.

San Diego and its Bay.

The view on entering the bay of San Diego, is one of the most beautiful it has ever been our lot to look upon. The entrance is through a long narrow strait which is protected on one side by high hills, while the opposite side is a peninsula which juts out from the main land, looking for all the world like an island, and which, we are informed, is susceptible of a high state of cultivation. The land upon both sides of this strait is laid off in town lots, as is almost the entire country surrounding the bay. After passing up this narrow strait some three or four miles, the bay curves to the right and opens out into an oval lake or bay, several miles in length, and furnishes a harbor unequalled for safety at all times, sufficient to float with ease five thousand vessels.

The town of San Diego (known as New Town) is situated on the banks of the bay, some seven miles from the entrance or mouth of the strait above mentioned. The



ANCIENT HIEROGLYPHICS.

one between San Francisco and San Diego. The distance between these two points is about five hundred miles, and is accomplished in three days time by the steamers of the N. P. T. Co., one half day being consumed in discharging freight and passengers at San Pedro for Los Angeles, and awaiting the return of the train on the S. P. and L. A. Railroad, which connects these two points.

San Pedro is an old Mexican town built close down upon the bay and consists of a few old and dingy houses, which now appear to be deserted. A new and apparently thrifty town named Wilmington has sprung up on the opposite side of the bay from San Pedro, and is the terminus of the railroad above mentioned. The bay at this place is quite open and would furnish but poor shelter to vessels in a storm.

Most of our readers are familiar with the coast line of California, a description of which would not be of sufficient interest to repeat here. When viewed from the decks of our coasting steamers, few points of interest are presented and none of that romance which attaches to the rugged and precipitous coast line of more northern latitudes; but a sort of monotony prevails which fails to interest, and we gaze at the barren face of the hills endeavoring to catch a glimpse of something to relieve the eye.

The Ocean along this coast is in reality a

site is excellent, rising gradually as it recedes from the bay, and would require none of the filling up and cutting down processes which have fattened contractors in San Francisco. In fact it may be said that it is a natural site for a large city. Two wharves extend out into the bay where the largest vessels can lie and discharge freight. The town is built over an extent of about a mile square, and consists of small wooden houses which are scattered over the whole site, presenting an attractive and quite city-like appearance when viewed from a distance. Mr. A. E. Horton, the proprietor of the town site, has just finished and opened a hotel, which is called the "Horton House," and which would do credit even to San Francisco. Through the kindness of the proprietor, we were shown through the house, and were much astonished at its magnitude and the elegance with which it has been fitted up. The building alone cost \$100,000, and \$25,000 have been expended in furnishing the interior. The proprietor proposes to run the hotel more particularly for invalids who desire to visit San Diego for the purpose of securing the benefits to be derived from the dry and light atmosphere of that locality, as well as to provide a resort for those who desire to pass a season by the seaside. Mr. Churchill, who is well known as the late landlord of the Anzerais House in San Jose, has leased the hotel and pro-

poses to carry it on in the best style. Mr. Horton has also erected several substantial brick buildings on prominent streets of the city, which greatly add to its appearance. We cannot refrain, in this connection, from returning our thanks to the gentlemanly proprietor of the Horton House for his kindness and hospitable proffers during our stay.

Old San Diego,

Or what is known as Old Town, is located some four miles from the new town, and nearer the entrance into the harbor. It consists of a number of adobe buildings and shows no sign of improving. Like most Mexican towns, it is built with a plaza in its center, which serves as a place of general resort on extraordinary occasions. During a short visit to this place we were hospitably entertained by Mr. J. S. Manassee, an old and wealthy resident.

Several other places have been christened and laid out into town sites at different points along the bay, but as yet they are but *paper towns*. Each location has its admirers, who are ready at all times to button hole the visitor and show up his particular choice of location, and produce convincing proof (?) that the future city must be built right there and at no other place. Thus far New San Diego has the lead, and we are inclined to think that it will keep it. At present its streets seem deserted and a great number of the buildings are vacant, but those persons who remain attribute this state of affairs to the extraordinarily dry character of the past season, and are confident that, should a sufficiency of rain fall during the coming winter for agricultural purposes, another year will show a different state of affairs.

Soil.

Notwithstanding the fact that in this locality no rain has fallen for fourteen months, we were shown vegetables of extraordinary growth (and equal to any we have ever seen in any part of the State), that have been raised without irrigation of any kind. This to us seemed extraordinary when we examined the dry and parched condition of the soil; but we were assured that in the low valleys back of the bay no irrigation was required to raise vegetables of all kinds. The only explanation which we heard, in which any attempt was made to account for this state of things, was that the under soil was a hard pan, and that the top soil was a dry loose earth of great richness. The hard pan retains the moisture during the long season of dry weather, and the plant or root which is covered by the top soil seeks the surface of the hard pan and draws moisture from it sufficient to sustain it and give it its full growth. It is certainly a relieving feature in a country subject to drought, to be able, notwithstanding the absence of rain or a convenient method of artificial irrigation, to raise vegetation in the manner which we have described.

A Coal Mine.

Messrs. Farmer and Shermau, of New San Diego, are prospecting for a coal vein which is known to exist about 22 miles north of the city on the coast. They have already sunk three shafts which are now down respectively 71, 85, and 90 feet. The vein can be seen at low ebb tide, and a quantity of coal of good quality has been gathered and sent to different parts of the State as samples. We were shown some samples which we pronounced to be cannel coal. It burns freely and leaves but little ashes. A good coal mine in this locality would undoubtedly be of great value here more especially so as the coal seems to be of a quality not before discovered on this coast.

FANNY FERN has a new book in the press entitled, "Ginger snaps," which will soon be ready; cloth \$1.50.

It is stated that taking a teaspoonful of vinegar will often cure hiccup.

PHOTOGRAPHY.—For Cabinet Photographs, or Enamelled Cards, of the very best quality, you must go to the NEW YORK GALLERY, Nos 25 and 27 Third street, San Francisco. Every picture warranted to give satisfaction.
1013 6m
B. F. HOWLAND.

BOILER FUELING SAVING twenty-five per cent. of fuel, BERRY & PLACE'S MACHINERY DEPOT, No. 114 California street. 1v21-3m

BIG & TIN and SOLDER WIRE, broom wire, piano covering wire, etc., manufactured by Joshua Gray, 437 Brannan street. 1v19-3m

THOMAS O'NEIL Ornamental Glass Cutter, No. 10 Ste Vernon street, up stairs. Stained, Ground and Ornamental Cut Glass to order on reasonable terms. 1v20

HAVING had numerous applications to purchase the right to manufacture CHAMPAGNE MEAD (the great temperance drink), we will state that we are now prepared to sell State and County rights on reasonable terms.
San Francisco, July 10, 1870. KENYON, GASS & Co. 2v21-3m

AN ENEMY IN YOUR MOUTH.—Do not put an enemy in your mouth, to steal away your teeth. Beware of destructive tooth washes, and tooth powders, many of which are base imitations of SORBONET. Insure a life-long of sound teeth and fragrant breath, by adopting the fragrant SORBONET.

"SPALDING'S GLUE," handy about the house, mends everything.

FROM A READER.—Duncan's Mill, Sonoma Co., Oct. 10, 1870.—Messrs Dewey & Co: Don't stop my paper. Your journal is very valuable. No better investment for \$1. Respt. B. C. B.

CONTINENTAL Life Insurance Co., 302 Montgomery street, corner of Pine.

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JUST ISSUED.—Roasting of Gold and Silver Ores, and the Extraction of their Respective Metals without Quicksilver. By G. Kustel, Mining Engineer and Metallurgist; Author of "Nevada and California Processes of Silver and Gold Extraction," and "Concentration of all Kinds of Ore." Illustrated by numerous engravings. Published and sold by Dewey & Co., proprietors SCIENTIFIC PRESS, San Francisco.

This Book contains 120 pages. Price, \$2.50, gold, or \$3 currency, postage paid.

FOR SALE.
One 10-Stamp Mill With Thirty Horse Power Engine,
Boiler, Hoisting Reel, Eight Inch Cornish Pump, Wire Rope Cars, all complete and as good as new, will be sold at a bargain. Inquire of
PRESCOTT & SCHEIDEL,
Proprietors of Marysville Foundry,
MARYSVILLE, CAL.
16v21-1m

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For SALE.—An account due this office for advertising for A. Jackson, of La Crosse, Wis., will discount 99 per cent. if necessary.
18v21 1y.

Mining and Company Advt's.

Columbus Mining Company.—Location:
Roach Hill, Placer County, California.
Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the twenty-eighth day of September, 1870, an assessment of seventy-five (75) cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary, 419 California street, San Francisco, California.
Any stock upon which said assessment shall remain unpaid on the second day of November, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Saturday, the nineteenth day of November, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.
A. NOEL, Secretary.
Office, 419 California Street, San Francisco, Cal. oc8

Julia Gold and Silver Mining Company.—
Location: Virginia Mining District, Storey County, State of Nevada.
Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 14th day of Oct. 1870, an assessment of fifty cents per share was levied upon the capital stock of said Company, payable immediately in United States gold coin, to the Secretary 419 California Street, San Francisco, California.
Any stock upon which said assessment shall remain unpaid on the 16th day of November 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Thursday the 1st day of December 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.
A. NOEL, Secretary.
Room No. 15, Hayward's Building.
Office, 419 California street, San Francisco, California, oc22

Silver Sprout Mining Company.—Location
of Works and Mines: Kearsarge District, Inyo County, California.
Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 20th day of August, 1870, an assessment of twenty-five (25) cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary, 419 California street, San Francisco, Cal.
Any stock upon which said assessment shall remain unpaid on the eighteenth day of October, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Thursday, the first (1st) day of December, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.
T. B. WINGARD, Secretary.
Office, 408 California street, San Francisco, Cal. oc17

Kincaid Flat Mining Company, Tuolumne
County, California.
Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 20th day of October 1870, an assessment of \$2.50 per share was levied upon the capital stock of said Company, payable immediately in United States gold and silver coin, to the Secretary San Francisco.
Any stock upon which said assessment shall remain unpaid on the 21st day of November 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Saturday the 3d day of December, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.
D. H. CROWE, Secretary.
oc22 Office 220 Clay street, San Francisco.

Mountain City Mining Company.—Location
of Mine: Cope District, Elko County, State of Nevada.
Notice is hereby given that at a meeting of the Board of Trustees of said Company, held on the 29th of September 1870, an assessment of fifty cents per share was levied upon the capital stock of said Company, payable immediately in United States gold coin, to the Secretary at the office of the Company, No. 305, Front Street.
Any stock upon which said assessment shall remain unpaid on the seventh day of November 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday the 28th day of Nov. 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.
T. B. WINGARD, Secretary.
Office, No. 206, Front Street, San Francisco, oc3-4t

I. X. L. Gold & Silver Mining Company,
Location of Mine Silver Mountain District, Alpine County California.
Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the eighteenth day of October 1870, an assessment of one dollar (\$1.00) per share was levied upon the capital stock of said Company, payable immediately in United States gold and silver coin, to the Secretary at his office, Pioneer Hall, 808 Montgomery street, San Francisco, California.
Any stock upon which said assessment shall remain unpaid on the nineteenth day of November 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Wednesday the seventh day of December 1870, to pay the delinquent assessment, together with costs of advertising and expense of sale. By order of the Board of Trustees.
J. C. CROWNSHIELD, Secretary.
Office, Pioneer Hall (up stairs) Montgomery street, San Francisco, California. oc 29.

Notice of Delinquent Sale.
Silver Sprout Mining Company.—Location
of Works and Mines, Kearsarge District, Inyo County California.
Notice.—There are delinquent upon the following described stock, on account of assessment levied on the twenty ninth day of Aug. 1870, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. of Certif.	No. Shares.	Amount.
Brown, B. L.	11	10	2 50
Cleveland, R. H.	12	10	2 50
Devlin, J. D.	14	10	2 50
Davis, James H.	20	40	10 00
Hurst, George (unissued)		200	50 00
McLaughlin, J. W. (unissued)		1000	250 00
Mott, R. B. Jr.	29	200	50 00
Stowell, Chas E.	22	1000	250 00
Spaulding, Geo	25	40	10 00
Wade, Wm N.	(unl. sold)	220	55 00

And in accordance with law and an order of the Board of Trustees, made on the twenty ninth day of Aug. 1870, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the sales room of Maurice Dore & Co., No. 327 Montgomery St., San Francisco, on the first day of December 1870, at the hour of 11 o'clock A. M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.
T. B. WINGARD, Secretary.
Office, 206, Front street, San Francisco, California.
Advertising charges \$2.00 each certificate. Oct. 29-2w

La Purchasers' Association.
NOTICE.—At a meeting of the Board of Trustees of the Land Purchasers' Association, held Oct. 1st 1870, the following resolution was adopted by unanimous vote:
Resolved, That an assessment of ten dollars per share, gold coin, be, and the same is hereby levied, upon each and every share of the capital stock of the Land Purchasers' Association now held by subscribers thereto; being for the monthly installment falling due and payable Oct. 1st, 1870. Said assessment is payable on or before the thirtieth day of Oct. A. D. 1870, to JAMES F. CROSETT, Secretary, at the office of the Association, No. 304 Montgomery street, San Francisco.
Any stock upon which said assessment shall remain unpaid on the thirtieth day of October, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on the 28th day of November, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale.
J. F. CROSETT, Secretary.

\$85,000 00
GRAND ENTERPRISE!
PARTIAL LIST OF PRIZES

1 Premium Gold Coin,	\$10,000
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1 Premium Gold Coin,	3,000
1 Premium Gold Coin,	2,000
1 Premium Gold Coin,	1,000
1 Premium Gold Coin,	1,000
1 Premium Gold Coin,	1,000
1 Premium Gold Coin,	1,000
10 Premiums Gold Coin,	2,000
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50,000 \$ non Tickets \$2 50 each.
25,000 Prizes amounting to \$85,000 will be awarded to Ticket Holders during a Grand Fair to be held, commencing Oct. 27th and to continue two weeks.

This grand Enterprise is gotten up in Aid of the
NEVADA SCHOOL DISTRICT,
NEVADA CITY, CALIFORNIA.
TRUSTEES:
HON. J. I. CALDWELL, JUDGE NILES SEARLS,
and A. B. GREGORY.

Treasurer: Bank of Nevada County.

References residing in this city:
G. VON SCHMITZBURG, Postmaster; JUDGE T. H. ROLFE,
A. W. POTTER, ex-Sheriff; J. A. LANCASTER, National Exchange.

Responsible Agents Wanted.
Liberal commissions allowed. For full particulars and terms to Agents, Address
R. L. GRINNAN, Secretary,
16v21-3w Nevada City, California

LEA & PERRINS' CELEBRATED Worcestershire Sauce.

Declared by Connoisseurs to be the only good SAUCE. The success of this most delicious and unrivalled Condiment having caused certain dealers to apply the name "Worcestershire Sauce" to their own inferior compounds, the public is hereby informed that the only way to secure the genuine is to ask for LEA & PERRINS' SAUCE, and see that their names are upon the wrapper, labels, stopper and bottle.

Some of the foreign markets having been supplied with a spurious Worcestershire Sauce, upon the wrapper and labels of which the names of Lea and Perrins have been forged, L. and P. give notice that they have furnished their correspondents with power of attorney to take instant proceedings against manufacturers and vendors of such, or any other imitations by which their right may be infringed.

Ask for LEA & PERRINS' Sauce and see name on wrapper, label, bottle and stopper.

Wholesale and Export by the Proprietors, Worcester, Grose and Blackwell, London, &c., &c., and by Grocers and Oilmen universally. Agents, CROSS & CO., San Francisco. 1v20-1reow

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Every Advertisement in this journal is published throughout its entire Mining, Agricultural, Monthly and Quarterly Editions.

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The only Agricultural Paper published in Oregon.
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Corinne, Utah.
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Notice to Miners.

For Sale



A Steam Pump
Mounted on wheels suitable for mining, irrigating or distillery purposes, was built for sluicing.
The pump is in good order and will be put to test for any parties wishing to purchase. For further particulars apply to
CHAS. O. PARCOT,
18v21-1ml6p No. 13 Fremont Street.

Fruit and Ornamental TREES.
We offer this season, 1870 and 1871, a very large and superior stock of trees, etc., of best selected varieties of everything usually produced in well kept nurseries. Our trees are grown on good alluvial soil, and are unsurpassed for thrifty growth of root and stock, and are reliable as to name on labels. Orders received by Mail or Express, will be strictly attended to, and PACKING done so as to INSURE A SAFE TRANSIT to any distance.
Dealers and Agents allowed favorable terms.
Priced Catalogues furnished on application.
17v24-3m **JOHN ROCK, Nurseryman,**
San Jose.

THE ASPHALTUM PRESSURE PIPE COMPANY,
HAVING ERRECTED A MANUFACTORY of sufficient capacity to supply their Asphaltum Pipe in large quantities,
Are now Prepared to Take Orders AND MAKE CONTRACTS.
This Company will manufacture Pipe and guarantee it to stand any pressure required; it is lighter than iron pipe and more durable, it is not affected by chemical action, cannot corrode, and being glazed imparts no disagreeable taste to water. To miners and farmers it is invaluable; any body can put it down; it is twenty per cent cheaper than iron pipe and ten times more durable. For further particulars, apply at the office of the Company, Room No. 2, 645 Market street.
Circulars sent on application. 16v21-1f

MARAVILLA COCOA.—For Breakfast.—The Globe says: "Various importers and manufacturers have attempted to attain a reputation for their prepared Cocos, but we doubt whether any thorough success has been achieved until Messrs. Taylor Brothers discovered the extraordinary qualities of 'Maravilla' Cocoa. Adapting their perfect system of preparation to this finest of species of the Theobroma they have produced an article which supercedes every other Cocoa in the market. Entire solubility, a delicate aroma, and a rare concentration of the purest elements of nutrition, distinguish the Maravilla Cocoa above all others. For homeopaths and invalids we could not recommend a more agreeable or valuable beverage." Sold in packets only by all Grocers, of whom also may be had Taylor Brothers Original Homoeopathic Cocoa and Soluble Chocolate. Steam Mills—Brick Lane, London. 5v20-1y

San Francisco Metal Market.

PRICES FOR INVOICES

Jobbing prices rule from ten to fifteen per cent. higher than the following quotations.

THURSDAY, Oct. 27, 1870.

IRON.—Duty: Pig, \$9 per ton; Railroad, 80c per 100 lbs.; Bar, 1 1/2c per lb.; Sheet, polished, 3c per lb.; common, 1 1/4c per lb.; Plate, 1 1/2c per lb.; Pipe, 1 1/2c per lb.; Galvanized, 2 1/2c per lb.

Scotch and Eng. Pig Iron, per ton... 28 50 @ \$30 00

White Pig, per ton... 26 00 @ 28 00

Reinforced Bar, bad assortment, per lb... 03 @ —

Reinforced Bar, good assortment, per lb... 04 @ —

Boiler, No. 1 to 4... 04 1/2 @ —

Plate, No. 5 to 9... 05 @ —

Sheet, No. 10 to 13... 04 1/2 @ 05

Sheet, No. 14 to 20... 05 @ 05 1/2

Sheet, No. 24 to 27... 05 @ 06 1/2

COPPER.—Duty: Sheathing, 3 1/2c per lb.; Pig and Bar, 2 1/2c per lb.

Sheathing, per lb... — @ 26

Sheathing, Yellow... — @ 21

Sheathing, Old Yellow... — @ 11

Composition Nails... — @ 22

Composition Bolts... — @ 22

Tr. PLATES.—Duty: 25 cent. ad valorem.

Plates, Charcoal, 1X, per box... 12 00 @ —

Plates, 1 C Charcoal... 10 00 @ 10 50

Roofing Plates... 10 00 @ 10 50

Barrel 2 1/2 in. Slab, per lb... — @ 15

Steel.—English Cast Steel, per lb... — @ 73

QUICKSILVER.—per lb... — @ 7

LEAD.—Pig, per lb... — @ 11

Sheet... — @ 9

Pipe... — @ 8

Bar... — @ 11

ZINC.—Sheets, per lb... — @ 11

BORAX... — @ 35

Machinists and Foundries.

FULTON

Foundry and Iron Works.

HINKLEY & CO.,

MANUFACTURERS OF

STEAM ENGINES.

Quartz, Flour and Saw Mills,

Hayes' Improved Steam Pump, Brodie's Improved Crusher, Mining Pumps, Amalgamators, and all kinds of Machinery.

N. E. corner of Tehama and Fremont streets, above Howard street, San Francisco. 3-qy

THE RISDON

Iron and Locomotive Works.

INCORPORATED.....APRIL 30, 1868.

CAPITAL.....\$1,000,000.

Corner of Beale and Howard Streets, SAN FRANCISCO.

Steam Engine Builders, Miller Makers, Machinists, Foundrymen, and Manufacturers of Car Wheels equal to the best imported, and guaranteed equal to Eastern Wheels.

Directors:

S. F. Butterworth, Lloyd Tevis, Wm. Alvord,

Wm. Norris, Joseph Moore, Chas. E. McLane,

John N. Risdon, John N. Risdon.

JOHN N. RISDON.....President.

JOSEPH MOORE.....Vice President and Superintendent.

LEWIS R. MEAD.....Secretary.

UNION IRON WORKS,

Sacramento.

WILLIAMS, ROOT & NEILSON,

MANUFACTURERS OF

STEAM ENGINES, BOILERS,

CROSS' PATENT BOILER FEEDER AND SEDIMENT COLLECTOR.

WILCOX'S PATENT WATER LIFTERS,

Dunbar's Patent Self-Adjusting Steam Piston PACKING, for new and old Cylinders.

And all kinds of Mining Machinery.

Front Street, between N and O streets, 1441 SACRAMENTO CITY

ESTABLISHED 1851.

PACIFIC IRON WORKS,

First and Fremont streets,

SAN FRANCISCO

IRA P. RANVIN, A. P. BRAYTON,

GEO. W. FOGG, Superintendent.

Steam Engines and Boilers,

MARINE AND STATIONARY,

IRON AND BRASS CASTINGS

Mining Machinery of Every Description,

And all other classes of work generally done at first-class establishments, manufactured by us at the lowest prices, and of the best quality.

Particular attention paid to Jobbing Work and Repairs.

N. B.—Sole Agents for sale of HUNTOON'S CELEBRATED PATENT GOVERNOR.

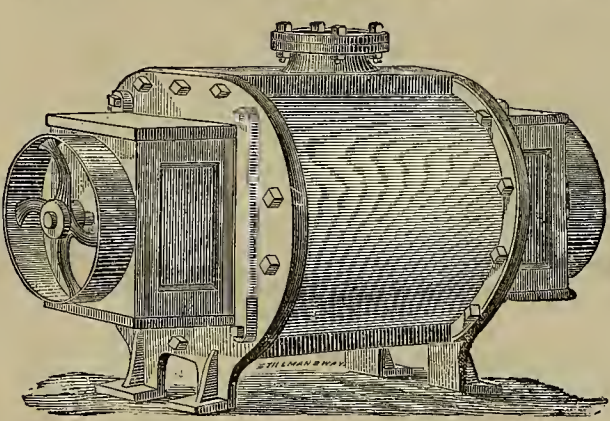
1870-3m GODDARD & CO.

ROOT'S PATENT FORCE BLAST ROTARY BLOWER.

MANUFACTURED BY KEEP & BARGION,

At the Globe Iron Works, Stockton, California.

Awarded the First Premium at the Paris Exposition.



Patented Nov. 1st, 1864; July 24, 1866; and Oct. 9, 1866.

ADAPTED FOR Smelting, Foundry, Mining and Steamships.

REQUIRES Fifty Per Cent. LESS POWER Than any Blower Now in use.

One of these Blowers may be seen on exhibition at W. T. Harratt's Brass Foundry, corner of Mission and Fremont street. They are also in use at the Almaden Quicksilver Mine; Gridley's Foundry, Gold Hill, Nevada; Elina Iron Works, San Francisco, and many other places.

CAUTION.—Purchasers will find it to their advantage to apply direct to the Stockton Agency, as certain parties, not authorized to manufacture the Blower, have put in the market machines of inferior construction, which do not answer all the requirement of the genuine article.

Quartz, Saw and Grist Mill Irons, Steam Engines, Horse Powers, High and Low Pressure Steam Engines, Steamboats and Propellers, made at short notice.

For circulars and further information address

KEEP & BARGION,

Globe Iron Works, Stockton, Cal.

CAMERON'S

STEAM PUMPS.

PICKERING'S

Engine Regulators.

GIFFARD'S

INJECTORS.

BARTOL'S

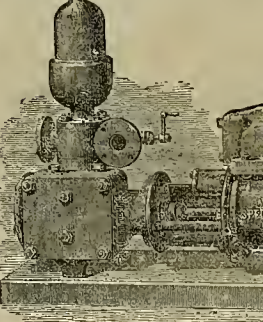
STEAM TRAP.


SURFACE

CONDENSERS.

DAVID STODDART,

114 BEALE STREET.



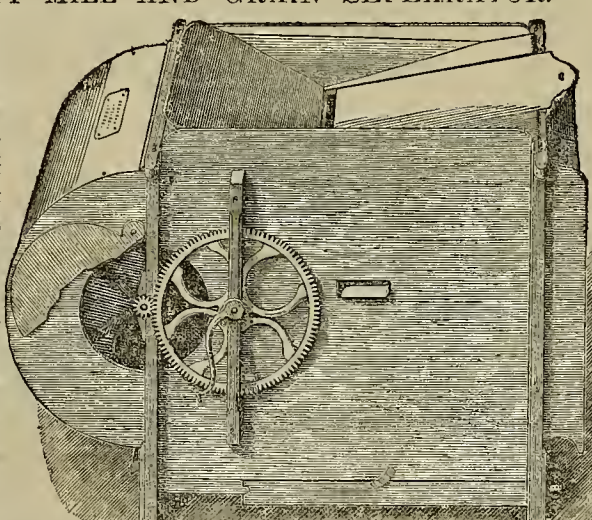


NOVELTY MILL AND GRAIN SEPEARATOR.

THE undersigned having purchased of the Patentees, WILKS & SWIFT, of Hudson, Michigan, their right to this mill, Patented June 22d, 1869, for California, Oregon, Washington Territory, Montana, Utah, New Mexico and Arizona, wishes to call the attention of FARMERS, MILLERS and GRAIN DEALERS to one of THE GREATEST IMPROVEMENTS OF THE AGE for cleaning and separating grain. While it combines all the essential qualities of a first-class FANNING MILL, it also far exceeds anything that has ever been invented for the separation of grain. It has been thoroughly tested on all the different kinds of mixed grain, separating all the different seeds in almost a magical manner, placing them in their different compartments in the mill arranged for their reception, at the same time taking out all the Mustard, Grass Seed, Barley and Oats, and making two distinct qualities of wheat if desired, thereby selecting superior, large plump and perfect kernels for SEED WHEAT, and all the small and cut kernels, such as merchantable wheat, is deposited in another compartment. By the use of this Mill a great quantity of wheat usually sown that has been cleaned in the common mills will be saved to the farmer, as the cut or shrunken kernels will never germinate.

The above mentioned Novelty Mill is the only mill known to possess all these superior qualifications, and was exhibited and tested at the last Michigan State Fair held at Jackson, Michigan, September 21, 22, and 23, 1869, and bore away the palm over some thirty other different mills from all parts of the United States, including the famous Dickey Mill of Racine, Wisconsin. All who have witnessed here the operations of the NOVELTY MILL, declare its perfection, and the most beneficial invention to the Farmers, Millers, and Grain Dealers ever introduced on the Pacific Coast. The farmers in Santa Clara County, are loud in its praise, and also in other parts of the State where it is being introduced. No. 1 Mill, complete, is capable of cleaning 25 tons of grain per day; No. 2 Mill, 16 tons; No. 3 Mill, 8 tons. A large number of recommendations and certificates of the practical working of the mill will be furnished. Circulars containing references sent free by mail. N. B. Town, County, or State Rights for sale on favorable terms. For further particulars apply to

11421-3m



STONE, 422 Battery Street, San Francisco.

GEO. T. PRACY'S

MACHINE WORKS,

109 and 111 MISION STREET,

SAN FRANCISCO.

MANUFACTURER OF

PRACY'S IMPROVED

PATENT STEAM ENGINE

GOVERNOR.

These Governors are the most sensitive built, running at a high velocity and maintaining a uniform speed.

SOLE AGENT FOR

L. W. POND'S CELEBRATED TOOLS,

— SUCH AS —

Lathes, Planers, Drills, Boring Mills, Milling Machines, Etc.,

Which I will offer at very low rates. Also,

MORSE'S TWIST DRILLS,

AND CRUCKS OF ALL KINDS,

MANUFACTURER OF

Steam Engines, and Mill Work Generally.

Sole Agent for TAYLOR'S PATENT SHEARS AND PUNCHES.

8v21

MACHINERY

— AT —

GREATLY REDUCED RATES.

Miners' Foundry & Machine Works,

235 TO 245 FIRST STREET,

SAN FRANCISCO.

This Establishment is now working upon the CO-OPERATIVE PLAN, And are thereby enabled to manufacture MACHINERY, CASTINGS & BOILERS AT EASTERN PRICES.

And better adapted to the wants of the Pacific States. Ascertain our prices before purchasing. 8v20q

CALIFORNIA BRASS FOUNDRY,

No. 125 First street, opposite Minna, SAN FRANCISCO.

ALL KINDS OF Brass, Composition, Zinc, and Babbitt Metal Castings, Brass Ship Work of all kinds, Spikes, Sheathing Nails, Knicker Braces, Hinges, Ship and Steamboat Belts and Tones of superior tone. All kinds of Cocks and Valves, Hydraulic Pipes and Nozzles, and Hose Couplings and Connections of all sizes and patterns, furnished with dispatch, and PRICES MODERATE. — 22

P. GALLAGHER. J. H. WEED V. KINGWELL.

California File Manuf'g Co.

437 BRANNAN STREET, bet. Third and Fourth.

W. WUSTHOFF, L. KRAMER, M. HARRIS, J. BURKE.

REAPER AND MOWER SECTIONS, BARS AND KNIVES COMPLETE.

At a saving of 50 per cent. New Files of every description on hand and made to order. Old Files re-cut, and warranted equal to new. Orders from the country promptly attended to. 9v19-qy

McAFEE, SPIERS & CO.,

BOILER MAKERS

AND GENERAL MACHINISTS,

Howard st, between Fremont and Beale, San Francisco.

Flue or Tubular Boilers, with plain circular or spiral courses. Upright Flue or Tubular Boilers, Locomotive and Marine Boilers, and Wrought Iron Tanks of every description.

Hydraulic Pipe supplied at reasonable rates. In ordering, give the quantity of water to be supplied, height of the fall, and total length of pipe, so as to enable the firm to determine the diameter of the pipe and the thickness of iron to be used.

Repairs.—Boilers, Smoke Stacks, Pipes, etc., put in repair with promptness.

To Boiler Makers and Machinists in the Interior.—The firm is prepared to furnish estimates of Boilers, supply new Heads, drilled and punched, and attend to the selection and forwarding of Iron for Boilers, Pipes and other purposes.

Plans, Drawings and Specifications.—The firm is prepared to make out Plans and Specifications, receive estimates, and superintend the Erection of any Machinery that may be entrusted to their care.

To Inventors.—The firm is prepared to assist in developing the plans of those who have the ideas but not the practical experience necessary to put the same in form, by making drawings of their inventions, giving them the benefit of their practical knowledge in the construction of Machinery, and attending to the manufacture and introduction of their inventions. 1v161f

NELSON & DOBLE,

AGENTS FOR

Thomas Firth & Sons' Cast Steel.







MANUFACTURERS OF

Sledges, Hammers, Stone Cutters', Blacksmiths' and Horse-Shoers' Tools.

13 and 15 Fremont street, near Market, San Francisco. 1v141q

[ESTABLISHED 1830.]

WILLIAM J. YOUNG & SONS,

Mathematical Instrument Makers,

No. 43, North Seventh St. Philadelphia Pa.

Having increased their facilities, expect in future to keep on hand a full supply of Transits, Levels, Compasses, Solar Compasses, etc. Manufacture of Young's celebrated Shifting Tripod for Transits. Original manufacturers of Burts Solar Compass. 1v121-2m

New York Metal Market.

[CORRECTED WEEKLY FROM THE AMERICAN ARTISAN.]

New York City, Saturday, Oct. 15, 1870.
IRON.

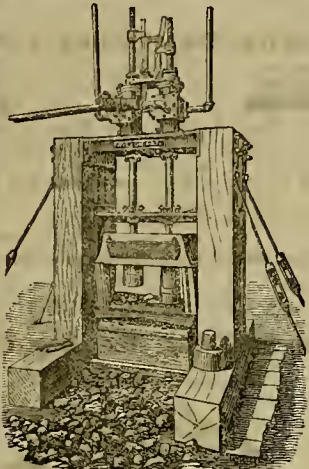
Pig, Scotch, No 1 (cash), per ton..	\$33 00	@	\$35 50
Pig, American, No. 1 (cash).....	33 00	@	34 00
Pig, American, No. 2.....	29 00	@	31 00
Swedish, ordinary sizes.....	110 00	@	125 00
Common.....	73 00	@	80 00
Refined.....	77 50	@	95 00
Rolls.....	85 00	@	120 00
Horse-shoe.....	95 00	@	—
Hoop.....	105 00	@	150 00
Scroll.....	97 50	@	125 00
Nail-rod, per lb.....	7 00	@	7 1/4
Spring.....	7 1/4	@	—
Tire.....	8 1/4	@	—

STEEL.

Bars, best cast, warranted, per lb....	17	@	18
Sheet, best cast.....	18	@	—
Sheet, second quality.....	16	@	—
Sheet, third quality.....	14	@	—
Saw-plates, circular.....	27	@	—
Double-shear, warranted.....	23	@	—
Single-shear.....	19	@	—
Montague & Co., (cast bars).....	18	@	—
Machinery, round.....	11	@	—
German, best.....	11	@	—
German, goat.....	10	@	—
German, eagle.....	9	@	—
Blister, warranted.....	16	@	—
Blister, common.....	15	@	—
Jesse & Sons, common.....	17	@	—
Double-refined.....	26 1/4	@	—
Stone-ax shapes.....	26 1/4	@	—

Machinery.

THE WILSON
Patent Steam Stamp Mill.



This extraordinary Mill, now so justly popular in the East, is now offered to the miners of the Pacific Coast. Having been in operation now for about two and a half years, the Company feel confident that the

WILSON STEAM STAMP MILL.

For Durability, Efficiency,
AND ECONOMY OF WORKING,
HAS NO EQUAL.

The Wilson Steam Stamp Mill is the only Steam Mill that has had the severe ordeal of practical working, and proved itself eminently successful. It is now in operation in several of the Eastern States and Territories, and gaining an envious popularity. The whole machine is so simple as to be readily understood by the most ordinary minds. In fact, its simplicity is its durability. The expense of crushing rock or cement with this Mill is less than one-half the expense of any other Stamp Mill, and less than one-half the cost. For further particulars inquire of

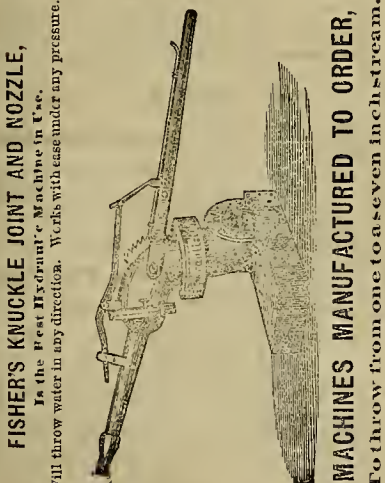
FURMAN R. WILSON,
San Francisco.

Or of THE WILSON STEAM STAMP MILL CO., 326 Walnut street, Philadelphia, Pa.

Notice.—All persons are hereby warned not to manufacture or use any Steam Stamp Mills that are an infringement on the Wilson Patents, as they will be prosecuted to the utmost rigor of the law.

F. R. WILSON,
Supt. W. P. S. S. M. Co., Philadelphia.

HYDRAULIC CHIEF.



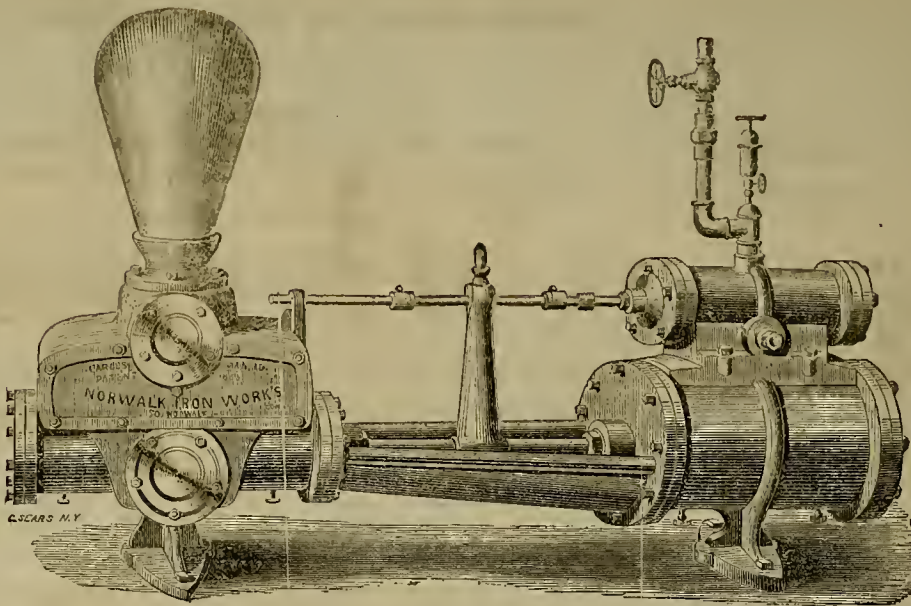
FISHER'S KNUCKLE JOINT AND NOZZLE,
Is the best hydraulic machine in use.
Will throw water in any direction. Works with ease under any pressure.

MACHINES MANUFACTURED TO ORDER,
To throw from one to seven inch stream.

F. H. FISHER,
NEVADA CITY.

Stiles' Factory, South and Suspension Bridge.
16v21-1u

Earle's Patent Steam Pumps.



FOR MINING OR FIRE ENGINES.

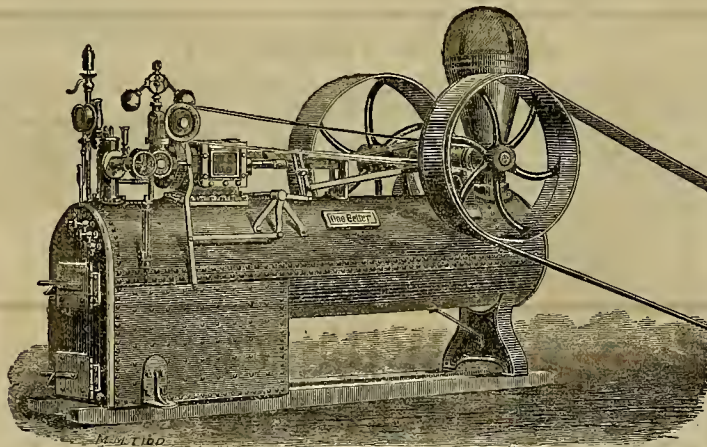
All sizes in store at manufacturers' cost. Send for Circular and Prices.

BAKER & HAMILTON

Importers of all sizes of Portable Steam, Upright, and Horizontal Hoisting Engines, &c.

SAN FRANCISCO AND SACRAMENTO.

HOADLEY'S PORTABLE ENGINES!



3 to 20 Horse Power on Carriages and Beds.

These Engines are in use all over the United States, and are regarded as the best in use. They are self-contained Engines, without the running gear and appurtenances, for driving

Saw Mills, Grist Mills, Tanneries, Machine Shops, Planing Mills, Factories &c.,

and for all other purposes under seventy-five horse-power, to which Stationary Engines are applied. For Agricultural uses they are unsurpassed. For Circulars or pamphlets, describing dimensions and price address

TREADWELL & CO., Sole Agents,

15v21-3m

SAN FRANCISCO.

Varney's Patent Amalgamator.

new Machines Stand Unrivaled.

For rapidly pulverizing and amalgamating ores, they have no equal. No effort has been, or will be spared, to have them constructed in the most perfect manner, and of the great number now in operation, not one has ever required repairs. The constant and increasing demand for them is sufficient evidence of their merits. They are constructed so as to apply steam directly into the pulp, or with steam bottoms, as desired.

This Amalgamator Operates as Follows.

The pan being filled the motion of the muller forces the pulp to the center, where it is drawn down through the aperture and between the grinding surfaces. Thence it is thrown to the periphery into the quicksilver. The curved plates again draw it to the center, where it passes down, and to the circumference as before. Thus it is constantly passing a regular flow between the grinding surfaces and into the quicksilver, until the ore is reduced to an impalpable powder, and the metal amalgamated.

Settlers made on the same principle excel all others. They bring the pulp so constantly and perfectly in contact with quicksilver, that the particles are rapidly and completely absorbed.

Mill-men are invited to examine these pans and settlers for themselves, at the office, 229 Fremont Street, San Francisco.

SALT LAKE CITY Oct. 11, 1870.—Messrs. Dewey & Co.—I wouldn't care or the missing number of the Scientific Press particularly if I did not keep them on file. I think a great deal of it and consider it worth keeping. I never invested four dollars to better advantage in my life. Respect'ly Yrs. A. G. B.

SEVERANCE HOLT & CO.,

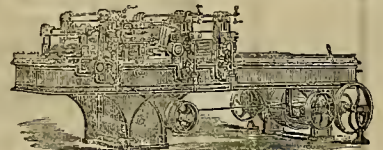
MAUFACTURERS OF

Diamond-pointed Drills.

AND DRILLING MACHINERY.

For Mining, Quarrying, Shafting, Tunneling, Prospecting, Draining, Grading and Submarine Blasting. Special attention given to Deep Boring for testing the value of Mines. Also to Boring Artesian Wells. Office, 315 CALIFORNIA STREET, San Francisco. 25v20-3m

WOODWORTH PLANERS.



Smith's Patent Wood-working Machinery in an descriptive form. Sole Agents, BERRY & PLACE, 112 and 114 California St., San Francisco

QUARTZ MILL AMALGAMATING

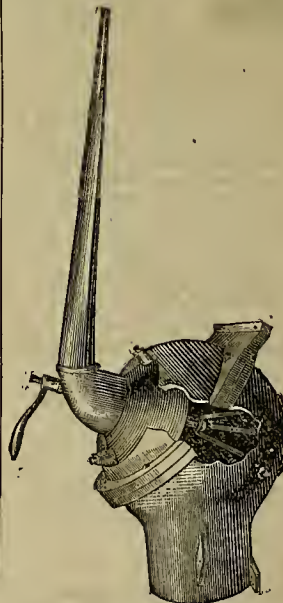
PLATES, plated with fine silver in an improved manner, at the very lowest rates. The best American copper furnished and cut to order. Old plates bought or worked. Old plated goods, of all kinds, repaired and replated. Work guaranteed and at Eastern prices. Articles can be sent and returned by Express, by

CHAS. WEST,

No. 139, 3d Street, S. F.

AGENTS—MORRIS & WHITE, 30, Fremont, St. S. F.

CRAIG'S PATENT



IS THE VERY BEST GLOBE
Ever offered to the public in shape of a
HYDRAULIC MACHINE.

And all parties would do well to examine it carefully, who propose to purchase a flexible metallic

NOZZLE

For mining, as it is the only one that is sure to bear its guarantee with it, and protect its purchaser from liability to infringement suits; it is the oldest, best and cheapest in use, as all will testify who have used it.

“Buy none but the Best.”

Beware of Infringements,

as we will prosecute to the utmost extent of law, all who make, sell, or use infringements upon our patents. For full particulars, address

PRESCOTT & SCHIEDELL,

Sole manufacturers, Marysville Foundry, or
R. R. & J. CRAIG, PRO-PRIETORS,
Nevada City, California.

11v21-3m

The Stetefeldt Furnace.

For information of any description respecting this process,

APPLY TO

STETEFELDT FURNACE COMPANY.

Austin, Nevada.

14v21-1y

THE SCIENTIFIC PRESS has the largest circulation of any weekly journal published West of the Rocky Mountains, independent of a daily issue. Its readers are prominent among the most intelligent, industrious and thrifty classes throughout the Pacific States and Territories.

The patent portable, automatic self-regulating
NEW GAS "MACHINE"

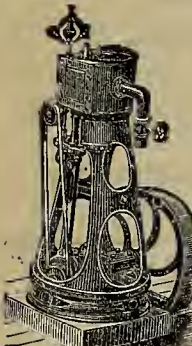
Highest and only Medals and official testimonies awarded the Inventor. Address, N. G. M. Co., 407 California Street, San Francisco. 18v21-3m

AUBURN MILLS,
RENO, NEVADA.

ON AND AFTER OCTOBER 1st, 1870,
THE NEVADA LAND AND MINING
Company—Limited,
WILL PURCHASE SILVER ORES IN ANY QUANTITY
At the following NET Rates:

For ores assay- lug per ton.	We pay on assay val.	For ores assay- lug per ton.	We pay on assay val.
\$11.....	23 1/2 ct.	\$25.....	64 "
\$10.....	20 "	\$20.....	70 "
\$9.....	17 1/2 "	\$15.....	72 "
\$8.....	15 "	\$10.....	73 "
\$7.....	12 1/2 "	\$5.....	76 "
\$6.....	10 "	\$4.....	78 "
\$5.....	8 1/2 "	\$3.....	80 "
\$4.....	6 1/2 "	\$2.....	81 "
\$3.....	4 1/2 "	\$1.....	82 "

NO CHARGE for milling, sampling or assays.
Assays guaranteed to correspond with United States
Mint.
Ores returned to shippers free of railroad charges.
Ores sampled by Battery or Crusher, at option of shipper.
J. J. DUNNE, Manager.
Reno, Oct. 1st, 1870. 8v21-3m



RIDER'S
Automatic Cut-off
Vertical Engines
Manufactured by the
Albany St. Iron Works,
NEW YORK.

These Engines are simple, compact and durable, and in point of economy of fuel and space are excelled by none, and are cheaper than any other first-class cut-off Engines in the market. Descriptive pamphlets and price lists mailed free on application to the proprietors, HENDREN & RIPLEY, Corner Albany and Washington Sts., New York. 26v20-1y16p

C. J. KING, T. B. KIMBALL, P. D. CODE.
P. D. CODE & CO.,
MANUFACTURERS OF
JELLIES, JAMS, PRESERVES, PICKLES,
KETCHUP, SAUCES,
Canned Fruits and Vegetables of superior quality.
621 and 623 Front Street.
Between Jackson and Pacific, San Francisco. [16p

Pacific
Insurance Company
No. 122 California St.,
San Francisco.
Cash Assets \$1750,000.
Fire
and Marine
Insurance.

J. HUNT, President.
WM. ALVORD, Vice-President.
A. J. RALSTON, Secretary.
A. BAIRD, Marine Secretary.

PACIFIC
Rolling Mill Company,
SAN FRANCISCO, CAL.

Established for the Manufacture of
RAILROAD AND OTHER IRON
—AND—
Every Variety of Shaffing.
Embracing ALL SIZES of
Steamboat Shafts, Cranks, Piston and Connecting Rods, Car and Locomotive Axles and Frames
—ALSO—
HAMMERED IRON
Of every description and size.

Orders addressed to PACIFIC ROLLING MILL COMPANY Post Office, San Francisco, Cal., will receive prompt attention.
The highest price paid for Scrap Iron 8v143m9.

PLATINUM

Vessels, Apparatus, Sheet, Wire, Etc., Etc.,
For all Laboratory and Manufacturing Purposes
H. M. RAYNOR,
26 Bond street, New York.
Platinum Scrap and Ore purchased. 5v20-1y16p

THE APPEAL,

To Good Templars, and Sons of Temperance. by Mt.
Etna Div. S. of T. No. 38.

Etna, Siskiyou County, Cal. Oct. 2, 1870.

To Brethren and Sisters, in the cause of Temperance, actively engaged in promoting
its interest, this little sheet is sent.

We say, actively engaged, because there are in every Division, and Lodge, some of the opposite character.—These are passive as far as the general good, or permanence of that body, to which they thus belong, is concerned. Not commonly, do this class at first enter the Division or the Lodge, from or with, any particular wish to do, as well as to receive good, from, that connection. Their motives being rather to obtain shelter and protection, from the habit, temptation and company, which, they suddenly fear, is about to overwhelm them. Some acquaintance by intemperance, commits crime or suffers disgrace; or else, by it, is hurried into Eternity.—thereby startling them into an immediate, and lively sense, of their own danger.

On, their fears are awakened by some Lecturer,—drawing in strong colors, the oft-repeated picture, of the inevitable mental and physical sufferings, that surely follow after, the continued indulgence in "strong drink;"—they shudder for themselves; immediately give their names to join the Sons, or the Good Templars. But, are these now fit for Officers?

To those positions our Constitutions permit them to be eligible: even for nominations thereto, directly upon, their admission. By our present short term of office, it is unavoidable, but that should often be the case. These in a majority of instances, cannot have been properly prepared for such responsibilities. Their contest is but just beginning.—They, more often, require to be advised and supported, themselves. Former associations try them, more or less severely, for a long time after their first admission, and always some, soon fall, in endurance of that trial.

If they thus fall out as members, not near as much harm is done. There is, in fact, no good reason, for thus so soon employing new members, save, these changes of Office, which, we think, could be advantageously amended. Say according to those of the Masons, or, of the Old Fellows. By so doing, We can all, have Good Officials, for long terms; and it will encourage all such, to be, on all occasions, fully posted in their duties, and enable them fully, to know all parts of their own work, by heart; so as, often, if not always, to be able to lay aside their cards, "saying their say" clearly and distinctly,—which is a great advantage.

We, therefore, invite the attention of yourself, and your LODGE, or DIVISION, to this resolution, in the hope and belief, that, by being thus placed, under consideration by all these bodies throughout the State, during this Fall, and Winter, it may accomplish much, towards that end.

RESOLVED. In our opinion, the efficacy of our Orders in this State, could be increased, by lengthening the time, in the Terms of office.

RESOLVED, To Appeal to Our Brethren and Sisters, in the Temperance Orders in our State, and elsewhere, for a common effort towards this end. And, that Bro. Dr. Geo. C. Furber, be requested to make this APPEAL, through his Press of the "Cordial of Mountain Balm," beneath our Hall.

Also, Resolved: In this connection, we inform Our Brethren of these Orders, that, for the purpose, of enabling any person "TO QUIT USING SPIRITS," and in Overcoming, Such Powerful Cravings and in Healing all Irritability of Stomach, from Habitual Drinking.

We hazard nothing in saying,—(from our own knowledge in this Division.)—that in this CORDIAL, Has Been at Last Found a Remedy, by aid of which, Any Person, CAN QUIT LIQUOR EASILY,—and be HEALED from its former effects, in a manner surprisingly QUICK to all observers.

By Unanimous Vote of the Members, and signed at the Hall, Etna Cal.

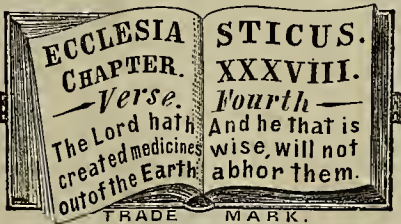
W. J. LAIRD
J. S. BEARD
DAN'L DAVIS
ROBERT P. TAYLOR
W. Patriarch.
R. Scribe.
P. W. P.
D. D'p'y.

A NEW REMEDY.

As this Preparation of these plants, lately made public (Patented June 28, 1870), but long proven in Siskiyou county, Cal., owes its efficiency entirely to its remarkable power of INCREASING THE INSENSIBLE PERSPIRATION, or, in other words, the VAPORY EXHALATIONS from the millions of minute pores of the EXTERNAL SKIN, from the crown of the head to the sole of the foot, it is all important that the direction to pass a sponge, or towel, dampened with salubrious water, under the clothing, twice a week, or oftener, be attended to. Also, that when taken by LADIES, for IMPROVING THE COMPLEXION, for which it is very successful, that it should be in half doses, often repeated; and that one of the Pills of Citrate of Iron and Gum Myrrh, which are beneath the bottom label of each bottle, be taken at night, much aiding in restoring Color in the Cheeks and Lips. "TO CHILDREN also, give it" "little and often." It is agreeable to them any way, but especially if sweetened a bit; and it is admirably suited to their Diseases, which generally are those of the MUCOUS MEMBRANES. FOR the irritated throats of PUBLIC SPEAKERS, Lawyers, Ministers, Teachers, and FOR driving off threatened CONSUMPTION and Asthma, all Colds and Coughs; FOR irritated Stomachs, from Bad Liquor, Alkali Water, Strong Coffee, Saleratus Bread; FOR humors on the Skin, or MUDDY COMPLEXIONS, or, in a single sentence, FOR all Diseases of the MUCOUS MEMBRANES, the Surest, and by far the MOST PLEASANT MEDICINE yet found, in its TASTE and EFFECT, is

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and as well on the LUNGS as on the STOMACH, is superior to other COUGH MEDICINES, by bringing BOTH to bear with the stimulated action of the WHOLE SKIN in throwing off Disease of either.

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Who have failed in their efforts to dispose of their rights are invited to consult us, either personally or by mail, free of charge. Many valuable inventions are lying dormant, for want of proper management, that might realize a fortune for their owners, if placed in the hands of competent agents, and brought to the attention of capitalists. We accept only those showing decided merit, as no others can be negotiated. A candid opinion can therefore be relied upon. Commissions dependent upon success. Inclose stamp for full information. References on application. E. E. ROBERTS & CO., Consulting Engineers, 16 Wall street, New York. 14v213m16p

SCIENTIFIC PRESS.

AN ILLUSTRATED JOURNAL OF SCIENTIFIC AND INDUSTRIAL PROGRESS,
Mining, Farming and Mechanic Arts.

BY DEWEY & CO.,
 Patent Solicitors.

San Francisco, Saturday, November 5, 1870.

VOLUME XXI.
 Number 19.

Mining Edition.

A New Breech-Loader.

There has been on exhibition in the Merchants' Exchange in this city, for some weeks past, a breech-loading cannon, which has been examined by a large number of scientific and military men, and which would certainly appear a most effective weapon. A full description of this gun, for which patents have been obtained through the SCIENTIFIC PRESS Patent Agency, has already appeared in our columns; but so much attention has been paid to it of late and so much said in praise of its merits, that we think it well worth illustrating at this time.

This gun is a breech-loading needle cannon with a most ingenious elevating and depressing apparatus and automatic scale. It is constructed in three general parts;—the barrel, which needs no further comment; the ring, A; and the breech-pin, B. The ring is of the general form and construction shown in the cut, and screws into the rear of the barrel. Into this fits the breech-pin which is firmly locked in place by means of keys, *a*, (having a cam motion) which play in corresponding grooves, *b*, in the ring, being actuated by means of the lever, *c*. In loading, the breech-pin is removed, the cartridge inserted into the bore, the pin replaced, and the keys made to project into the groove of the ring. The hollow needle, *d*, projects into the center of the cartridge, which is fired (through the vent which extends through the breech-pin and needle) by a common friction primer.

By this construction several important advantages are gained. The gun unites firmness with simplicity in the fastenings of the several parts, and can be worked with less men and fired more rapidly than any other which has come under our notice. And then all that is required to disable the gun is to remove the breech-pin, a most simple and effectual method.

The main difficulty in the successful working of breech-loading cannon has been found to consist in the expansion of the parts by the heat which is necessarily evolved from rapid firing, the fouling of the gun, and the escape of gases. These difficulties are obviated in this invention by making the breech in two parts, so arranged that the expansion of the one neutralizes the effect of the other. It is supplied with a packing of felt and rubber, and a movable face ring of steel, which render the escape of gases impossible; for the greater the pressure, the closer the joint is packed.

The elevating and depressing apparatus and the automatic scale render entirely unnecessary the use of a quadrant in taking elevations, and, at the same time, the gunner will not be so liable to make mistakes as heretofore by the old method. It may be briefly described as follows: Under the barrel of the gun are two eccentrics, *e*, on transverse shafts, which are turned by means of a horizontal shaft, *f*, and worm

gear, shown more fully at C. This shaft is provided with a hand-wheel, and attached to it is an indicator which passes over an index plate, *g*, with degrees marked upon it, which correspond with the arc of the barrel.

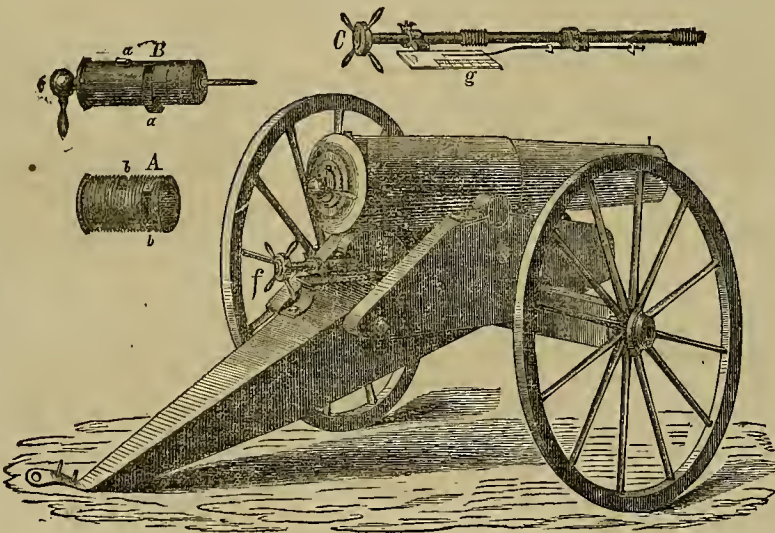
In the cannon which have the breech cast on the barrel, there is a vibration, on firing, of the latter part which does not extend to the former, just as in the case of a tuning fork. Now at the point at or near the breech, where the vibration ceases, crystallization of the metal is apt to occur, and of course the piece becomes worthless. By this construction the vibration takes place throughout the whole gun and the crystallization is obviated.

Another cannon has been on exhibition on the street in this city, and has been quite extensively remarked on by the daily

of gunnery and who has made several important inventions relating to the subject, as his improved projectile, etc. Mr. Potter, we understand, is willing to dispose of one-quarter to one-half of his patent rights in this cannon, and those persons desirous of investigating the subject more fully or of entering into negotiations with the inventor, may apply either to this office or to Mr. S. L. Cutter Jr., 410 Kearny street, S. F. Those desirous of witnessing tests of the gun, can be satisfied by taking the Sutter street cars and riding to Harbor View, where the cannon is now on exhibition and experiments will be made for the benefit of those interested.

Co-operation in Mining.

Our readers will find elsewhere in our



POTTER'S BREECH-LOADING NEEDLE CANNON.

papers. This is the so-called "Farrington" gun, a muzzle loader, which claims several very old "novelties," as the central fire, etc., and one or two new ones, the principal of which is the doubtful advantage of hermetically closing the vent to "give the projectile the full force of the charge, and to render it unnecessary to serve the vent with the thumb to prevent premature explosion." This last assertion is rendered exceedingly doubtful by the next advantage claimed, that of being able to "sight through the vent and hole of the gun by means of a tube fitting into the vent chamber," which must be rather difficult of execution when the vent is "hermetically closed;" and the arrangement of firing the gun is a very dangerous one, being liable to cause an explosion at any moment, and being possible to be destroyed with the greatest ease. It is simply a figure 4 trap which drops a heavy wedge through a touch-hole upon a fulminate. A stray bullet, a sabre stroke or a jar might spring the trap and fire the gun, or disable it.

The patentee of the cannon here illustrated is Mr. Abiather F. Potter, of Oakland, who has spent years in studying the subject

columns two articles bearing on this subject, one a communication from White Pine, and the other concerning Mining in Victoria, which are of very considerable interest. The subject is indeed of vital importance to very many of those on whom the prosperity of our coasts depends to a very great measure; and is applicable to all trades and professions. Farmers will find, in the Agricultural Edition, what Horace Greeley has to say to them on this point.

Our White Pine correspondent thinks that co-operation in mining is not to be thought of for the locality concerning which he writes, but adds that, if we had advised it with regard to smelting operations, we would have made a more practical suggestion. If he will turn back to the article on "Separating Silver and Lead" in our issue of August 6th, he will find that we have already hinted at this very thing.

Our correspondent gives several reasons for his assertions, which, coming from a good and trustworthy source, are entitled to consideration as probably representing facts as they actually exist. In our article we had purposely omitted saying how or to what extent co-operation (which our cor-

respondent has rightly interpreted as having been used in a very broad sense, and to a great extent synonymously with "unity of action") should be introduced; for the varying circumstances of the different localities must determine this. Still we think that it might be introduced widely, if the miners themselves would take a square and honest look at affairs.

No miner ought to value his ore merely at the cost of labor employed in extracting it. This value is entirely fictitious except as regards himself. Otherwise a rich ore easily taken from the mine, would be worth no more than a poor ore which demanded an equal amount of labor for extraction. But if several miners would consolidate their claims, they would be able to raise their ore, be it rich or poor, at a much less cost than if they worked each for himself. We think that we can point now to one plain example of this, and if we are wrong, we shall be glad to be corrected by the Central City papers. We understand that the mines on the Bohtail lode at Central City, Colorado, (it is either the Bohtail or the Gregory, and perhaps both) are closed on account of the large amount of water in them. No one mine can afford to pump out all the others at its own expense; and as no agreement could be entered into by the different parties, all are now suffering. Again, each company has its own shaft or shafts, the number of which is entirely disproportionate to the extent of ground worked. A consolidation of these different companies, or co-operation, or unity of action, could enable a large amount of ore to be raised at a much smaller expense than heretofore, would enrich the companies, give employment to many miners now unemployed, benefit individuals and benefit the whole community.

Horace Greeley says that the word of hope and cheer for labor in our days is co-operation,—that is, the combination by many of their means and efforts to achieve results beneficial to them all. We echo the sentiment, and ask the "poor miner," for his own benefit, to lay aside all little petty jealousies and consider the subject fairly and on its own merits.

In the article on "Mining in Victoria" it will be seen how it is there planned to combine the interests of the capitalist and of the poor man for the benefit of the mining industry. Such a plan would hardly be possible here at present, but it is good to look at what other nations are doing. Still we commend the example of a Chamber of Commerce taking into consideration the matter of the troubles and evils of mining and proposing plans for remedying them, to the attention of our American public.

MEDAL FOR CALIFORNIA.—A gold medal has been awarded to the Mission and Pacific Woolen Mills at the Cincinnati Exposition.

LAST week the Suto tunnel was in 1,630 feet, and it was reported that the rock was such as to give expectations of meeting some ledge.

Communications.

IN THIS DEPARTMENT we invite the FREE DISCUSSION of all proper subjects—correspondents alone being responsible for the ideas they advance.

Notes of Travel in Yuba County.

[WRITTEN FOR THE SCIENTIFIC PRESS.]

Timbuctoo, Sucker Flat and Smartsville.

In and near these places, are situated the principal mines of this county. I will take them in rotation. The Warren Claim is a specimen of all those at the above named points. J. C. Warren is proprietor and superintendent. The claim is 900 feet front; the width of the hydraulic washings is from 600 to 800 feet; the deep channel is from 50 to 200 feet wide. In times of water from eight to twelve men are employed in this mine. One of Fisher's "Hydraulic Chiefs" is the device for working the same, and is by them very much admired; 2,100 feet of a bed rock flume with three under-currents are connected with the claim, which has heretofore paid to the satisfaction of the proprietor, and the cream of which is considered yet untouched.

Antone Claim, Warren & Edwards, proprietors; Union Co., Hogarth & Co., proprietors; Michigan Claim, McAllis & Excelsior Canal Co., proprietors; Babb Claim, O'Brien & Co., proprietors, known as the Babb Cement Mill and Mining Co., John Boyer, Manager. They have a 10-stamp mill, and crush some 60 tons per day (24 hours). The mill is run by an eight-foot turbine water wheel; working from seven to twenty men. They are also using here a patent device, called a *self-panning out machine*, patented a short time since by F. Hawks; a very clever invention, and in my opinion, a saving of both time and gold. To attempt to describe it would require an illustration, which I have not at my disposal, but may explain in a future article. Up to the time I visited this claim, they had not cleaned up, but from the indications, a big yield would result.

The next in rotation are the Estner or French Claim; next Pactolas Mining Co.; adjoining this is the Yuba River Mining Co.; Excelsior Canal Co. and McAllis are proprietors; cement in character. Next the Pittsburg and Yuba River Mining Co., Brittle & Co., proprietors. They employ seven men, are running a 1,000-foot tunnel, are now in 780 feet. Blue Gravel Co., J. P. Pierce & Co., proprietors, of San Francisco; Nevada Reservoir and Ditch Co.'s Claims, Stevens, Baker & Co., proprietors, of Boston; next, the Smartsville Consolidated Hydraulic Mining Co. From the company's books I took the following item which speaks for itself: "Net dividends since January 1st, 1870, \$5,000 per month." James O'Brien is the superintendent. Next is Enterprise Mining Co., (Sucker Flat), adjoining the Smartsville Hydraulic Mining Co. on the North. Henry Hogarth is superintendent. This Company began a tunnel 2,700 feet in length, on the 10th of October; the entire length of their four foot flume to the Yuba River will be 5,400 feet.

The Excelsior Canal Co. own the principal water privilege here. They have about 100 miles of ditch; the longest in any one stretch, however, is 33 miles. Now, in the driest season, they furnish 3000 inches of water; in winter, 6,000 inches. Blue Point Co.'s tunnel (situated at Sucker Flat) is 2,270 feet long, six feet wide and eight feet high; was finally completed October 1st, 1870, after three years and seven months running, night and day, seven days per week; began February 28th, 1867. During the first year the work was carried on by contract, ranging from \$34 to \$45 per running foot. The contractors, using common blasting powder, made such slow progress, at times six men making only ten feet in a month, that upon the introduction of giant powder, the contractors were released, the work being taken in hand by the officers of the company. They employed six men on each face, (five of them) with single-hand drills, using giant powder. These men were kept constantly at work on eight hour shifts, night and day, until the work was completed. In prospecting this work, 9,000 pounds of steel drills, and 10,000 bushels of coal for the smith-shop were used; 1,327,900 points of drills were sharpened; 94,000 feet of lumber were used for the work shops, etc.; 600 kegs of black powder, 275 pounds of nitroglycerine, 4,400 pounds of giant powder, and 65,000 feet of fuse were used. The proprietors estimate that one-third of the cost was saved in the running of the tunnel after the introduction of single-hand drilling and giant powder, and I think another third could have been saved by the use of the diamond drill, (of which I will speak further along). The entire length of their flume is 4,650 feet, and required 8,000 pounds of quicksilver to charge the same. They are now putting in drifts, or chambers, which will be charged with some 2,000 kegs of powder, and will be touched off some time in December next, by the galvanic battery, the best in use, for with, say ten or a dozen chambers to fire at once, this will do the work simultaneously, thereby giving each the entire strength of the vibration.

The Diamond-Pointed Drill.

At the request of many hundreds of miners and quarrymen, I venture a few remarks upon the subject of the diamond-pointed drill. An annular drill used with its accompanying machinery, which forms the subject of the present remarks, was recently employed in a tunnel of the Consolidated Bullion and Ince Silver Mining Company, Colorado, the tunnel having been

at the time driven 600 feet into the mountain. This drill cut horizontally through 417½ feet of very hard quartz and feldspar rock, the expense for diamonds in drilling this distance being only \$10. This is only one of the daily accumulating proofs of the wonderful industrial value of the opaque diamonds or, as they are more commonly called, carbons, and the great economy secured in their use for cutting and abrading the hardest materials. I cannot, perhaps, place the defects of percussion drilling in a stronger light than by quoting from the report of the Commission to the Paris Universal Exposition. The Commission, after describing M. Sommeiller's machine, which has its solid steel drill attached direct to the engine piston, and conceding its manifest superiority over other percussion borers, proceed to say: "Let us now inquire if this apparatus has answered the expectations of its author, and rendered the service expected of it. We do not hesitate to express the opinion that it has not. If we examine the staff employed in repairing the percussive tools, then used at the Mont Cenis tunnel, we remark that, in 1863, for eight machines working, there were sixty in the shops. At this time (1867), when the work is carried on from both the French and the Italian sides, the number of engines working is sixteen, and the number of those in the workshops repairing is two hundred. Twenty-four men were constantly employed in repairing eight machines."

M. Leschot, of Paris, was the first to conceive the idea of setting diamonds in an annular center, but since his invention many improvements have been added to the same, since its introduction in this country. The diamonds are now securely fastened, and are set so as to give ample clearance, for the free descent of the drill, and the movement of the core through the tubular stem of the ring cutter. Great improvement has also been made in the various working parts of the apparatus, one of the most important of which (to this country) is the driving of, or rotating, the drill by compressed atmosphere, which performs a double purpose,—both rotating the drill and giving pure, fresh air to the tunnel at the same time. One of this kind, to cost \$10,000, with four sets of drills, is now in course of construction for one of the principal companies of Smartsville.

For ordinary excavating, or prospecting, a Hoadley Portable Engine, with the attachment of the drill machinery to the front, would very well represent this kind of a machine. A cut of the Hoadley Engine may be seen in the advertising columns of your paper. Treadwell & Co. are agents. The advantages claimed for the diamond-pointed steel drill are: 1st. That they drill faster than is possible in any other way. 2nd. They perform a given amount of work more cheaply than it can otherwise be done. 3d. They are extremely simple in both construction and operation, and are not liable to get out of order. 4th. They produce holes of uniform diameter, a feature of great importance in blasting, as the force of the explosive material is thereby fully utilized, and its practical effects greatly increased. 5th. They bore equally well at any angle, and are so constructed that very little time is required to set the drill or change its position. They operate without percussion and consume no steel in boring, as the cutting points (composed of rough, uncut diamonds) are practically indestructible. In their application to "prospecting," they accomplish what, without their use, would be wholly impracticable; and, by the use of this drill only, can mines be penetrated eight hundred to a thousand feet through solid rock, vertically or horizontally, and perfect samples of ore taken out the entire depth, disclosing fully the character and value of the mine by means of a single drill-hole. The samples so obtained are continuous solid cylinders, showing clearly the stratification and character of the mine or quarry at any depth. By rotating the drill one revolution backward—the construction being so as to clamp the core firmly and break it off close to the bottom—one brings the core to the surface with the drill. Messrs. Severance, Holt & Co., No. 318, California street, San Francisco, are the exclusive agents for this coast, of whom all information in reference to this most valuable machine can be obtained. Parties wishing prospecting done, artesian wells bored, etc., can have the same done by contract—without being compelled to purchase a machine—at reasonable rates, by the agents.

Brown's Valley—Big Snake.

Brown's Valley, situated twelve miles from Marysville on the Downville road, and eight miles from Timbuctoo, is reached from the latter place via Park's Bar ferry; which ferry is owned by Matthew Woods, and superintended by Jonas Roach, a clever gentleman, who understands navigation at all stages of the water. It is a licensed ferry, and the charge for footmen to cross in splendid boats, is only 25 cents. Animals are crossed at any stage of the water, and security for their safety is guaranteed. Eight years of experience should be a sufficient time to acquaint the ferryman with this portion of the river. As persons representing large monopolies have attempted to injure this humble ferryman, I volunteer this notice.

The Pennsylvania mine is situated in Brown's Valley. Chas. M. Patterson is President and F. W. H. Aaron Secretary, both of Marysville. They have fine hoisting works on the mine, with incline shaft down 600 feet; are at present working the 300-foot level, with fair prospects. A great deal of money has been both taken out and spent upon this mine; the ledges, for they have several, are broken up, run at all angles of the compass, and have all classes and grades of rock; running from one inch to several feet in thickness, and paying from nothing to \$25 per

ton. In days gone by this mine was very badly managed, running the incline at several angles, making it almost impossible to work their pumps; but by some ingenious contrivances they manage to do so. But with its present excellent management, this mine will, in due time, pay. This is not a mine that would at present sell to advantage, but will pay its management to keep. They also have, near by, a 16-stamp mill, with 150-horse power engine, with all the modern improvements.

At a point within two miles of this place (Brown's Valley) is where the great excitement has existed for the past two months in reference to the "big snake," seen and shot at twice by a boy by the name of Rice. He claims that it is 35 or 40 feet long, and 10 inches thick. You have it for what it is worth. The people here believe it. L. P. Mc.

All About Montana.

[CONTINUED FROM PAGE 298.]

Mines Around Deer Lodge.

While in this section I visited some of the principal placer mining camps. One morning I took an early start in one of the stages of Mr. P. B. Clark, who runs a line to Pike's Peak, (otherwise known as Pilgrim Bar) and to Pioneer City (17 miles from Deer Lodge City), and rode to Pike's Peak. This place, 14 miles from Deer Lodge, is a small camp where some very rich mines are being worked by a few companies. The name of Pike's Peak was given by some miners who came from the similarly named locality in Colorado. Pilgrim's Bar is evidently connected with the title of "Pilgrims," applied to those fresh from the States. "Tender Feet" is another name given to the same persons, and it may interest Californians to know that they enjoy at times the appellation of "Self Risers," from the "self-rising" flour the California boys had with them.

This district has a population of about 120 miners in and about the camp. It was in this section that the first gold was discovered,—in Gold Creek, near this place,—and the camp was located in 1862. The mines are from 6 to 30 feet deep to the bed rock, and pay largely when there is sufficient water to work them,—from May 1st to November, generally. In winter it is very cold, and then many of those who have been lucky enough to have made a "stake," leave for other places.

Some eight hydraulic claims are working at present. Rodgers & Co. are doing splendidly. Berry & Co. have made some very large cleanups, ranging from \$3,000 to \$4,000 and even \$6,700 for a 7-days run. Others are doing well, and I see that you keep a pretty good run of them in your mining summary.

Pioneer City, on Gold Creek, where the Stewart Brothers, of Cal., and a few others, found gold in 1862, is a somewhat larger place than Pilgrim Bar, although not so much mining is going on here. The scarcity of water is the cause of the present dullness. I found eight men employed night and day at Young & Co.'s mine, a bank claim 35 feet high, about a quarter of a mile from the city, and taking out \$700 to \$1,000 weekly. The Pioneer claim, owned by Thomas & Co., was started April 4th of this year, and has ten men at work night and day. These have a bank 25 feet high, and are making a large amount of money. The hands get \$6 per day in greenbacks and work 10-hour shifts.

My trip to these places left a pleasant impression. The boys say that they have the best and most lasting claims and such as pay as largely as any in the Territory. I know that there are some pretty nice boys in the camp.

Blackfoot—Carpenter's Bar.

Blackfoot, 25 miles from Deer Lodge and 28 from Helena, on the stage road connecting those places, is a small mining camp on the west side of the Rocky Mountains. On Ophir Bar, near the town, are many claims which have been mined for years. Jordan & Cass, Gallagher & Co., Davis, Dunn & Co., Hogan & Horan, Hill & Curran, Pat. Carr & Co., and Simpson & Co. are the principal claim-owners. All of these are working this year, averaging from \$12 to \$15 to the hand while running, but water is getting scarce and will stop off entirely about December. The bed-rock is granite. The diggings are about 12 feet (bank) or deep. The bar is perhaps six miles long and one mile wide. The water is used over and over again. If there are three claims running the same head of water, it would cost each claim only \$6 per day. It would cost the original company 18 cents per inch. There must be some 300 or more white men around here.

There are likewise about 100 Chinamen around the place. These have bought quite a number of claims, at prices ranging from \$3,000 to 7,500 a piece, and have paid within the last year some \$27,550 (greenbacks) in this way. To-day they purchased a claim for \$7,000. Last Spring one was sold for \$5,000, the working expenses of which this year amounted to \$2,300 and from which \$7,500 have been taken out by them. These items show that there must be some very good mining property in this section.

Carpenter's Bar, a mile from Blackfoot, was located in 1865, is two miles long and a quarter of a mile wide, and has some 12 claims on it, paying from \$10 to \$15 to the hand. J. Montgomery & Co., Pond & Co. and Barnard & Co., all own valuable ground which is being worked while the water lasts. The water is furnished by the Tager Water Co., in which Mr. Hubbard is largely interested. Mr. H. is an old pioneer, well known in this country, to whom I am indebted for much kindness shown.

From here I go to Helena.

W. H. M.

"Co-operation in Mining" (Smelting?)

[Written for the Scientific Press.]

EDITORS PRESS:—In your issue of Oct. 15th, your remark that the best protection of the miner against the over-reaching of capitalists is a system of co-operation among the mining community, by which, as you say, smelting companies would be induced to give prices which could not be complained of, by reason of being able to purchase large lots of ore in the hands of such co-operative mining companies.

Now, so far as your remarks on this head are intended for the mines and miners of White Pine, and particularly of the Base Range, the suggestion is wholly inapplicable and impracticable. The base metal ores of this district are of such an infinite variety of grades, both as to intrinsic value and facility or difficulty of smelting, that no agreement among the owners of ores is possible as to the prices which their commodity shall command in the market. For it may, and often does, cost the miner more money and labor to produce ore of a low grade from his mine than it does some other, more fortunate, to raise ore of a high standard value to the smelter. How can these two classes of ore-producers be made to co-operate in the sale of their ore? Besides, the yield of the mines is not uniform, either in quality or quantity. Furthermore, the method of determining the value of the various dumps, by assay of samples, is objectionable and unsatisfactory. One sample may assay up in the hundreds in silver, and another, from the same pile, may show scarcely five dollars per ton. The only precise method is by assay of the bullion from several tons of the ore. Even in this way, the assay must be frequently repeated, for the reason that the ore from different parts of the same mine may vary greatly in its yield of the precious metal.

For the above and other reasons, not necessary to mention here, the miner thinks his pile of ore should sell at a price not much below that realized for ore of a higher grade. He considers his labor and time worth as much to him as though he had succeeded in producing ore of a high grade. At any rate he will not submit to have the selling price of his ore fixed by those who have been more fortunate. He will rather subject himself to the mercies of the smelter.

But if you had advocated co-operation among miners in smelting their ores, and the leasing or ownership of smelting works for that purpose, your proposition would have exactly suited our condition and prospects. Even now, while I write, a meeting of the miners of the Base Range is being held at Swansea, to perfect arrangements for leasing one or more of the numerous furnaces now lying idle for want of capital to run them, and to consider what is the best plan for operating the same in the interest of all the miners of the district. A committee has been appointed to submit such a plan, and to report on Saturday evening next. The plan most in favor is, for the whole body of the miners to guarantee the running expenses of the works, and receive the entire bullion yield of their several lots of ore, each individual owner thereof paying his *pro rata* of said expenses, in the form of a tariff on each ton of ore so smelted and delivered as bullion. Whether this plan will be finally adopted is uncertain; but your correspondent believes that none will be found to work more satisfactorily. I will take pains to inform you of the system which may eventually be carried into effect.

Rather than that you should entertain a doubt as to the reliability of the statements made in my previous communication, regarding the extortion of the smelters, I refer you to the proceedings of a meeting of the miners, previously advertised, and held at Hamilton on Sunday, Oct. 16th., reported in the White Pine News on the following Tuesday, at which meeting a resolution was passed, to sell no more ore to the smelters except from the dumps. The meeting adjourned to Sunday, Oct. 23d. (yesterday.) I am not in possession of information as to the proceedings at this latter meeting. Much indignation was manifested at the first meeting, at the treatment of the miners by the managers of the Rothschild Smelting Works. The effect of the action of the miners is seen in the fact that the agents of the Rothschild Company now actually purchase ore and agree upon the price therefor, at the mines, instead of requiring the miners, as heretofore, to transport it to the furnaces, without knowing what price would be given for it by the Company. This is certainly one good effect of unity of action, or, as you would call it, co-operation.

As the Press is justly considered the friend of the mining interest, as well as of all other industrial interests of our country, the facts above recited will be as acceptable to its conductors as they certainly must be to its readers. There can be no difference of opinion between you and the producers of wealth in relation to the efficacy of co-operation. The only debatable question connected therewith is as to the method of arranging the details. These must vary with the different occupations, and each is subject to contingencies best known to those actually engaged in them. Many difficulties stand in the way of co-operations and the disposal of ores, some of which I have attempted to exhibit in this communication. But there is and can be no objection to union in the business of smelting, by some method similar to the one above pointed out. At the same time, our thanks are due to the SCIENTIFIC PRESS for these and many other valuable hints upon the subject.

Shermantown, Nev., Oct. 24, 1870.

MINER.

Mechanical Progress.

A "RECIPROCATING FLY WHEEL."—Chas. T. Porter describes the Allen engine in detail in the Franklin Institute Journal for October. We quote a paragraph: "The reciprocating parts of engines are usually so light in proportion to the area of the cylinder, and their speed is so slow and stroke so long, that the force required to impart motion to them, expressed in pounds pressure on the square inch of piston, is but trifling. But in this engine, the reciprocating parts are made as heavy as possible, without giving to them a clumsy appearance, in direct violation of the received maxim, that these parts in high-speed engines must be made as light as possible; then a short stroke is employed, and a speed which is of some use in this respect as well as in others, and thus there is interposed on each centre, between the force of the steam and the crank, the inertia of a mass, sufficient to absorb the former in great measure, and to impart it to the crank during the latter portion of the stroke, when the pressure in the cylinder has fallen by expansion to little or nothing above the atmosphere. The reciprocating parts thus act as a reservoir of force, precisely as the fly-wheel. They become not the mere means by which, but rather the medium through which, the force of the steam is transmitted to the crank. They remedy the great defect of the crank-motion, which is, that at the beginning of the stroke the force of the steam is exerted more directly to punish the engine than to rotate the crank. They remove the serious objection to working steam at a high grade of expansion, that the engine is driven by a succession of blows. They save the crank and shaft and frame from sudden shocks, and cause the engine to run with a gliding motion that is really surprising to witness."

MACHINE MOULDING.—The *Engineer* describes this in an article on the Britannia Iron Works, Bedford, England: "The pattern stands up over a flat cast iron table, a flask is put on the table, parting sand sprinkled on the pattern, and the flask rammed up with moulding sand; a handle is then turned under the table, and a peculiar screw arrangement, not easily described without drawings, is put in action, by which the pattern is drawn down from the flask, which is then ready to take its place above or below a similar flask in which the other half of the article to be cast has been similarly moulded, the cores, if any, being first put in. The speed and facility with which the moulders do their work is astounding to those who are only accustomed to the old hand system. It would not be easy to get a more troublesome thing to mould than the body frame of one of Messrs. Howards' reaping machines. It is, so to speak, all shapes. It is difficult to see how a plane can be driven through it, on which two flasks only, holding the whole mould, will part. As a matter of fact, however, such moulds are made in two flasks only. To mould one of these by hand would certainly take a skilled pattern maker two hours. Two well-grown, unskilled lads did the same work, in our presence, by the aid of this machine, in a little under six minutes."

VELVET FACTORY IN KANSAS.—The Philadelphia correspondent of the *Iron Age* Oct. 13th, says:—"We find an interesting evidence of progress in the establishment of the first velvet manufactory in America, at Franklin, Kansas. This co-operative enterprise is under the auspices of a French colony, superintended by Valetton de Bossiere, and was commenced during the past summer. The first velvet made was brought to St. Louis by M. Fossiere, last month, and pronounced equal to the best French imported. The factory now makes about 280 yards per day. Additional machinery is to be put up, and the manufacture of sewing silk, tassels, trimmings, etc., included."

TANNING COTTON.—*Cosmos* speaks of treating cotton fabrics with a solution of tannin to give them strength and resistance to moisture. *Nature* thinks the change produced cannot be great. In a subsequent number, the last named journal gives a communication from a Northumberland tanner, who says that in that neighborhood the fishermen have for many years been in the habit of tanning their sails and nets with oak bark or catechu. "Not only does it render them more durable, but in some cases where wet nets have heated and become tender, their toughness has been restored by tanning."

THICKNESS OF THE CENTRAL WEB OF RAILS.—Biron von Weber, Engineer of the State Railways of Saxony, has recently published details of some experiments made by him, which we find given in *London Engineering* for October 7th. He desired to ascertain what was the minimum thickness which would be given to the web of a rail, in order that the latter might still possess a greater power of resistance to lateral forces than the fastenings by which it was secured to the sleepers. For this purpose a piece of rail 6 ft. in length, rolled of the best iron at the Laurabütte in Silesia, was supported at distances of 35.43 in., and loaded nearly to the limit of elasticity (which had been determined previously by experiments on other pieces of the same rail) and the deflections were then measured with great care by an instrument capable of registering 1/1000 inch with accuracy. This having been done, the web of the piece of rail was planed down, and each time that its thickness had been reduced 3 millimetres, the vertical deflection of the rail under the above load was again tested, and the rail was subjected to experiment. * * The forces applied were far greater than those occurring in practice, yet it was found that with the web 12, 9, and even 6 millimetres thick, no distortion took place, and only when the thickness of the web was reduced to 3 millimetres (0.12 in.) was a slight permanent lateral deflection of the head caused just as the spikes gave way. * * Baron von Weber concludes that webs 3/4 in. or 1/2 in. thick are amply strong enough for rails of any ordinary height, and that in fact the webs should be made as thin as the process of rolling and as the provision of sufficient bearing for the fish-plate bolts will permit.

NARROW GAUGE SUSPENSION RAILWAY.—A new form is thus described in a paper by J. B. Fell, C. E. "It consists of a double beam of wood or iron, supported at intervals on a single row of pillars. The gauge of the rails laid upon the beams is from eight to eighteen inches, and this is made equivalent to a broader one by the steady power of horizontal wheels working on guide bars which are fixed on the sides of the beams and below the carrying rails. The depth or distance of the guide bars below the carrying rails is equivalent to a corresponding extension of the gauge. When the gauge on these railways is eighteen inches, and the distance of the guide bars below the rails twelve inches, the eighteen inch gauge becomes equal to a 3 ft. 6 in. on an ordinary railway, and carriages of the same width may safely be run upon it. The stability with which these carriages run is also partly due to their being suspended from the axles instead of, as is usual, resting upon them, by which means the center of gravity is brought low. A line upon this system is about to be opened for traffic from the Park House hematite ore mines to the Furness Railway in North Lancashire. The length is about one mile, the gauge eight inch, and the cost, exclusive of stations and stock, £1000. It passes over a somewhat hilly country, at an elevation varying from 3 ft. to 20 ft., is worked by a stationary engine and endless wire rope, and will have a traffic of 50,000 tons per annum. Small carriages have been run on this line with seats for eight people, and at a speed of fifteen to twenty miles per hour they are perfectly safe and steady. * * A locomotive engine has been designed for working upon this class of railways. The weight is from six to ten tons."

LARGEST IRON WORKS IN AMERICA.—The Cambrian Iron Works, at Johnstown, Pa., 78 miles from Pittsburgh, is owned by a stock company of a few Pennsylvania capitalists. Its product is almost solely railway iron. The manufacture embraces every stage, from mining the ore and coal, to the delivery of the finished product. It owns its coal and iron mines, smelts its iron, refines and rolls it, builds its own machinery, makes its brick and mortar, erects its structures, and seldom goes beyond its own resources to procure any of its material. It gives employment to four thousand eight hundred workmen, the result of whose labor last year was seventy-six thousand tons of railway iron, the value of which was five millions of dollars.—*Pittsburg Cor. Iron Age*.

Scientific Progress.

ELECTRIC CURRENTS RESISTED BY LOOSE DUST.—S. A. Varley, C. E., read a paper upon telegraphs before Section A., at the late meeting of the British Association, from which we quote: "The author when experimenting with electric currents of varying degrees of tension, had observed the very great resistance which a loose mass of dust composed even of conducting matter will oppose to electric currents of moderate tension. With a tension of, say, fifty Daniell cells, no appreciable quantity will pass across the dust of blacklead or fine charcoal powder loosely arranged, even when the battery poles are approached very near to one another. If the tension be increased to, say, two or three hundred cells, the particles arrange themselves by electrical attraction close to one another, making good electrical contact, and forming a channel or bridge through which the electric current freely passes. When the tension was still further increased to six or seven hundred cells the author found the electricity would pass from one pole to the other through a considerable interval of the ordinary dust which we get in our rooms, and which is chiefly composed of minute particles of silica and alumina mixed with more or less carbonaceous and earthy matters. Incandescent matter offers a very free passage to electrical discharge, as is indicated by the following experiments. The author placed masses of powdered blacklead and powdered wood charcoal into two small crucibles; no current would pass through these masses of powder whilst they were cold, however close the poles were approached, without actually touching. The battery employed in this experiment was only twelve cells. The crucibles were then heated to a red heat, and electricity freely passed through the heated powder, and on testing the resistance opposed by the heated particles, placing the poles 1 in. apart, and employing only six cells, the average resistance opposed by the blacklead was only four British Association units, and that opposed by the wood charcoal five units."

ATMOSPHERIC CURRENTS.—The following is an extract from a paper read by Mr. J. K. Laughton before Section E., of the British Association at the late meeting:—"Examining at great length into the various local winds and irregularities in the different parts of the world, we arrive at the conclusion that the whole atmosphere has a continued tendency to move from west to east, and does so move when it is not interrupted. The interruptions are of two kinds: one occasional and irregular, caused by fluctuations in the hydrostatic condition of the air, the other permanent or seasonal and regular, caused by the pressure of lines of coast and mountain ranges. It is impossible to say definitely why the atmosphere should have this prevailing motion; but if the cause is neither heat nor the influence of the earth's rotation, nor any agency which we can detect at work on the earth, we are driven almost insensibly to the belief that it must be the result of celestial attraction; and the fact that the barometer shows no trace of noteworthy rise or fall, as of an atmospheric tide, suggests that the atmospheric currents, which must necessarily be formed by the action of such an intense disturbing force, do not in any way clash, but flow uninterruptedly onwards in one certain direction."

BLOOD PICTURES.—Dr. Day, of Geelong, Australia, confirms the discovery of Neumann, that the picture or network formed by human blood can be distinguished under the microscope from that formed by the blood of other animals. A small drop of the blood is to be placed on a microscopic slide, and carefully watched, at a temperature of 54° to 59° Fahr., until the picture or network formed by its coagulation is developed. Human blood speedily breaks up into a "small pattern" network; that of other animals takes a longer time, and makes a larger pattern; but the blood of every animal seems to form a characteristic picture.—*British Med. Journal*.

THE WELDON CHLORINE MAKING PROCESS.—The author of this process described it before Section B. It is one "for the manufacture of chlorine by means of a perpetually regenerated reagent, consisting mainly of a compound containing the elements of peroxide of manganese and lime." We quote: "The chloride of manganese, which results in the ordinary preparation of chlorine, and which is generally acid, is neutralized by adding to the liquor finely-divided carbonate of lime. The liquor then consists of a neutral mixed solution of chloride of manganese and chloride of calcium, and contains, in suspension, a large quantity of sulphate of lime and smaller quantities of oxide of iron and alumina. The clear solution, after settling, is oxidized by passing into it a blast of atmospheric air from a blowing engine, and heated, if necessary, by a current of steam. Milk of lime is then run into the oxidizer until the liquid ceases to give a manganese reaction with solution of bleaching powder. A further quantity of milk of lime is added, and ultimately from eighty to eighty-five per cent. of the manganese is converted into peroxide. The mixture is allowed to settle, the chloride of calcium solution forming the supernatant liquid is run off, and the residual black mud containing the manganese peroxide is used in the stills where hydrochloric acid is decomposed and chlorine gas produced. A residual liquor such as was commenced with, results, and the round of operations is begun again; and so on, time after time indefinitely."

UNDULATORY HYPOTHESIS APPLIED TO SENSATION.—In the course of the discussion upon a paper read by Dr. Brown-Sequard at the late meeting of the British Association, Dr. McDonald, F. R. S., of Dublin, said that he had long felt some difficulty about adopting the hypothesis that there existed distinct conductors for various sensations, as those of heat, pain, tickling, contact, &c. In explanation of the remarkable cases sometimes met with in which an individual who felt perfectly the contact of one's hand yet could not distinguish heat or cold, he proposed another. His hypothesis was, in fact, an application of the undulatory hypothesis to the propagation of nervous sensation—he supposed that sensations such as those of heat, pain, contact, as well as those of various colors, of form, of sound, were waves of different wave-lengths; and that, under certain circumstances, some waves were absorbed or intercepted while others passed on to the sensorium. He drew an analogy or illustration of his hypothesis from Prof. Tyndall's well-known experiments on the absorption of radiant heat by vapors or scents passed into the air filling a glass tube. The glass tube in this experiment represented the nerve tube, the slight change effected in the air contained within it produced by the introduction of the minutest quantity of scent causes an absorption *in transitu* of some waves of heat, others pass. The experiment of seeing the complementary color upon gazing at a white ground after looking upon a colored disc, might be explained thus: A slight chemical change is effected in the nerve tube by gazing at the colored disc; when the white ground is looked upon, all undulations pass through *save* those which are absorbed, viz., those of the color previously looked at. This, of course, gives the complementary color. Many phenomena connected with sensation, Dr. McDonald conceived, would find in this hypothesis a simpler explanation than in that of distinct conductors.

PHOTOGRAPHING THE SUN'S PROTUBERANCES.—Prof. C. A. Young, of Dartmouth College, has succeeded in obtaining photographs of protuberances on the Sun's limb, by attaching a small camera to the eyepiece of the telescope, and opening the slit somewhat widely. In a note to Prof. Morton, announcing the fact, and enclosing a specimen, he says: "As a picture, the little thing amounts to nothing, because the unsteadiness of the air and the maladjustment of the polar axis of the equatorial caused the image to shift its place slightly during the long exposure of three and a half minutes which was required, thus destroying all the details. Still, the double-headed form of the prominence is evident, and the possibility of taking such photographs is established."

Mining Summary.

The following information is gleaned mostly from journals published in the interior, in close proximity to the mines mentioned.

California.

ALPINE COUNTY.

LEVATHAN—Miner, Oct. 22d: The lot of ore taken last week to Dayton netted \$63 per ton on the dump, and the whole lot of between three and four hundred tons contracted for by the Messrs. Birdsall will pay \$50 to \$60 per ton profit. The mine will be kept at work through the winter.

GLOBE.—The contract is let for furnishing lumber for the new mill, and the first load was delivered to-day.

MR. BULLION.—A large stream of water burst out from the face of this tunnel this week, which is looked upon as a hopeful sign.

TARSHISH.—The winze to connect the upper and lower works of the Schenectady is progressing finely; twenty feet made this week.

THE SILVER GLANCE drift is still in casing, and water coming in freely. Assays this week gave a return of \$36 per ton. All indications are flattering.

AMADOR COUNTY.

ONEIDA—Ledger, Oct. 29th:—C. Waskins has been appointed Supt. The mine was never in a more prosperous condition.

BUTTE COUNTY.

MORE PIPE.—Oroville Record, Oct. 29th: After the pipe for the Spring Valley Water Co. at Cherokee, had been delivered on the ground, it was found that there was four hundred feet lacking. This has been supplied and the pipe will soon be in place. The ditch from the upper end of the pipe is completed to the Concow, which will furnish a supply of water for the winter.

EL DORADO COUNTY.

ITEMS—Placerville Democrat, Oct. 29th: The Alderson claim, at Con Hollow, cleaned up over seven thousand dollars during the past week. . . . The Shepard mine continues to yield ore in goodly quantities. . . . Dickerhoff & Goin are hammering away with good results. . . . The mine formerly owned by C. W. Brewster, called Soap Weed six miles N. E. of this city, has been purchased by a Pittsburg company, who intend working on an extensive scale. . . . The U. S. Grant Quartz Mine is in the hands of a Massachusetts Co. It is their intention to sink two hundred feet.

GOLD DUST.—There has been shipped through Wells, Fargo & Co., in this city during the past four weeks, \$48,000—averaging \$12,000 per week. It is safe to say that as much more has been shipped from other parts of the county. This year, so far, will average \$20,000 per week, besides lots by private hands.

INYO COUNTY.

BULLION.—Independent, Oct. 24th:—Last week there was shipped from the Swansea works 700 bars of base bullion, leaving on hand as many more for which no transportation is offered. From the same cause there is now in Cerro Gordo 150 tons of bullion that cannot be moved.

KEARSARGE.—Extensive improvements are to be made. A wiretramway will be built from the mine to the mill. A ditch is to be run from Little Pine Creek. A 30-inch turbine wheel will supply 400-horse power. Work is already commenced.

CERRO GORDO.—Cor. of same:—The Belmont miners have been running another tunnel to strike their mine at a greater depth, and are in 200 feet. The tunnel will strike the lode 186 feet below the present workings, making a total depth upon the vein of 340 feet. The Wittekind has a tunnel in 115 feet which will develop their mine at the depth of 150 feet from the surface. Mr. Belshaw has sold his interest in the Union mine to Hart and Whipple, owners of the mine above the old Union dump.

LASSEN COUNTY.

BIG VALLEY.—The Susanville Sage Brush of 22d. notes the discovery of a quartz ledge, three miles south of the Eulers & Haskin's claim, which prospects a bit to the ounce, with surface diggings prospecting one dollar to the pan; also rumors of the discovery thirty miles north, of extensive placer diggings.

NEVADA COUNTY.

MANHATTAN.—Gazette, Oct. 26th: A two foot ledge was struck in the mine to-day at perpendicular depth of 130 feet. The ore looks well.

THE STORM.—This morning at 9 A. M. 3.42 inches of rain had fallen. Deer creek had several thousand inches of water running in this morning. Mining in the beds of the creeks will generally be suspended on account of the storm.

STILL BETTER.—The ledge in the bottom of the shafts of the Orleans is now below the water level, fifteen inches wide, of solid sulphuretted rock, with gold visible all through it.

KEYSTONE.—Same of 28th: The Gravel Mining Co. on Montezuma Hill, are running a tunnel to drain their claims, which occupy an area of half a mile square. It is now in 400 feet, and they have 200 feet more to run. The rock is very hard. The width of the channel on their claims is 1-500 feet, and the average depth of gravel as tested by shafts, 150. The gravel pays from the surface down. Thus far they have taken out money enough by hydraulicing the upper strata to pay for running their tunnel.

READY.—Transcript, 26th: In the claims of Irish & Ragon at the Cascades, the tunnel is completed and all arrangements made to turn on water. In these claims excellent prospects have been obtained in the gravel. The Cement Hill claim is to be worked systematically this season for the first time.

OMEGA.—Same of 27th: This will be one of the most lively camps in the county this season. Last season six sets of claims were worked. Three others will be, as soon as the water supply is sufficient, making nine.

RISING SUN.—Same of 28th: This ledge, down Deer creek is eighteen inches thick and contains rich looking sulphurets. There are two strata running through the ledge, from three to five inches wide. The owners have out 200 tons of rock and will soon make a crushing.

GOOD CLEAN UP.—Ten tons of rock from Eddy, Leavitt & Co's ledge, between this city and the Pennsylvania mine, crushed last week, yielded \$391.

PHOENIX LEDGE.—Grass Valley Union 26th: Pat Hennessy, of Allison Ranch has a ledge in Vail's ranch, south of the Allison, 22 inches in thickness, and sunk upon 15 feet only. From this shaft 16 loads of quartz have worked \$20 per ton.

OSBORN HILL.—Same of 28th: This mine, idle for eighteen months, has been leased by a company of practical miners, and started up Monday.

G. V. CONSOLIDATED.—We find that work is diligently prosecuted, and the quartz is looking well.

HOPE.—A correspondent furnishes us the following items: The Co. are contracting for a new bed-rock tunnel, 500 feet long, to be 16 feet lower than any level, and to connect with the cast drift where the richest deposits have been found. This will enable the whole underground mining to be done easily and rapidly, and at a distance of 3000 to 5000 feet without sinking other shafts. . . . 23 lbs. of the hard cement were lately worked under stamps and in a small steam pan in S. P. with excellent results. 500 tons of this cement are now on the dump and a large body of the same is ready for breasting out. From Sept. 17th. to Oct. 29 7 weeks, 473 oz. were taken out, while the mine was worked at great disadvantage by not having the bed-rock tunnel low enough. The old tunnel is being cleaned out, to connect with Hope shaft, so in case of a wet winter, the water will have to be lifted only 70 to 80 ft. by a 12-inch cornish pump.

MORE ENGLISH CAPITAL.—Transcript, Nov. 2d: A sale of the Little York Water & Mining Co's property, in Little York township, has been negotiated. The consideration is \$200,000, the papers have been made and Messrs. Tregillis and Raud, agents for the English capitalists, have gone to London to conclude the trade.

PLACER COUNTY.

THE GRAVES-PUTNAM CLAIM.—Herald, 28th: We on Monday found ten men taking out quartz. We never saw a ledge more favorably located for cheap and expeditious working. The box prepared for receiving the rich specimens, estimated to hold fifteen tons, is now about half full. The site for the new mill is partially graded, and the timber for the wood-work on the ground by this time.

THE CRETUS LEDGE.—No crushing has been had since the twenty-six tons yielding \$34 per ton, but considerable ore has been taken out and new houses built for the rainy season. Lately the boys have struck a two-inch stream of water in the lower shaft and are running a tunnel along the edge to drain it.

EVENING STAR MINE.—Taylor, Quick, Heenan & Co. have within the last week opened down on very rich rock, some of which has yielded as high as eight hundred dollars to the pan. For three months the company have kept working night and day. At a depth of 70 feet they run out a drift seventeen feet to a point where the rock was not so hard, and in sinking found the ledge a foot thick and very rich. They

have taken out to or three tons that will pan out fully \$5,000. The company has a steam quartz mill, pumps and hoisting works, all run by the same engine. The claim is near the old diggings known as "Fiddler's Green."

STRICKER.—A. O. Bell discovered a quartz ledge near Bald Hill some days ago, and has twenty tons out that will yield \$75 to \$100 to the ton. At present the thing bears the appearance of a mixture of talc, rotten sandstone and decomposed quartz, and pans about \$2 to the bucketful.

SISKIYOU COUNTY.

PATTERSON CREEK.—Yreka Journal, Oct. 26th: The claim of Swau & Co., in which the bed rock has been reached, is paying \$8 to \$9 to each set of timbers, or \$6 a day to the hand.

STRUCK GOOD PAY.—Union, 26th: Smith, Hare & Co. of Humburg, who have been for some time running a tunnel in the bank on the North Fork, have taken out dirt that paid \$2.50 to the pan.

SIERRA COUNTY.

ALLEGHANY.—Downieville Messenger, Oct. 29th:—The New York Co. are taking out pay, which calls to mind the flush times of '49 and '50. Lately, one of the Company washed two pans of dirt; in one he got over six ounces, and in the other, five. Thousands of dollars will be realized from the "pay grit" now piled up.

SMITH'S FLAT.—The Buckeye Co. which is running a prospecting tunnel, recently picked up a quartz boulder worth \$500. A two-ounce nugget and five oz. in smaller pieces also.

ROCK CREEK.—The owners of the Adella gravel mine which stopped two years, since, having had a survey made of their claim, find that by running a tunnel a thousand feet in length, they can strike the lead so that they will be able to work to advantage. The lead is the regular blue.

The Bald Mountain are running for the same lead from the Forest City side of the mountain. Another are running for a continuation of the old Uncle Sam ground, supposed to be a branch of the lead worked by the Adella.

FOREST CITY.—Cor. of same:—A number of new enterprises are started. The Bald Mountain Co. was formed to test the question of a lead. A shaft was sunk, and fifteen to twenty feet of gravel, rich, found in the bed rock. They commenced a tunnel, opening into the North Fork of Oregon Creek, and are running it to the lead. It is a tunnel surpassed by none in the County. Already they are in between 400 and 600 feet. The North Fork Co's. tunnel is in 330 feet, all done in eight weeks. Eli Kuapp and others, constituting the New Phase Co. have sunk 60 feet on a quartz ledge that crosses the Live Yankee gravel lead. The ledge is four feet thick, and assays up to \$200 per ton. The old Oregon grounds are being opened by the Shoo Fly Co. The Dutch Co. are preparing to commence work in earnest. Forest City will be a business center when all these enterprises are carried out. Old residents are beginning to come back.

DORGAN FLAT.—The White Pine Company recently cleaned up \$700, in one week working five men. This Co. have run three tunnels into their claims; the first two being too high were abandoned, yet they have received pay for all the labor since they commenced.

ITEMS.—A rich boulder weighing, rock and all, twenty-seven pounds was struck in the Shamrock claims on Fir Cap. The specimen, to say the least, contains several pounds of gold. . . . The Orleans Co., at Little-Grizzly, are taking out good pay. . . . In the Pioneer tunnel, Stover & Hendel have struck soft rock, and are pushing ahead lively. . . . The Caledonia Co., Cedar Grove, recently struck the pay channel. . . . At the new 40 stamp mill of the Sierra Buttes, they are putting in a wheel 60 feet in diameter, the largest on the coast.

SAN BERNARDINO COUNTY.

RICH ORE.—Guardian, Oct. 22:—Dr. Wm. B. Brink paid a visit to Black Hawk Silver Mining District, and returned on Wednesday last, bringing specimens from the mines in which he is interested, that assay away up in the thousands.

NEW ENTERPRISE.—Same of 15th:—A party of miners, mostly from White Pine have determined to drain a flat at Holcomb Valley. It will take a ditch half a mile long, and will open a large extent of probably rich mining ground.

TRINITY COUNTY.

THE DEEP HOLE.—Journal, 29th: The Weaver shaft is down 130 feet. The soft stratum was six feet through and had to be timbered. The men are now at work in extremely hard granite. Wood and gravel are to find and the water is increasing.

BURSTEN.—The big flume in the cañon below North Fork, is no longer in operation. It is supposed that malicious Chinese threw logs in the river above.

Nevada.

COPE DISTRICT.

BULLION.—Elko Independent, 29: During the last fifteen days, Wells, Fargo & Co. have shipped from Cope to San Francisco, \$4,661.

HUMBOLDT.

RAILROAD DISTRICT.—Elko Independent, 26: The Bullion mine is taking out large quantities of rich galena. Pack trains are packing the ore down the hill. . . . The Elko Furnace will fire up again in a day or two on ore from Railroad. Samples of ore have lately arrived from other districts in this vicinity which took well.

COMPROMISE.—Silver State, 28th: After a long siege of litigation between John C. Fall & Co. of the Montewok mine and the Silver Mining Co. of the Arizona, the suit has been quashed by consolidation of interests. Fall retains one-half of the whole.

WASHOE.

CHOLLAR-POTOSI.—Gold Hill News, Oct. 29th: Daily yield 300 tons. The developed ore sections hold out well. The recent extraordinary rise in the stock, was due more to speculation than to anything else.

YELLOW JACKET.—Daily yield 165 tons good ore, from the three lowest working levels. The drift north, at the 1,000-foot level, is not completed to its connection with the winze from above.

DANBY.—The Co. are about to resume operations in earnest. They have put their machinery in operation, and will sink their engine shaft for a new level. Once the shaft down to a proper depth, they will drift for their vein at a point where there are known to be large deposits of rich ore.

OCCIDENTAL.—Owing to financial embarrassments this mine is closed at present. The stock was quoted at two bits a share yesterday.

GOTTLIN CURRY.—Daily yield 85 tons, of very good ore, ear samples assaying \$44 per ton. A seam of fair ore was cut in the United States section, at the sixth floor. It promises to develop into a good sized body.

CROWN POINT.—The incline is down 100 feet below the 1,000-foot level, and the bottom still shows barren quartz. The drift south at the 1,100-foot level, is in 160 feet from the main east drift, and the face continues barren. Daily yield of the upper mine 80 tons, fair ore.

HALE & NORCROSS.—Daily yield 150 tons, mostly from the seventh level, the ore breasts in are looking exceedingly well. The development of the eighth level is being energetically done.

SAVAGE.—Daily yield 80 tons, principally from the eighth level. The Potosi section yields well yet, and a few tons come from the seventh level. The work of developing the ninth level is carried forward at a satisfactory rate.

OPHIR.—No new ore developments. A raise is about being commenced from the south drift at the 700-foot level.

BELCHER.—Prospecting vigorously prosecuted with no new developments, except that the face of the main drift at the 420-foot level, and the raise above it show more quartz; and the ore above the 200-foot level shows improvement.

CALEDONIA.—The Pute and Sapphire mills are kept running on ore from the 200 and 300 levels. The latter gives the best yield.

OVERMAN.—Daily yield 55 tons, principally from the Lambert and lower tunnels, with seven or eight tons from the raise above the 400-foot level.

VIRGINIA CONSOLIDATED.—Main west drift in 695 feet from the shaft, at the 500-foot level. Rock rather harder.

SACRAMENTO & MEREDITH.—Turning out plenty of excellent ore from the upper workings, keeping the mill steadily running.

IMPERIAL-EMPIRE.—Only quartz and porphyry developed as yet in the 1,300-foot level.

HOPE.—This continues its daily yield of 45 tons of \$26 ore, keeping both mills of the company running.

SIERRA NEVADA.—Nothing new. Both mill and mine running satisfactorily.

A GOOD MINE.—The Buckeye mine, near Silver-City, is lying idle at present, but the owners will doubtless soon have it working. The lease of Dmn & Sewell, who have been working it, expired last Monday. The mine is owned by a company in San Francisco. They put an injunction upon the working of the mine on the 17th inst., but the lessees obtained a dissolution, with \$1,800 damages for three days stoppage of work.

FIGHT ON SEVEN-MILE CANYON.—The Enterprise of the 25th says: A battle has taken place between the fighters employed by the Water Company on one side and the Tail Sluice Companies on the other. The fight opened with fists and rocks and wound up with pistols at short range. Several were wounded—one dangerously.

NORTH AMERICAN.—This mine, below Gold Hill is yielding 50 tons of fine ore per day, principally from the third level. They have a very large amount in sight.

LAST QUARTER'S BULLION SHIPMENT.—The bullion shipment from Wells, Fargo & Co.'s office in this city, for the months of July, August and September last, was 1,008 bars, worth \$2,513,377.36.

SUTRO TUNNEL.—Enterprise, Nov. 1st: The Tunnel is now in 1,635 feet. The ground is good, and indications are favorable for striking a ledge soon. No work

has been done in the face for two weeks as they have been bringing up a drain to carry off the water. There will be no stoppages hereafter.

WHITE PINE.

REVIEW.—*News*, Oct. 30th: It becomes more evident every day that mining is settling down to a steady business. The work being done now is mostly by companies, who do not want to sell. In Treasure City during the middle of the day, not a single idle miner can be seen; but the leading mines bear the appearance of a busy anthill.

WARD BEECHER.—This is now one of the leading mines in the District. The first class ore, such as will assay and mill \$500 to \$1,500, is picked out; the rest being sent to the mills just as it comes, giving an average of \$50 to \$75 per ton. The usual 50 tons are extracted daily. Work is going on in all the shafts—and connection has been established, showing one uninterrupted body of ore along the whole length of the claim. The Big Smoky mill has just finished crushing 300 tons, and the Sheba is steadily working away on the same ore. The net profit for the current month was estimated at \$50,000.

EBERHARDT.—Mr. Attwood does not care about getting out more ore than is needed to keep the Oasis mill running. The men are thoroughly prospecting the mine for future operations on a larger scale, which will be commenced in a week or two. The mine is opened now in such a manner that an immense quantity of ore can be taken out with little trouble. Amongst the new developments a drift has been run in virgin ground, where a body of ore has been struck which has never been excelled in the mine.

ITEMS.—South Aurora yields large quantities of ore, and the bullion shipments from the Stanford mill bear witness that the ore is good.... Original hidden Treasure has 35 men at work and is taking out ore which is worked at Tregloan's mill.... Silver Wedge and Silver Wave are going on as usual.... Noonday has struck ore again—averaging \$100 per ton. Appearances indicate a large body.... Anchor has again struck a good streak of ore.... Consolidated Chloride Flat has been leased to the Metropolitan Mill Co. who are working all over the flat, and taking out some fair ore.... Virginia has an improved appearance.... In the Base Metal mines considerable work is being done; and the supply of ore exceeds the demand by far.... Only three smelting works are in blast in the District, and more could find profitable employment.

BULLION.—Tuesday came 10 bars of bullion from the Meadow Valley S. M. Co., to Wells, Fargo & Co. They weigh 1,112 pounds, and are valued at \$17,595.49. On Friday, 9 valued at \$16,095.31.

MACHINERY for the International Mill is arriving. The kettles for the Matterson refining works have come.

BOULDER.—*News*, 26th: Thompson & Peabody, on the Stoughton have 30 inches of solid iron and copper pyrites.... Mitchell & Williams last run of the Long's Peak mill in ward, for two weeks, produced \$1,000.... From July 15th, to Sept. 15th, Botsford, Fullan & Holk made a net profit of \$19,000.

Colorado.

ITEMS.—Central City *Register*, Oct. 26th. R. M. Reese has leased the Montezuma Co.'s property on the Newfoundland lode for 2½ years.... Assays of ore from the Divos lode, Sherman mountain, show \$101 to \$250 per ton. The shaft is 27 feet deep, and the vein 3 feet wide.

GRAND ISLAND ORE.—B. O. Cutter has 2,500 lbs. of ore that assays \$10,000 per ton. This is from the Caribou. This quality comes from the bottom of the main shaft, from indications, the Caribou will yield during the first month of its working, by the present owners, \$60,000.

Idaho.

ITEMS.—*Avalanche*, Oct. 22d.—Things about the Oro Fins are lively. The engine has been overhauled, and everything prepared for winter. The winze in the sixth level of the Golden Chariot, is down thirty feet. Large quantities of rich ore from the stopes of the fifth level. The new hoisting works were at Elko ten days ago. The Bruce Bros., on the Crane & Driggs are taking ore both from the surface and levels below. The last lot yielded \$58 per ton.... Wednesday the Wild Date tunnel was in 56 feet. They have 30 tons of ore, which is being hauled to mill.... The Peby Bros. have four men to work on the Chariot dump.... One pan of Bell Peak ore gave over \$100.

BULLION.—Wells, Fargo & Co. shipped this week, 14 bars valued at \$5,000.

FLINT DISTRICT.—Wankee & Brown have had a good clean-up at Black's mill. We understand it was up among the hundreds.

Utah.

SHIPPED.—*Herald*, 25th: Sixty-seven bars

of bullion, from the smelting works of Woolhall Bros., weighing 8,000 lbs., were shipped for San Francisco, on Wednesday. To-day fifteen car loads—a hundred and fifty to six—of ore leave, twelve going west and three east. Ten loads are from the "Emma" and five from Tintic.

Mining Stocks.

SAN FRANCISCO, THURSDAY EVE., NOV. 3.

Mining Stocks have been quite steady during the past week but the amount of business generally has not been very heavy, except in the case of Chollar-Potosi, Golden Chariot, Savage and Yellow Jacket, of which some quite large sales have been made. The drawing of the prizes of the Mercantile Library lottery caused the adjournment of the Stock Board from Monday morning until Tuesday morning.

During the month of October the following mining companies have declared dividends as follows: Black Diamond Coal Co., ½ per cent., \$25,000; Chollar-Potosi, \$3 per share, \$84,000; Eureka (Cal.), \$10 per share, \$40,000; Golden Chariot (Idaho), \$2½ per share, \$25,000; Gould & Curry, \$10 per share, \$40,800; Hale & Norcross, \$5 per share, \$40,000; Natoma Water and Mining Co., 1 per cent., \$3,000; Sierra Nevada, 50 cents per share, \$7,500; Union (Cal.), \$1 per share, \$5,000. Total amount of dividends, \$270,300. The amounts disbursed during the month of October in 1869, 1868 and 1867 are given as \$99,200, \$160,000 and \$269,000 respectively.

The dividend of the Gould & Curry company is the first declared since 1866. The dividends of the Chollar-Potosi and Golden Chariot companies were 50 cents per share larger than for the preceding month.

During October the Mint in this city coined \$1,800,000 gold, in Double Eagles, and \$75,000 silver, in Half Dollars. The deposits of crude and refined bullion amounted to 125,910 oz. gold and 86,811 oz. silver.

The stock of the Occidental Company was worth \$35 per share in March, 1869, when the first and only dividend was paid to stockholders. It was sold at 5 cents per share last evening, owing to the failure of the company. It is said that the mine abounds in low grade ore which might be profitably worked, and numerous complaints have been made against its management. A new mill has been recently erected at a cost of \$50,000. An assessment of \$60,000 was collected in April and May last, and another of \$50,000 levied in July. This last was rescinded and one of \$15,000 substituted, which becomes delinquent next week. Five cents per share represents a value of \$500 for the mine and mill.

The Daney company are reported as about to resume operations in earnest.

Mining Stock Prices.

[S. F. Stock and Exchange Board.]

THURSDAY, NOV. 3, 1870.			
BID. ASKED.		BID. ASKED.	
Alpha Cons.....	6 6½	Ida Elmore.....	8 10
Amador.....	24½ 245	Imperial.....	29 32½
Belcher.....	3½ 33	Keniluck.....	34 36
Chollar-Potosi.....	75 76	Occidental.....	5c 25c
Confidence.....	—	Ophir.....	3½ 3½
Crow's Point.....	3½ 3½	Orig. Hid. Treas.	6½ 6½
Empire Mill.....	— 1½	Overman.....	7 7½
Eureka.....	—	Savage.....	33½ 33½
Golden Chariot.....	55 55	Silver Wave.....	2½ 3½
Gould & Curry.....	88½ 88	Sierra Nevada.....	14½ 14½
Hale & Norcross.....	115 117	Yellow Jacket.....	37½ 37½

Mining Shareholders' Directory—Meetings, Assessments and Dividends.

[Compiled weekly from advertisements in the SCIENTIFIC PRESS and other San Francisco journals.]

ASSESSMENTS			
NAME, LOCATION, AMOUNT AND DATE OF ASSESSMENT.	DELINQUENT.	DAY	DAY
Columbia, Cope Dist., Sept. 24, 25c.....	Oct. 29—Nov. 22		
Columbus, Placer Co., Sept. 28, 75c.....	Nov. 2—Nov. 19		
Cora, Virginia, Storey, Sept. 19, \$1.....	Oct. 10—Nov. 3		
El Dorado, Va. City, Oct. 24, \$2.....	Nov. 23—Dec. 7		
Empire, G. H., Oct. 18, \$4.....	Nov. 22—Dec. 13		
Ida Elmore, Idaho Ter., Sept. 10, \$5.....	Oct. 15—Nov. 5		
I. X. L. Alpine Co., Oct. 18, \$2.....	Nov. 19—Dec. 7		
Mahogany, Idaho, Nov. 2, \$2.....	Dec. 5—Dec. 27		
Mountain Star, Alpine Co., Oct. 17, 50c.....	Nov. 24—Dec. 12		
Morning Star, Elko Co., Sept. 29, 50c.....	Nov. 7—Nov. 28		
Meadow Valley Ex., Sept. 19, 50c.....	Oct. 25—Nov. 10		
N. Bloomfield, Nevada Co., Sept. 22, \$4.....	Oct. 25—Nov. 11		
Oriental, Sierra Co., Oct. 11, 30c.....	Nov. 10—Nov. 30		
Ophir, Virginia City, Sept. 9, \$3.....	Oct. 13—Nov. 2		
Silver Sprout, Inyo Co., Aug. 29, 25c.....	Oct. 18—Dec. 1		
San Marcial, Mex., Oct. 18, \$2.50.....	Nov. 10—Dec. 12		
Tallulah, Nev. Oct. 14, \$1.50.....	Nov. 22—Dec. 20		
Trinidad & San Jo. Co., Oct. 24, \$5.....	Nov. 28—Dec. 19		
MEETINGS TO BE HELD.			
Confidence.....	Annual Meeting, Nov. 11		
Independent Coal.....	Annual Meeting, Nov. 9		
LATEST DIVIDENDS—(Within Three Months.)			
Eureka, div., \$7.50.....	Payable Oct. 18, 1870		
Golden Chariot, div., \$2.50.....	Payable Oct. 20		
Hale & Norcross, div., \$5.....	Payable Sept. 10, 1870		
Sierra Nevada, div., 50c.....	Payable Sept. 16, 1870		
Union, div., \$1.....	Payable Aug. 5, 1870		
*Advertised in this journal			

WHAT MIGHT BE.—It is held that America, with her productive power fully developed, would be able to feed four times as many people as now occupy the entire globe.

New Incorporations.

The following have filed certificates with the County Clerk, San Francisco:

McCALEN M. Co., New Mexico.—Oct. 12. Capital stock, \$5,000,000 in 50,000 shares. Trustees: J. McCullen, H. G. Walton, W. Willis, S. Heydenfeldt and D. T. Bagley.

GREENVILLE M. Co., Plumas Co.—Oct. 12. Capital stock, \$400,000 in 4,000 shares. Trustees: H. C. Bidwell, A. McIntire, P. Ogden, E. J. Shipman and E. A. Breed.

DEEP SPRING M. AND M. Co., Inyo and Mono counties.—Oct. 17. Capital stock, \$200,000 in 4,000 shares. Trustees: T. Tennant, J. McCloskey, A. D. Watson, O. P. Fitzgerald and A. H. Jordan.

SAN JOSE MISSION LAND CO.—Oct. 17. Capital stock, \$1,250,000 in 500 shares. Trustees: S. S. Tilton, C. F. Wood, E. H. Dyer, N. Hamilton, H. S. Brown, H. V. Herbert and J. A. Amerman.

The following have been recorded in the Secretary of State's office, Sacramento:

S. F. AND SAN JOSE, SANTA CLARA AND PAJARO VALLEY, SOUTHERN PACIFIC AND CAL. SOUTHERN R. R. Co.—Articles of Association. Capital stock, \$50,000,000 in 500,000 shares. Directors: L. Tevis, L. Stanford, C. Crocker, C. P. Huntington, M. Hopkins, C. Mayne and P. Donohue.

KERN ISLAND IRRIGATING CANAL CO.—Oct. 18. Capital stock, \$30,000. Trustees: A. R. Jackson, J. Chester and T. Baker.

VALLEJO COAL M. Co., Suisun Ranch.—Oct. 20. Capital stock, \$50,000. Trustees: J. McAllister, J. B. Frisbee, N. W. Fish, L. B. Misker and O. H. Baldwin.

LINDEN FLOUR MILL CO., San Joaquin county.—Oct. 20. Capital stock, \$30,000. Trustees: J. Patterson, J. R. Fennell, J. H. Prather, W. E. Field and D. Lewis.

Meetings, Elections, Etc.

JULIA M. Co.—Oct. 11. Trustees: S. P. Wells (President), N. J. Jarrow, C. Carter, H. P. Wheeler and G. F. M. Glover. Secretary, A. Wood.

S. F. AND POINT LONOS ROAD CO.—Oct. 11. Trustees: H. S. Gales (President), C. C. Butler (Secretary), L. Tevis, J. B. Haggins and A. Bull. Treasurer, W. K. Van Allen.

NATOMA WATER AND MINING CO.—Oct. 11. Trustees: H. G. Livermore (President), J. Bennett (Vice-President), H. P. Livermore (Sec. and Treas.), H. T. Knight (Supt.), J. H. Redington, J. C. Enler and W. Jarvis.

EUREKA COSE, M. Co.—Oct. 11. Trustees: G. S. Dodge (President), W. Thompson, Jr. (Vice-President), L. Tevis, G. T. Lawton, J. C. Bateman and W. C. Balston (Treasurer). Secretary, W. W. Taylor; Superintendent, J. F. Boyd.

EXCHICOTEN M. Co.—Oct. 17. Trustees: J. Sims, S. Hydenfeldt, J. E. De La Montaigne, W. H. Sharp and A. K. Grim.

U. S. GRANT M. Co.—Oct. 17. Trustees: T. L. Barker (President), L. A. Routh (Vice-President), and J. G. Bray (Treasurer). Secretary, E. Taylor.

NEVADA CONS. M. Co. Trustees: A. D. Carpenter (President), G. D. Weman (Vice-President), J. Scott, R. F. Knox and G. H. Hallatt. Secretary, J. M. Buffington.

RECENT STRIKES.—A deposit of einnarhar has lately been discovered on the ranch of Mr. Joseph Wilson, about six miles north of Vallejo. The specimens found are exceedingly rich, but as yet the extent of the deposit is unknown. Mr. Henry G. Hanks showed us some very fine specimens which he has placed in his cabinet at 649 Clay street.

We spoke a couple of months ago of the discovery of Hayasine (hydrate of lime) in Nevada, specimens of which were analysed by Mr. Hanks. We see that, on the 22d of October, a load of 9,000 lbs. from near Columbus District, Nevada, arrived at Wadsworth for shipment to this city.

Some beautiful specimens of fibrous gypsum, from San Ramon Valley, Contra Costa county, have been shown us. They are exceedingly fine.

OMAHA SMELTING AND REFINING WORKS.

—From the *Omaha Tribune*, of October 17th, we see that the erection of smelting works at Omaha is a certainty. Probably the furnaces are now in the course of construction. A company has been formed with a capital of \$60,000, all paid, and has organized with a Board of Directors consisting of Messrs. C. H. Downs, W. H. Pier, Gen. Lowe, A. L. King and C. W. Mead. Mr. King's name is mentioned prominently among those to whom the organization of the company is principally due. Mr. L. Ballbach, of Newark, N. J., is General Superintendent. The works are to have a capacity of reducing from 16 to 20 tons of ore daily.

FIRE.—Two telegrams within the past week bring us bad news. One, dated Nevada, Oct. 27, says, intelligence is just received here of the total destruction by fire of the town of Centreville, Idaho, on the 24th inst. Fuller particulars are expected by the next stage. The other, dated Grass Valley, Nov. 2, reads, the town of Moore's Flat was destroyed by fire. Loss, \$13,000. The Masonic Hall, and Marks & Co's. Bank were destroyed.

PETROLEUM.—The petroleum wells in Surdam's Cañon, says a San Buenaventura telegram of Oct. 22d., are now flowing freely, and a large quantity of oil is being shipped to various places on the coast.

GEOLOGY AND HEALTH.—At the late meeting of the British Association, at Liverpool, Dr. Moffat read an interesting paper, showing that the soil has an influence on the composition of the aereal plants grown upon it, and on the diseases to which the inhabitants are subject. The district in which he practices, consists geologically of the carboniferous and of the New Red or Cheshire sandstone systems. The inhabitants of the first are engaged chiefly in mining, of the second in agriculture. Anemia with goitre is very prevalent among these living on the carboniferous system, but is almost unknown among those residing in the new red sandstone. An analysis of the soil and the wheat grown shows a predominance of iron and of phosphates in the latter region, and to the deficiency of those substances in the carboniferous districts he ascribes the great liability to anemia, which is a condition in which there is a want of the amount of oxide of iron naturally contained in the blood. Dr. Buchanan, in commenting on the subject, said that the fact had been established that dampness of the soil is a powerful cause of consumption, and in several localities the drying of the soil has greatly reduced the mortality from this disease.

A LARGE AMETHYST.—The Toledo (Ohio)

Commercial has the following. We would remark that amethysts are of a clear purple or bluish-violet color, and that the brown variety of quartz crystal is smoky quartz: "Capt. John Buck, of Sandusky City, has presented an amethyst block to Judge Fitch. It is about eight or twelve inches in size, and the top is composed of what has the appearance of being irregular blocks of amethyst, the central portion being prismatic in form, of a light brown color and as smooth as glass, while the outer blocks are square, and have a metallic coating, somewhat resembling unpolished silver. This fine specimen was taken from the new and rich silver mines on the north shore of Lake Superior."

SURVEY OF PLACER MINING CLAIMS.—In a recent letter of instructions from Hon. Sherman Day, U. S. Surveyor General for California, to D. B. Merry, Mineral Deputy of this District, he states that placer mines may be surveyed upon unsurveyed land, and afterwards made to conform to the legal subdivisions the same as in case of unsurveyed pre-emption claims. Also that ten acre tracts can be taken in other than a square form, i. e., either 40 rods square, or 20 rods by 80, the long sides extending either east and west, or north and south.—*Placerville Democrat*.

We are sorry to see that the trouble between the Virginia and Gold Hill Water Co. and the owners of sluice claims has led to a resort to violent measures, which will not affect the result at all. As to which party was in the wrong in this case, we are unable to say; possibly both were. So much is certain, however, that shooting or pounding heads or burning buildings is not the proper way to settle a dispute.

GOLD IN OHIO.—It is reported that a gold vein has been discovered at Garrettsville, in Northwestern Ohio, and the excitement is great. All the land in the vicinity has been leased by a company of capitalists. The most remarkable fact in this connection is the assay value given of the rock,—only \$19.50 per ton. Heretofore in such cases it has been the custom to give values in the thousands.

COAL.—A seam of good coal is reported as having been lately discovered about two miles from Elko.... The *Arizona Miner* reports a new coal discovery 20 miles north of the new post east of the Verde. The layer is said to be about 4½ feet thick and of good quality.

OPERATIONS on the Sulphur bank, in Lake county, have been re-commenced, and it is determined to send forward five hundred tons this season. All the products of the mine are forwarded by team and railroad to Vallejo.—*Appeal*.

Angora Goats and Long Wool Sheep.

Wm. M. Landrum, of Watsonville, Santa Cruz County, exhibited a fine lot of Cotswold sheep and Angora goats at the State Fair in Sacramento which we take pleasure in noticing.

He exhibited a hornless Angora ewe—the only one on the ground—that had a fleece very remarkable for fineness. He said that he had a hornless buck, the only pure blooded one in the United States, and that this hornless breed will produce more fleece, with less coarse hair, or “kemp,” than any other breed. His hornless buck will shear 10 pounds to the yearly fleece, worth \$1.25 per pound—while the herd will average 3½ pounds per fleece. He also showed five ¼ grade Angoras with common goats that were really very fine—looking so like the pure breed as to deceive any but a practiced eye.

The advantage in crossing is to improve the common goat,—which is profitably done in this way,—and the fleece of the goat so graded soon becomes valuable—the skins are worth more for mats, robes, etc.; while the mutton is greatly improved by the first crossing.

Mr. Landrum claims to be the first to import the Cashmere or Angora goat to this State, which was in 1861; and he claims that this enterprise is one of great importance to the State. Goats are easily kept; they are healthier than any other domestic animals; the meat is better food than beef or mutton, while the fleece is as profitable as that of the sheep.

Mr. Landrum also exhibited a lot of pure Cotswold sheep which he insists are more profitable to the farmer than short and fine wool sheep. He says: “We can produce combed wools for less price per pound than short wools, and realize 100 per cent. on wools; and 50 per cent. on mutton, and meet with more ready sales by breeding to coarse, long-wool sheep. * * *

The wool from these sheep loses only 15 to 25 per cent., in scouring; while Merino wool loses 60 to 78 per cent.; hence the manufacturer can pay double the price for it and make the fabric for the same price per yard.”

“This class of long combed wool brings double the price of short, fine wools.

“We import annually nearly one hundred million dollars worth of wool, and woolen goods, mostly of a class of long wool, that could be produced at home for less than one-half what it costs us to buy the same.”

Among the sheep exhibited was the imported buck “Prince of Ontario,” which sheared 20½ pounds. He weighs 330 pounds. Another Cotswold buck, “Wm. Wallace,” which weighed 378 pounds, at two years of age, is now four years old, and if fat, would swing 500 pounds.

Four extra fine ewes, with three choice buck lambs were also shown.

His Cotswold ewes averaged 10½ pounds of fleece this season. Their superior weight and quality of mutton, as also hardiness and healthy habits are qualities of much weight in breeding.

Cotswold Lambs.

Mr. L. kept a record of his first pure bred Cotswold lamb, last season. It weighed 14 pounds at birth; 43 pounds at 30 days old, and 77 pounds at 63 days old; fleece measuring three inches long—thick and beautiful.

POTATOES IN CARSON VALLEY.—Last spring, according to the Carson Appeal, George Chedie planted 150 pounds of “Early Rose” potatoes. On the 1st of October he harvested 1,500 pounds of fine tubers. They had been grown, without irrigation on a dry sandy patch. A gain of one thousand per cent of such roots, in such a locality may be considered as something worth noting, and an additional evidence of the agricultural productiveness of even our most elevated mountain valleys.

PATENTS.—The Patent Office issued, during the month of September, five different patents connected with mop handles.

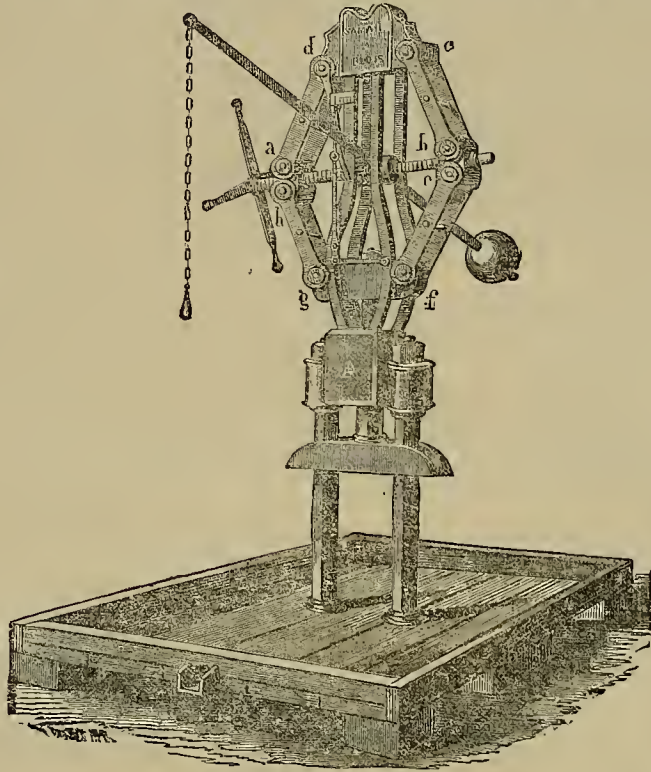
DESTROYED BY HARES.—William Mawson's sweet potato crop, on Butte Slough, Sutter county, has been destroyed by hares.

A Press for Wine and Cider.

We herewith present an engraving and descriptive sketch of a press for use in various adjunctives to agriculture and the industrial arts. It is a French invention which we have copied from the *American Artizan*. This press is constructed on the principle of the combined screw and toggle-joint. A brief explanation will make its principles and use apparent to the reader.

By reference to the figure it will be seen that the broad base of the apparatus is made of wood, and has its flat upper surface surrounded by a rim which insures the passage of the liquids received from the press above to the outlet spout, by which they are conducted to a suitable receiving vessel. At or near the center of the base

are two upright guides, which have the double function of guiding the follower or plunger of the press and of supporting the superincumbent working parts. The upper ends of these supports are connected by the solid bed-block, A, through which passes the stem or rod of the follower, carrying at its upper extremity a strong cross-bar, to either end of which latter is pivoted the lower extremity of a toggle-joint. The pivots by which these toggle-joints are connected with the cross-bar are indicated at f, g, in the cut. The upper ends of the toggle-joints are pivoted to the top of the frame of the machine by the pivots c, d. Each toggle-joint or pair of toggle-bars carries at its center a nut, into which is screwed the adjacent end of a horizontal screw, the threads of which at its two end portions run in opposite directions. By turning the screw in one direction or the other, as the case may require, by means of the bar, a, the centers of the two toggle-joints may be made to approach or recede from each other and thus raise or lower the follower. Inasmuch as the power of the follower increases in proportion to the straightening of the toggle-joints in forcing the follower downward, it will be seen that the characteristics essential in machines of this class, practically valuable in the compression of substances, of increasing in pressure as the resistance increases, is secured. When it is necessary to apply more force in using the press than can be conveniently done with the hand-bar, a lever, clearly indicated in the engraving, and suitably connected with the center of the screw by a pawl and ratchet, may be used as the medium for actuating the screw. It should furthermore be mentioned that the moving table or follower is so connected by suitable mechanism with an index finger and scale (not shown in the engraving), that these latter are caused to indicate the pressure exerted by the follower upon the substance undergoing compression, thereby affording an indication of any approach to the ultimate limit of strain which the apparatus is intended to bear.



AN IMPROVED PRESS FOR WINE, CIDER, ETC.

The Sacramento Sugar Beet Experiment.

There appears to have been several trials or tests of the beet sugar-making machinery at Sacramento, the results of which appear to be somewhat mixed. The first was reported as a success, but some doubts being expressed, M. Gramont, the superintendent, was invited to give a new test in the presence of certain witnesses, which he refused on account of some objection to the witnesses. He however, claims to have made a test on the day following, in the presence of unobjectionable witnesses, which is pronounced a success.

It is to be regretted that such personal differences should be allowed to interfere

in a matter of so much public interest. The question, however, appears to be one having sole reference to the skill and capability of certain persons, and not to the general practicability of making beet sugar.

All persons seem to agree that sugar can be made from the beets, and with the machinery now in hand.

In the course of the experiments and tests of the beet in Sacramento a singular anomaly seems to have been developed, according to Mr. Gramont's report, whereby California beets, instead of retaining permanently the saccharine value developed at the period of ripening, lose a portion of that principle by a second growth, which appears to set in at that time, if the beets are not removed from the ground. Hence the view is expressed that the beets must be taken up before this second growth commences; the loss being so great as to render the late pulled roots unprofitable for manufacture.

Messrs. Bonestel and Otto, of Alvarado, however, aver that they have met with no such experience in the beets grown by them; so that in this, also, we must await further developments to learn the truth, or prove whether the fact, if it be one, is a local or general peculiarity. We hope soon to be able to report more satisfactory results of these interesting and important experiments now in progress for producing beet sugar in California.

AN ENGLISH FARMER recently remarked that “he fed his land before it was hungry, rested it before it was weary and weeded it before it was foul.” Seldom, if ever, was so much agricultural wisdom condensed into a single sentence.

Agricultural Resources of Montana.

The recent developments with regard to the productiveness of the rich agricultural valleys of Montana, have been a matter of no little surprise as well as gratification to all who take an interest in the settlement of the great interior portions of the country. The *Helena Herald* enumerates some of the more prominent valleys, which have thus been opened to settlement as follows:

“Of these valleys, nestling between the ranges of the greatest mountain system of the world, the Gallatin, for richness and fruitfulness of yield, is among the most conspicuous in the Territory. In addition we boast the Frickley Pear, the Missoula, the Bitter Root, the Jefferson, the Madison, the Stinking Water, the Beaverhead, the Boulder, the Willow Creek, the Deer Lodge the Crow Creek, and many other valleys, all of them in proportion to their population and development nearly or quite as good as the Gallatin.”

We have already made frequent mention of the wonderful productions of some of these valleys, and there is no longer any doubt but that this region will produce good crops of grain, and all the hardier vegetables. With settlement and years, there will come to every section of this interior Territory a degree of prosperity and thrift second to no territory in the Great West.

The rapid development of the mines in that region is opening a large home market for farm produce, with good prices. Crops of 4,700 bushels of wheat and 1000 bushels of oats and barley are referred to by the local papers.

POTATOES ON THE SUMMIT.—The editor of the *Sacramento Bee* has been presented with a very large Irish potato which was raised on the flat near the Soda Springs, at an elevation 7,000 feet above the sea level. If such localities will produce potatoes like that, what will they not yield? The question is beginning to be asked, says the *Grass Valley Union* in noticing this item, not what land in California is good for cultivation, but what acre, at any altitude is not fit for agricultural purposes.

IRELAND sends large quantities of butter to England, which averages about thirty-five cents per pound.

San Francisco Market Rates.

Wholesale Prices.

THURSDAY EVENING NOV 3, 1876.

Flour, Extra, 3 bbls.	\$5.50	@	\$5.50
Do. Superfine.	5.00	@	5.00
Corn Meal, 3 100 lbs.	2.25	@	2.25
Wheat, 3 100 lbs.	1.90	@	2.15
Barley, 3 100 lbs.	1.15	@	1.50
Beans, 3 100 lbs.	1.04	@	1.40
Potatoes, 3 100 lbs.	.75	@	1.50
Onion, 3 100 lbs.	1.10	@	1.40
Live Oak Wood, 3 cord.	10.00	@	12.00
Reef, extra, dressed, 3 lb.	7.00	@	10.00
Sheep, on foot, 3 lb.	2.00	@	2.50
Hogs, dressed, 3 lb.	7 1/2	@	8

GROCERIES, ETC.

Sugar, crushed, 3 lb.	14 1/2	@	14 1/2
Do. Hawaiian.	14 1/2	@	14 1/2
Coffee, Costa Rica, 3 lb.	2 1/2	@	2 1/2
Do. Rio.	2 1/2	@	2 1/2
Tea, Japan, 3 lb.	05	@	05
Do. Green.	40	@	1 25
Hawaiian Rice, 3 lb.	7 1/2	@	7 1/2
China Rice, 3 lb.	7	@	7 1/2
Coni Oil, 3 gallon.	40	@	50 1/2
Candies, 3 lb.	14	@	1 1/2
Overland Butter, 3 lb.	30	@	30
Ranch Butter, 3 lb.	35	@	35
Cheddar Butter, 3 lb.	35	@	35
Cheese, California, 3 lb.	12	@	12
Eggs, 3 dozen.	60	@	75
Butter, 3 lb.	30	@	30
Ham and Bacon, 3 lb.	15	@	15
Shoulders, 3 lb.	9	@	10

Retail Prices.

Butter, California, fresh, 3 lb.	50	@	75
do. pickled, 3 lb.	30	@	30
do. Oregon, 3 lb.	20	@	25
Cheese, 3 lb.	20	@	25
Honey, 3 lb.	25	@	30
Eggs, 3 dozen.	60	@	75
Lard, 3 lb.	18	@	20
Flour, 3 lb.	20	@	25
Crabapples, 3 gallon.	7 1/2	@	1 00
Potatoes, 3 lb.	2	@	2
Potatoes, Sweet, 3 lb.	2	@	2
Onions, 3 lb.	2	@	2
Apples, No. 1, 3 lb.	4	@	6
Pears, Tulle, 3 lb.	10	@	12
Plums, dried, 3 lb.	10	@	12
Peaches, dried, 3 lb.	10	@	12
Oranges, 3 dozen.	15	@	15
Lemons, 3 dozen.	75	@	1 00
Chicken, 3 lb.	15	@	25
Turkeys, 3 lb.	15	@	25
Soap, Pale and C. O.	10	@	25
Soap, Castile, 3 lb.	18	@	20

CALIFORNIA FARMERS are beginning to learn that they want grass more than wheat, or wine, or silk, or gold.

Household Reading.

Maize or Indian Corn.

Maize or Indian corn is generally supposed to be a native of America, from the fact that it was here observed in its present state of perfection, by the early European settlers of this continent. But there is good authority for supposing that a perfect grain of the kind was cultivated by the ancient Egyptians. It is claimed that seeds taken from a mummy have been planted, which have grown and produced a grain something similar to the manner in which the seed of broom corn is grown, from which, or from some similar variety, it is supposed our Indian corn has been derived. Whether the particular variety now known as Indian corn may or may not be exclusively a native of this continent, there can be no doubt, but that like wheat, all the different kinds of this cereal, including Sorghum, etc., were originally derived from different varieties of grass. Both chemical analysis, and practical experience teaches that corn is rich in the elements which nourish the animal system; but as it contains less muscle-making material, and more of that which produces fat, than does wheat, it is more largely employed for fattening swine and cattle than for human food. In order more completely to comprehend the difference, in this respect, between wheat and corn, we append an analysis of its component parts for comparison with a similar table for wheat, which we gave last week:

Water.....14	Water.....14
Gluten.....12	Muscle-making.....12
Starch.....60	
Sugar and Gum.....3	
Oil.....7	or Heat and Fat.....73
Fibre.....3	Food for brains.....1
Mineral Matter.....1	
100	100

By comparing the above with the wheat table it will be observed that the important difference consists in the excess of oil and lack of sugar. The oil contained in wheat was not set down separately in our table last week, but amounts to only 1.2 per cent. while, in northern corn it amounts to 7.

The oily part of corn exerts a most important influence in the use of this grain as food. Oil is a great producer of heat, as was observed last week; but if sufficient sugar and starch be present, they will supply the heat, while the oil will be taken up by the system, and deposited, with very little change, as fat. This is one important reason why corn is so valuable for fattening animals.

We last week referred to the necessity of oil as an ingredient of food in cold climates. Nature most remarkably recognizes this fact, not only providing fat seals in great abundance in high latitudes; but also in depositing a superabundance of oil in the corn grown in such regions. Corn grown in Canada will contain about twice as much oil as can be found in corn grown in Georgia. Northern corn also contains more of the fat producing elements than Southern. For extreme see figures 1 and 2, and compare the shading with explanations given last week. In the accompanying figure No. 1 represents Tuscarora corn (a northern variety); No. 2 another variety of northern corn; No. 3, sweet corn and No. 4 common Southern corn.

Corn as Human Food.

While corn is full of nutrition, and peculiarly adapted for fattening animals, by reason of the oil of which we have spoken, that very ingredient seems to unfit it, to a great extent, for human food, and it should not be eaten until that portion of the grain

is expelled—which can be readily done by heat.

The oil is contained chiefly in the white, flinty portion of the kernel, and consequently is nearly all found in the meal. When thoroughly cooked much of it is expelled, and the whole is expelled by kiln-drying. Corn meal and hominy, after being kiln-dried, and properly cooked may be eaten almost as freely as flour. If eaten before the oil is expelled the process of digestion is weakening to the system. The early Indians and those now existing, who cultivate corn, recognized this fact, even before the whites went among them. Whenever they started upon long marches they took parched instead of raw corn; although the latter is much the most bulky.

Hulled Corn.

In the process of hulling corn, the oil is removed by the alkali employed, while all the other elements, except those contained in the hull, remains intact. Hence hulled corn, well washed from the alkali is a very healthful and nutritious food. The only objection being that a portion of the brain and muscle food is taken away with the hull.

We give, in the accompanying figure correct sectional representations of four varieties of corn, by studying which, in connection with previous explanations, it will be seen that the Tuscarora, a northern corn, (Fig. 1) is largely made up of elements very superior for fattening animals, and that northern corn, generally, is preferable to southern for that purpose. The kernels represented by Figs. 2, 3 and 4, contain a much larger proportion of muscle-making material, and are consequently more especially adapted as food for laboring men, and persons of sedentary and literary employment.

Apples as Food.

The importance of apples as a food: says Leibig, has not hitherto, been sufficiently estimated or understood. Besides contributing a large proportion of sugar, mucilage, and other nutritive compounds in the form of food, they contain such a fine combination of vegetable acids, extractive substances and aromatic principles as to act powerfully in the capacity of refrigerants, tonics and antiseptics; and when freely used at the season of ripeness, by rural laborers and others, they greatly maintain and strengthen the power of productive labor.

APPLES AS MEDICINE.—If eaten frequently at breakfast, with coarse bread and butter, without meat or flesh, apples have an admirable effect on the system, often removing constipation, correcting acidities, and cooling off febrile conditions more effectually than the most approved medicines. The same author as above quoted says they prevent debility, strengthen digestion, correct the putrefactive tendencies of nitrogenous food, avert scurvy, and strengthen the power of productive labor.

WHAT IS A FLOWER.—Flowers are merely leaves, so arranged as to protect the vital organs within them, and colored so as to attract insects to scatter the fertilizing pollen, and to reflect and absorb the light and heat of the sun for ripening the seed.

We see the whole gradual process of the change of the common leaf in all the parts of a flower, most beautifully displayed in the flower of the common white pond lily. The outermost circle of petals is greenish, approaching the herbaceous texture and color of the calyx; the next circles are purer and more succulent, and the inner most ones are snowy-white, entirely cellular, and begin to show rudiments of an anther at their points. Gradually the petals become smaller and narrower, while the anthers on their summits become more distinct, until at length the thread like filaments, and golden dusty anthers of perfect stamens appear in the heart of the flower.

COMMON AND BITING FLIES.—Common house flies invariably stand with the head downward, while biting flies and mosquitoes rest with the head upward.

THE CURVATURE OF THE EARTH amounts to seven inches per mile. A man six feet high cannot be seen from a distance of ten miles.

Mechanical Items.

TEMPERING TOOLS.—The steel is generally first hardened by heating it to a cherry red, and then plunging it into cold water. Afterward the temper is drawn by moderately heating the steel again. Different degrees of hardness are required for different purposes, as follows:

Very pale straw color, 430 deg., for razors and surgical instruments.

Darker straw yellow, 470 deg., for pen-knives.

Still darker yellow, 490 deg., chisel for cutting iron.

Brown yellow, 500 deg., axes and plane-irons.

Yellow, slightly tinged with purple, 520 deg., table-knives and watch-springs.—*Eng. and Min. Jour.*

A WHITESMITH.—What is a "Whitesmith?" asked a gentleman the other day as he read upon a sign "J. Donohugh, Black and White Smith." Webster answers the question thus: One who works on tinned or white iron, or who finishes or polishes iron work, in distinction from one who forges it." The word may be new to some of our readers.

DAMASCUS BLADES, ETC.—The manufactures of Turkey are on a rapid decline. The steel manufactures, for which Damascus has been so famous no longer exist. The muslin looms of Scutari and Tirnova, which numbered thousands in 1812, are now reduced to less than two hundred spindles; and Bronea and Diabekir, once famous for their velvets, do not now produce one-tenth the amount they did forty years ago.

A STONE MIRROR.—In a village in Derbyshire, England, there is a large slab of black marble, the produce of the vicinity, which has so fine a polish, it is by many mistaken for a looking-glass.

LAKE SUPERIOR ORE.—One-fifth of all the iron produced in the United States is made from Lake Superior ore.

INCOMBUSTIBLE WICKS for kerosene lamps are made of asbestos, boiled in wax. When otherwise made of that material they do not work well.

Household Receipts.

GINGER SNAPS.—Take a tea-cup, put in three table-spoonfuls of hot water, the same of melted lard, and fill up one cup with good molasses; to three cups of the mixture add one table-spoonful of ginger, and one heaping tea-spoonful of soda, mix pretty stiff, roll and cut as for cookies (but thinner), and bake in a quick oven. After baking, place them in a warm oven, and let them dry until they are brittle.

TO PREPARE INK FOR TRANSFERRING.—If a little sugar be added to the ink, a copy of the writing may be easily taken off by laying a sheet of unsized paper, dampened with a sponge on the written paper, and passing over it a flat-iron moderately heated. A knowledge of this fact may be useful when a person wishes to occasionally retain a copy of a letter or other writing and is not in possession of a copying press. Common copying ink is prepared by mixing a kind of gum with ordinary ink, and does not need the aid of warmth to transfer it.

CALIFORNIA CAKE.—Seven ounces of sugar, four ounces butter, and yolks of three eggs, three teaspoonfuls milk, half a teaspoonful soda, one teaspoonful lemon, six ounces flour, a teaspoonful cream tartar; and the white of three eggs beaten.

HICKORYNUT JUMBLES.—One coffee cup of chopped meats, one cup of sugar, two eggs, four tablespoons of flour.

TO TAKE INK STAINS OUT OF MAHOGANY.—Put a few drops of spirits of nitre in a tea-spoonful of water, touch the spot with a feather dipped in the mixture, and on the ink disappearing, rub it over immediately with a rag wet in cold water, or there will be a white mark, which will not be easily effaced.

TO TAKE INK OUT OF PAPER AND STAINS OUT OF SILK, ETC.—Mix well the following ingredients: One tea-spoonful of burnt alum, quarter of an ounce salts of lemon, quarter of an ounce oxalic acid, in a bottle, with half a pint of spring water. Wet a piece of soft calico and apply it to the spots.

TO WATERPROOF PAPER.—To waterproof paper, dissolve one pound of white soap in one quart of water. In another quart of water dissolve one ounce of gum nitric, and six ounces of glue; mix the two solutions, heat them, and soak the paper in the liquid, then hang it up to dry.

PAPER sometimes will not stick to an old wall. Where there is danger of this use vinegar in the paste instead of water.

Life Thoughts.

OPPORTUNITIES are like flowers that fade at night; seize them, therefore, while they last.

PATIENCE is always crowned with success. It may not be splendid success, but patience never takes anything in hand that it does not succeed with in some form or other.

WHATEVER else you borrow never borrow trouble. It never does any good, and when you return it you get no thanks.

GOOD-NATURE is a glow-worm, that sheds light even in the dirtiest places.

TRUE RELIGION.—Lamps do not talk, they simply shine. A lighthouse sounds no drum, it heats no gong, and yet far over the waters its friendly spark is seen by the mariner. So should it be with religion, which should be proclaimed and made known by its quiet works rather than by loud or frequent protestations.

AVOID EVEN THE APPEARANCE OF EVIL.—The Chinese have a proverb which says: "Do not stop in a cucumber field to tie thy shoe." The meaning is plain. Some one will be likely to fancy that you are stealing fruit. Always remember the injunction, "Abstain from all appearance of evil."

DO GOOD NOW.—He who waits to do a great deal of good at once will never do any.

SENSIBLE.—Have the courage to wear your old garments till you can pay for new ones.

THE easiest labor is a burden to him who has no motive for performing it.

THERE is no vice that does so cover a man with shame as to be found false and perfidious.

THE manners which are neglected as small things are often those which decide men for or against us.

The Secret of Success.

Take an earnest hold of life, capacitated for and destined to a high and noble purpose. Study closely the mind's bent for labor or a profession. Adopt it early and pursue it steadily, never looking back to the turning furrow, but forward to the ground that ever remains to be broken. Means and ways are abundant to every man's success, if will and actions are rightly adapted to them. Our rich men and our great men have carved their path to fortune, and by this internal principle—a principle that can not fail to reward him who resolutely pursues it. To sigh or repine over the lack of inheritance is unmanly. Every man should strive to be creator instead of inheritor. He should bequeath instead of borrow. He should be conscious of the power in him, and fight his own battles with his own lance. He should feel that it is better to earn a crust than to inherit coffers of gold. When once this spirit of self-reliance is learned, every man will discover within himself the elements and capacities of wealth. He will be rich, inestimably rich in self-resources, and can lift his head proudly to meet the noblest among them.

LIFE.—If we could only read each other's hearts, we should be kinder to each other. If we knew the woes and bitterness and physical annoyances of our neighbors, we should make allowances for them which we do not now. We go about masked, uttering stereotyped sentiments, hiding our heart-pangs and our headaches as carefully as we can; and yet we wonder that others do not discover them by intuition. We cover our best feelings from the light, we do not so conceal our resentments and our dislikes, of which we are prone to be proud. Life is a masquerade at which few unmask, even to their dearest friends. And though there is need of much masking, would to Heaven we dared show our real faces from birth to death, for then some few at least would truly love each other.

DIFFERENCE IN WANTS.—Mr. Peabody was a great discernor of human nature; and few have lived who were better informed as to the necessities of the masses, or who could determine better the manner in which to relieve them. His discernment was most ably displayed in the diverse manner of the disposition of his noble charities, in the two countries where they were bestowed. In England he gave his wealth to furnish fresh air, bread, and cheap homes to the poor. In America he gave to feed the hungry mind. Most of his donations in this country were for the cause of education. This diverse disposition of his charities, affords a most striking exhibition of the peculiar wants of the masses in the two countries.

Scientific Press.

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Gold and Legal Tender Rates.

San Francisco, Thursday, Nov. 3, 1870.—Legal Tenders buying @90½; selling @91. Gold in New York to-day 110½.

Notices to Correspondents.

E. PIQUE.—Communication received and will be published next week.
BULL RUN.—We are compelled to defer this letter until our next issue.

Lectures Before the Mechanic Arts College in San Francisco.

The Regents of the University have shown good practical common sense in some of its acts, and a move of the greatest importance to the young men of the city of San Francisco is going forward and will be inaugurated we understand, Sunday evening November 12th.

A series or course of lectures before the Mechanic Arts College of the State University will be delivered at the lecture room of the Mechanics, Institute, Post street, every Saturday evening, and will consist of about five lectures, by each Professor on subjects relating to the Mechanic's Acts, including the consideration of matters which every mechanic and scientific man should know.

The course will consist of about 40 lectures and will be absolutely free. The conditions of admission will be, as far as we can learn, as follows.

1. Students who enroll for the purpose of attending the complete course.
2. Students who enroll for a partial course.
3. Visitors to each lecture students must be present at roll call and occupy his appointed seat.

Any young man or woman can join this class, and should make application without delay at Mechanics, Institute Library.

We are pleased to see that the Regents have recognised this great need, and although but little notice seems to have been taken of the matter, its value cannot be over-estimated, and we wish particularly to call the attention of the young men to this opportunity offered them.

Those who attend the entire course and pass an examination will receive a certificate. We believe it is also the intention of the Mechanics Institute to elect, such, Honorary members for the term of two years next ensuing the date of the State University Certificate.

We look upon the above as one move in the right direction.

Farming in California.

EDITORS SCIENTIFIC PRESS.—I wish to trouble you with the much discussed question; can inexperienced men make money in agricultural pursuits, supposing such men have the energy to study up the theory and consult the agricultural journals of the day? The "profits of agriculture" have been presented to us from every point of view, but we are none the wiser; we are told that the cost of "putting in" and "gathering" a crop of grain is sixteen dollars per acre, if we hire it done, but nothing is said of the cost if we do it ourselves, and nothing is said of what we might expect to realize.

There are many young men in the cities of this State who have the ambition, application and energy to read up the theory of farming and start ranches for themselves provided they had a reasonable chance of success: expecting the vicissitudes of the inexperienced that every man without experience must encounter.

Therefore, I think answers to the following questions, or a discussion of them, would do much good:—

How much money is absolutely necessary to start in wheat raising?

How much is necessary to start in vine culture?

What profit might we expect on a quarter or half section tract of wheat and what on a vineyard of from twenty to fifty acres?

Of course any man may figure the profits easily; but there are always expenses arising in practice of which there is no account made in the theory, and I should like to see some practical figuring upon these questions, pre-supposing ordinarily favorable circumstances, and wheat to remain at its present price.

A CONSTANT READER.

Our correspondent has furnished us with a series of questions, proper answers to which, would require far more space and time than can be devoted to any one subject in a single issue of the PRESS. Their importance, however, demands a careful consideration, and full and explicit answers; and while we may attempt a brief reply, ourselves, we would especially call upon some one or more of our readers who have had practical experience in such matters, on this coast, to give the queries a thoughtful attention, and furnish us with the result of their deliberations and experience.

There is no question, at the present time, in which the public should take a deeper interest than in the settlement of our unoccupied lands, and the proper development of their vast agricultural resources. To this end, just the information above sought is needed. For the lack of it, hundreds of young men in this and other cities in the State, and not a few with families, are either idling away their time, or doing just enough to keep soul and body together, waiting and hoping for something to turn up, whereby they may better their conditions. What is needed for both themselves and the State is for such information as will justify and induce these people to go out and occupy our waste lands, and produce from our own soil the butter, cheese, eggs, pork, pickles and preserves, dried fruit, tobacco, silk, cotton, flax, oils, wines and other liquors, sugar, etc., etc., for which we are now annually sending millions of dollars to the East. We also need their labor to increase our productions for export—such as wheat, wool, leather, etc., which would add many other millions to our aggregate wealth.

Let us have the information, in a reliable and intelligible shape, which may induce our enterprising young men, with little or no means, to start out and do something for themselves and for the State; and also that which shall hold out the same encouragement to men of capital, to go and do likewise. We all have a vague conception that such things are possible, and, in fact comparatively easy of accomplishment; but exactly how it is done, is "the which" not fully understood, and the very information needed as a condition precedent to the venture.

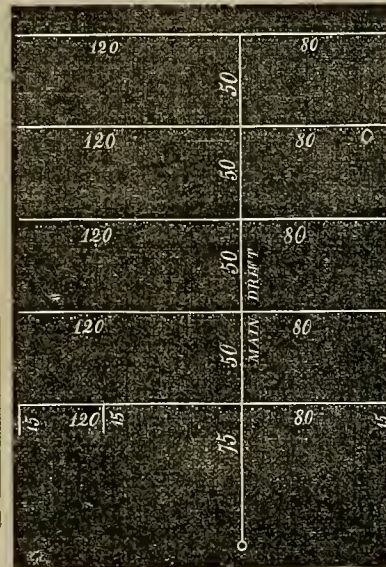
It is within the knowledge of every "constant reader" of the PRESS in California, that men have here accumulated comfortable

fortunes, by cultivating the soil. In some instances this has been done by acquiring cheap lands and improving them, in others by cultivating improved lands for which large prices or high rents have been paid. Thus we have passed the bounds of theory, and arrived at facts, patent and illustrated on every hand. There are innumerable evidences of this in every direction about San Francisco, and in all our interior agricultural counties.

Although such instances of success have generally been confined to experienced men, it by no means follows that "inexperienced men" may not also succeed, especially when such men have a heart to work, and set about it with a resolute determination to achieve success. Farming, like mining, involves hard work and much of it; but the chances of reasonable success are infinitely in favor of the latter, although the large prizes may be less in number. We will endeavor, in future numbers, to give, so far as we are able, definite answers to the several queries propounded by our correspondent; together with some general views on the subject of farming in California, which may possibly be of interest and advantage, both to those already engaged in this business, and to such as are proposing to embark therein. In the mean time we hope also to hear from some of our practical men on the subject.

The Blue Point Tunnel.

In connection with the article by our correspondent, L. P. Mc., on the Blue Point Co. tunnel at Smartsville, we here



GROUND PLAN OF DRIFTS.

give a diagram of the drifts where the 2,000 kegs of powder are to be exploded. For this we are indebted to the courtesy of the tunnel company. The height of the bank from the tunnel is 70 feet, and the main drift will be tampered from the tunnel to the first cross drift. Other very interesting particulars of this work will be found in our correspondent's article, "Notes of Travel in Yuba County," on the second page. At the end of the main drift, at the place marked by a circle, is where the tunnel terminates.

Plow Clevis.—We shall illustrate next week a valuable California invention. This is a patent Plow Clevis, invented and manufactured by Mr. J. A. Bilz, of Pleasanton, Alameda county. Quite a number are in use at Pleasanton and vicinity, where they have had a fair trial and have met with great success. They are as cheap as, or cheaper than, other kinds of drop clevis, and are recommended particularly where young horses are used, as they are arranged so that the whiff-tree cannot strike the animals' heels and thus start them. They are also sold by Treadwell & Co., at San Francisco and Sacramento.

Patents and Inventions.

A Full List of Patents Issued to Pacific Coast Inventors.

(FROM OFFICIAL REPORTS TO DEWEY & CO., U. S. AND FOREIGN PATENT AGENTS, AND PUBLISHERS OF THE SCIENTIFIC PRESS.)

FOR THE WEEK ENDING OCTOBER 25th.

FLASK FOR CASTING STAMP SHOES FOR CRUSHING-MILLS.—Henry Bolthoff, Central City, Colorado Territory.

STAMP BATTERY.—George D. Crocker, Virginia City, Nevada.

ORE PULVERIZER.—Frederick C. Morse, Buckskin, Colorado Territory.

HYDRAULIC MINING APPARATUS.—Thomas Watson, Nevada City, Cal.

REFINING SUGAR BY STEAM.—Francis Schleifer, San Francisco, Cal.

NEEDLE.—Hannah G. Supple San Francisco, Cal. Antedated Oct. 15, 1870.

NOTE.—Copies of U. S. and Foreign Patents furnished by DEWEY & CO., in the shortest time possible (by telegraph or otherwise) at the lowest rates. All patent business for Pacific coast inventors transacted with greater security and in much less time than by any other agency.

A NEW BIDDLE.—The Grass Valley Union, which is generally pretty careful and trustworthy on such points, speaks thus of the Rawlins and Stephens biddle:

One has been used at the Wisconsin mill, near Grass Valley, for several months, and has given the most entire satisfaction. We yesterday saw a large machine at work, below the Banner mine, near Nevada City. The concentrator at the latter mine is a wheel 20 feet in diameter, with a distributing table of 12 feet. The traveling table is 4 feet wide. This is working on sand which has gone through several concentrating processes. It is at work below two Paine & Stephens biddles, four rockers and three hundred feet of snices. After all these have taken the whole amount of the sulphurets from the sand which they can save, the sand is run on a Rawlins & Stephens machine. Of course the sulphurets in this sand are light, with only a small percentage of the heavy article which escapes from such complete working. The result is that the Rawlins & Stephens concentrator saves about four or five tone of sulphurets per month, at the Banner mine, from sand which was supposed before to be completely worked. The sulphurets thus saved are worth \$60 per ton gross, at the chlorination works. The expense of running the machine is \$2.50 per day, or \$60 per month. This expense can be further reduced, as a smart boy can attend the machine. We have, then, these figures a "proof of the pudding," in the case of the machine at the Banner mine. From four tons of sulphurets saved at \$60 per ton, gives \$240; deduct \$60 for labor and \$80 for working the sulphurets by chlorination, total expense, \$140. This gives \$100 per month on a machine which cost, in the first place, say \$500. It has been demonstrated that no machine now known can go below the Rawlins & Stephens machine and make anything. Where the R. & S. concentrator works just as the tailings come from the mill, as is the case at the Wisconsin mill, it saves almost all the sulphurets, light as well as heavy. It allows very little metal bearing slime to escape. At the Banner mine, before the new machine was put up, at the sand pile where it is now used, a company had a percussion table 4 feet wide and 18 feet long, two revolving cylinders, one to grind the sand and the other to amalgamate. The arrangement was run by a 20-foot water wheel. The company using these implements lost about \$1,500. Stephens is making money where others have lost. We give these particulars because we know the machine of which we speak is of a meritorious invention. It has been so declared by practical men who have examined it, and orders for its erection, at various mines in California and Nevada, have been sent to its proprietors.

A CALIFORNIA PATENT SECURED IN 13 DAYS.—We received word on Monday last that the application of Albert G. Walton, of this city, for a patent for an improved apparatus for holding and exhibiting cards, photographs and stereoscopic views, was granted at Washington on the 25th of Oct., his application having left our office October 12th. The facilities of the SCIENTIFIC PRESS office for obtaining U. S. or Foreign Patents for PACIFIC STATES INVENTORS, are unapproachable by any other agency in the United States.

Mining in Victoria, Australia.

The Mining Record for March published a summary of the mining industry of the Colony of Victoria for 1869, with statistics from the annual report of the Secretary of mines compiled from the Surveyors and Registers reports.

The statistics show a decrease in the number of hands employed and in the product of gold from Alluvial mining, and an increase in the number employed and in the product of gold from Quartz mining.

The total number of hands employed in mining, both progressive and productive including Europeans, men and boys, and Chinamen, for the quarter ending Dec 31, 1869, was 63,787 against 64,658 for the same time in 1868—a decrease of 871; while there was an increase of 475 Chinamen, making the decrease of Europeans 1,346. About one-fourth, say 16,000, were employed in quartz mining, and about 16,000 Chinamen, nearly all of whom were employed in shallow alluvial mining; the remaining Europeans in alluvial.

During the year, alluvial mining lost 3,376 miners while quartz mining gained 2,503. The scarcity of water consequent upon drought interfered with both alluvial and quartz mining, while the increased facilities to obtain crown lands, caused many to abandon mining for farming.

THE PRODUCT OF GOLD.

Alluvial 1868.....	1,087,502 oz
" 1869.....	934,082 oz
Decrease.....	153,420 oz
Quartz 1868.....	597,416 oz
" 1869.....	610,674 oz
Increase.....	13,258 oz
Total decrease.....	140,162 oz
Official value of gold, £4. = \$20 per oz.	
Total Product for the year, \$30,895,120	

The average yield obtained from quartz being about \$10.50 a ton, the product shows that nearly 1,200,000 tons were crushed during the year 1869, against 886,228 tons for 1868, an increase of upwards of 35 per cent. in one year.

During the year, 230 distinct reefs were proved to be gold bearing,—making a total proved of 2,881.

The official returns for the quarter ending March 31, 1870, show a decrease of 1,581 miners compared with the quarter preceeding; also a falling off in the yield from both alluvial and quartz mining compared with the same quarter. But compared with the corresponding quarter of 1869, there was a gain of nearly 4,000 oz. from quartz; while 30 new reefs were added to those previously proved to be gold bearing.

The prosperity attending mining operations for several years led to a departure from the prudent course which had produced it, to one of wild speculation, stock gambling &c., to be followed as usual by loss, want of confidence, and discredit without discrimination, added to which a number of deep alluvial mines in Ballarat which had produced thousands of oz. per month each, ceased to afford dividends, increasing the depression and causing a panic. New and rich developments recently made in the same and other districts are gradually restoring confidence.

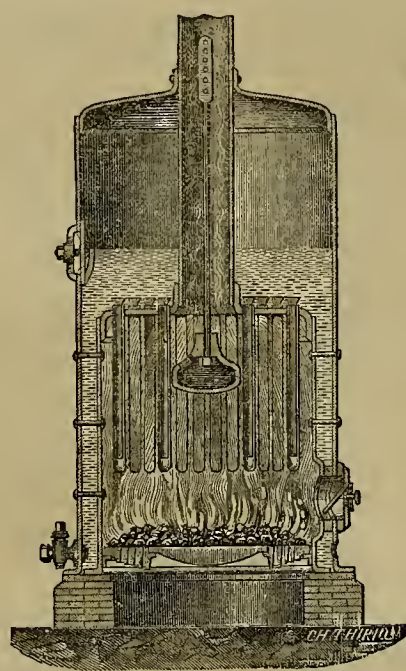
The depression led to the formation of a great number of *tribute* companies, composed of *non working* and working members, to work mines upon shares of gross or net product. Besides which, meetings were held to take into consideration the depressed condition of mining with the object to provide a remedy. Among others,

The Chamber of Commerce of Ballarat

"Having taken up the subject of the present mining depression," appointed a committee to investigate matters. The result was two propositions;—one by Mr. L. S. Christie met with so much favor that immediate steps were taken to carry it into effect.

Mr. Christie proposed to establish a company with a capital of £500,000, to be divided into 100,000 shares of £5 each, of

which 10,000 were to be capital or money shares for immediate issue, payable on application, 90,000 to be reserved for labor. The money shares to be free from all further liability, and to bear interest at the rate of 10 per cent. per annum. Labor shares to be constituted from time to time, in ratio to the amount of wages retained by the association from the workmen over and above the subsist-money they may draw. These shares will be entitled to participate in the profits. The objects of the proposed association are:—To undertake the working of mines upon tribute; To supply preliminary capital and subsist-money to parties of working miners, for want of which they would be unable to undertake extensive and promising tribute ventures; to enable the working miner to obtain a proprietary interest in the venture in which he may be employed; and to cause active operations to be resumed at any promising mine that may have been suspended from the want of capital. No work will be undertaken unless it can be shown to the



THE "FIELDS" IMPROVED BOILER CONSTRUCTION.

satisfaction of the directors that the ground is capable of yielding sufficient to pay the subsist-money of the miners employed.

The tribute system is growing rapidly in favor. Under the system a number of ventures which had involved the companies in debt have become dividend paying. Dozens of companies have been formed, some incorporated under "limited liability." The shares of many of them are quoted above par. Besides "tribute," "Furnishing companies" have been established. The object is to furnish machinery and material to parties of miners working on tribute or where means are too limited to enable them to secure the needed supplies.

From the above data it will be perceived that, as the alluvial mines become exhausted, increased attention is directed to quartz, which the Victorians recognize as the staple interest of the Colony;—the great business of the country, which, to be successful, must be conducted in a business manner, and above all must be fostered; that the interest of the capitalist, the banker, the mechanic, manufacturer and the miner are identical. Hence a *Chamber of Commerce* convenes to take into consideration the depressed condition of mining, with the view to discover the cause and to provide a remedy. M.

THE NEW WAGON ROAD to Bolinas, via Sancelito, is finished, and two stages run, on alternate days, connecting with the Sancelito ferry, and one extending through to Olema.

The "Field" Boiler.

We herewith present illustrations of the "Field" boiler, now well known, and said to have given most excellent results in England, where it has been extensively adopted, and in France, where it is now introduced by French engineers. Our engraving is taken from *La Propagation Industrielle*, which recently published a description of the apparatus. It is claimed for this steam generator that in it are secured the essential advantages of economy of fuel in the production of steam and the concentration of a large heating surface in a comparatively small space, with the attendant benefits of a minute division of the masses of water and the rapid generation of steam. The former results from the special arrangement of the parts, by which more completely than hitherto the heat radiated from the fire is utilized. The principle may be applied to all varieties of the upright class of steam generators. In the engravings, Fig. 1 is a vertical transverse section of the boiler, and Fig. 2 a similar section, on a greatly enlarged scale, of one of the adjuncts which give to the apparatus its distinctive character.

The crown-sheet above the fire is pierced



secured—the degree of the transmission being proportionate to the difference in temperature between the outer or heated tubes and the inner ones. It may also be noted that the perfect combustion of inflammable gases from the fire is facilitated by their division when brought in contact with the downwardly extending tubes, and their consequent more thorough intermingling with the air supplied for combustion.—*Am. Artisan*.

A COLORADO TRAMWAY.—The Colorado Miner gives a description of a wire tramway in use at the Stevens mine at Georgetown. This consists of two wire cables, each of which is six-tenths of an inch in diameter, extending from the lower adit on the Stevens lode to the base of the hill, a distance of 867 feet. The supports for the wires are made of gas pipe, three inches in diameter, upon the top of which are wrought iron T's, securely let into the gas pipe, upon the top of which T's the wire rope rests. The gas pipe is set into the rock to the depth of twenty-two inches, and is securely fastened by a solder. The distance from the lower platform to the first support is six hundred feet, the cables resting on their supports with a firmness remarkable for such a long stretch of unsupported rope. For fastening the cables at the base of the hill, there are two levers, one end of which is securely bolted to the solid foundation, yet in such a manner as to allow an upward and downward motion of the lever. These receive the ends of cables, which are fastened to the levers near the bolted end, the outer ends of the levers being weighted with rock. This contrivance takes up all loose cable as the ropes may slacken or be taut by the passage of a heavy load of ore over them. The tramway works to perfection. Already there have been seven thousand feet of lumber taken up the cables, and thirty tons of ore lowered to the base of the mountain, demonstrating that the method employed by Mr. Lowe in erecting this tramway to be a successful one.

NEWSPAPERS.—According to L. P. Fishers Advertisers Guide (just received) there are 255 newspapers published on the Pacific Coast. This number is probably very nearly correct, although in the list we miss the names of one or two exchanges which have been started within a short time. The count gives 184 to California, 26 to Oregon, 12 to Nevada, 12 to Washington Ter., 5 to Utah, 5 each to Idaho and Montana 2 to Arizona, 1 to Alaska and 2 to British Columbia. San Francisco is credited with 63. Every county of California is represented except Del Norte. In addition to the names of papers, a short description of each place is given where a paper is published. This makes the pamphlet interesting and valuable, especially to advertisers and business men, and gives a tolerably correct picture of the coast.

THE GOLD FIELDS of Victoria, Australia, are becoming famous for the heavy character of their gold. In two years (apart from many smaller nuggets, of which no note has been made), there have been unearthed from one mining district, two nuggets weighing 15 lbs. each, one of 17 lbs., one of 19 lbs., four of 20 lbs. each, one of 22 lbs., one of 24 lbs., one of 27 lbs., two of 40 lbs. each, one of 43 lbs., one of 50 lbs., one of 67 lbs., and now one of 93 lbs. These statements are officially verified.—*Ec.*

WELL BORING.—On Thursday last, says the Council Bluffs *Nonpareil*, with a gentle mixture of fact and fancy, the labors of the parties who had been boring for the last eighteen months in Lincoln, the capital city of Nebraska, for salt water, were crowned with success. At the depth of six hundred feet below the surface, in a stratum of sandstone, a lead of the great subterranean sea of salt water was struck, and the briny torrent came struggling up around the auger and shot into the air some eight or ten feet. It has since flowed steadily and strongly, and with great force and increasing strength, forming a briny rivulet. It is believed by the experts who have seen the flow, that when the auger is withdrawn and tubing inserted, a stream of water will be projected from the well to the height of fifty feet, making it the most magnificent artesian well of salt water in the world.

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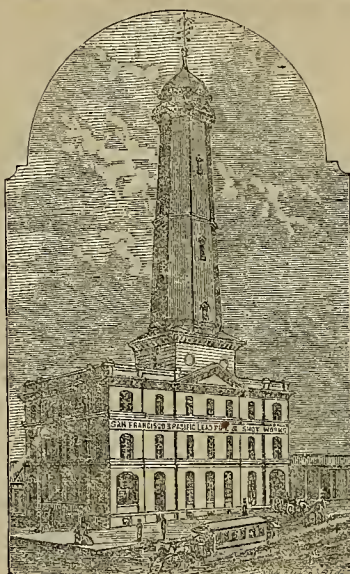
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north, opposite the Occidental. 2v20-3m**Dr. J. H. PAINE, Dentist,**
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between Cosmopolitan and Occidental
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14v21-3m.

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themselves of the automatic domestic works of the

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Send for pamphlet with full Description, Home
and Scientific Testimonials and Price List.Office, 306 Sansone Street, San Francisco.
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a weak stomach was never yet improved by cathartic
drugs. They merely increase the irritation, which it is
all-important to allay. There is no preparation in ex-
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mediate effect is to soothe and refresh the uneasy organ.
It arrests vomiting, or the disposition to vomit, at
once, and carries off without pain, through the in-
testines, the morbid excreted matter which is the provoca-
tion of nausea. A dose of the Aperient will always ef-
fectually "settle the stomach" after a night's dissipa-
tion.

SOLD BY ALL DRUGGISTS.

Travellers' Guide.

Central Pacific Railroad.

Time Schedule, September 2, 1870.

EASTWARD.		Express Train Daily.	Passenger Train Sundays excepted.	Mixed *
San Francisco	Leave	8:00 A. M.	4:10 P. M.	7:00 P. M.
Yukon d	"	8:45 A. M.	4:35 P. M.	"
Stockton	"	9:20 P. M.	7:35 P. M.	"
Sacramento	Arrive	1:30 P. M.	9:30 P. M.	7:40 A. M.
Sacramento	Leave	2:10 P. M.	"	9:10 A. M.
Yreka	Arrive	4:00 P. M.	"	1:15 P. M.
Chico	"	6:45 P. M.	"	5:30 P. M.

WESTWARD.		Express Train Daily.	Passenger Train Sundays excepted.	Mixed *
Ogden	Leave	6:00 P. M.	"	3:40 P. M.
Kilton	"	10:45 P. M.	"	1:30 A. M.
Elko	"	8:45 A. M.	"	7:15 P. M.
Carlin	"	10:15 A. M.	"	9:15 P. M.
Battle Mountain	"	1:35 P. M.	"	10:45 A. M.
Winnemucca	"	4:05 P. M.	"	9:10 A. M.
Reno	"	1:00 A. M.	"	1:30 A. M.
Colfax	"	8:45 A. M.	"	12:50 A. M.

LOCAL TRAINS.		From	To	From	To
San Francisco	Leave	8:00 A. M.	San Francisco	Arrive	10:40 A. M.
San Francisco	Leave	8:00 P. M.	San Francisco	Arrive	10:40 P. M.

From		To		From		To	
San Francisco	Leave	8:00 A. M.	Oakland	Arrive	8:30 A. M.	San Francisco	Leave
San Francisco	Leave	8:00 P. M.	Oakland	Arrive	8:30 P. M.	San Francisco	Leave

Sundays excepted. S. To Fruit Vale only.
D. To Oakland only. R. N. To Fruit Vale only.
T. H. CHODMAN, Gen'l Pass'r Agent, Sacramento.

SHORT ROUTE.



The following time will take effect

Saturday October 1, 1870

GOING NORTH—DAILY (Sundays Excepted).		Trains Arrive at California.	Trains Arrive at Sacramento.	Trains Arrive at Marysville.
New World Leaves San Francisco.	8:00 A. M.	12:15 A. M.	12:30 A. M.	2:15 P. M.
Leaves San Francisco.	4:30 P. M.	8:45 P. M.	9:00 P. M.	9:30 P. M.

ON SUNDAYS.		Trains Leave California.	Trains Leave Sacramento.	Trains Leave Marysville.
San Francisco	8:30 A. M.	12:30 P. M.	1:30 P. M.	5:00 P. M.
San Francisco	4:30 P. M.	8:45 P. M.	9:00 P. M.	9:30 P. M.

GOING SOUTH—DAILY (Sundays Excepted).		Trains Leave California.	Trains Leave Sacramento.	Trains Leave Marysville.
New World Leaves San Francisco.	8:00 A. M.	12:15 A. M.	12:30 A. M.	2:15 P. M.
Leaves San Francisco.	4:30 P. M.	8:45 P. M.	9:00 P. M.	9:30 P. M.

TICKETS for sale at 415 Main street, or at board
steamer New World. R. S. MATTISON, Superintendent.
N. B.—Branch Office of Western Union Telegraph Com-
pany, Front and Vallejo street wharf.
D. F. FOLEY, General Freight and Passenger Agent,
Vallejo October 1, 1870.

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Has that well-known, standard, and popular remedy,

PAIN KILLER,

Manufactured by Perry Davis & Son, Providence, R. I.,
has been before the public, and in that time has become
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dy. Its wonderful power in relieving the most severe
pain has never been equalled, and it has earned its
world-wide popularity by its intrinsic merit. No cura-
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universal satisfaction. The various pills for which the
Pain Killer is an unfailing cure, are too well known to
require recapitulation in this advertisement. As an ex-
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WHOLE WORLD
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are BEST! Why?
Because the WEED
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work and do
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ease than any other
LATEST always. Call
and see S. E. H. at
Kearny St. S. E. H.

Reading for the Hour.

Tobacco and Scientific Men.

Tobacco occupied quite a large share of the attention of the learned men of England, who are devoted to the advancement of science, at their last meeting. No very satisfactory conclusion was arrived at, however, but our readers can form their own opinions as to which had the better side. In the discussion,

Mr. Wilkinson read a paper containing an eloquent protest against tobacco, the use of which, he contended, was an abuse. He had never met with a smoker or a snuffer who would recommend the habit to the adoption of any one else. He recommended ladies to take up the question. They at least had the power to refuse an offer of marriage (laughter), and he recommended bachelors to make a note of the fact.

Mr. Hurst was much disposed to question whether tobacco shortened life; he rather thought that it lengthened it in many cases. It had a one great effect—it seemed to compose the mind in a wonderful manner. He knew several eminent clergymen who smoked, and who attributed their good sermons to the habit. (Laughter.) The use of tobacco also gave employment to a large number of persons.

If there was any one truth of which Dr. Stewart, as a medical man, was convinced, that truth was that tobacco was injurious to both health and morals.

This was just the case with Dr. Willows, who regarded Mr. Hurst's arguments as entirely fallacious. Under medical watching, tobacco might be a good and useful agent, [and certainly it would be a good thing for doctors if smokers took medical advice with each cigar or pipe,] but he believed its general use to be injurious.

Mr. R. Dawharn [euphonious for barn door?] defended the moderate use of tobacco, and then threw the whole force of the argument against it on those who used it immoderately. Mr. Botly threw the argument back with vigor, standing on the ground of health and economy.

The meeting then agreed to leave the settlement of the affair to Prof. Huxley. [The probable way in which the two sides came to agree on this, is to be found in the fact that the anti-tobacco men knew that he *had* hated its use, and the others knew that he *did* like it.] The Professor unwillingly stated that he was placed in an awkward position. After finding tobacco a deadly poison for 40 years, one rainy day and a hard walk had showed him that his previous ideas were mistaken ones. As an equalizer of the temper, he regarded it as a most beneficial agent, and in moderation as unproductive of any evil results. A man might poison himself with green tea or beefsteak, if he took them in excess, but they were nevertheless beneficial when moderately used.

Mr. Wilkinson said that Prof. H. would have been a better man if he had remained in his normal state and never used tobacco. He—

But the Rev. John Jones, fearful that the scientific gentlemen were getting unduly excited, here changed the subject to that of "Intemperance in Liverpool."

How OYSTERS ARE BORN.—Open an oyster, retain the liquid in the lower or deep shell, and, if viewed through a microscope, it will be found to contain multitudes of small oysters, covered with shells and swimming nimbly about—one hundred and twenty of which extend but one inch. Besides these young oysters, the liquor contains a variety of animalculæ and myriads of three distinct species of worms. Sometimes their light resembles a bluish star about the centre of the shell, which will be beautifully luminous in a dark room.—*Exc.*

LIFE is a great poem; and religion, love and music, are its sweetest stanzas.

How We Get the War News.

The press dispatches from Europe to New York during the last four weeks numbered about 100,000 words. New York has been better posted on the issue of the war each day, than London, Paris or Berlin.

Here is a man sitting in a dark room at Heart's Content. The ocean cable terminates here. A line wire attached thereto is made to surround two small cores of soft iron. As the electric wave, produced by a few pieces of copper and zinc, at Valentia, passed through the wire, these cores became magnetic enough to move the slightest object. A looking-glass, half an inch in diameter, is fixed on a bar of iron one-tenth of an inch square and half an inch long. On this tiny glass a lamp is made to glare so that its light is reflected on a tablet on the wall. The language of the cable is denoted by the shifting of this reflected light from side to side. Letter by letter is thus expressed in this fitting idiom, in utter silence, on the wall. There is no record made by the machine except as the patient watcher calls out to a comrade the translated flashes as they come, and which he records. It seems like a miracle of patience. There is something of awe creeps over us, as we see the evidence of a human touch 3,000 miles away swaying that tide of light.

By such a delicate process as this, and after being repeated from line to line five times before its ultimate copy is in New York, have the late great battles been recorded in our daily papers with great particularity, and sent throughout the Union. Nothing like it has ever before been accomplished. The enterprise of the New York press has eclipsed that of the wealthiest and ablest presses in Europe. It is characteristic of the nation to do its work grandly and well.—*Jour. of the Telegraph.*

The Uses of Salt.

Salt not only exerts an important influence upon mankind, but is indispensable to their existence. It enters into the constitution of the blood, which contains 4-1000 of its weight of salt. Its absence from our food would inevitably result in death. It is an important condiment, as well as a preservative. Meat, fish, vegetables, butter and other provisions, are preserved by it from spoiling, so that they may be kept for a long time. By its use in the preservation of meat, the development of navigation has been greatly promoted, and it thus exerts a most beneficial influence upon civilization.

It is necessary to vegetable as well as animal growth, and is therefore employed as a fertilizer. In chemical manufactures considerable quantities are used for the preparation of hydrochloric acid, chlorine, bleaching salts, sal ammoniac, and many other products. Salt forms indirectly a material for the making of soap and glass. Besides, it serves in tanning, for glazing pottery, for the extraction of silver and copper from their ores, for the preparation of mixtures for producing cold, and for many other purposes.

The extent and importance of the uses of salt can scarcely be better described than in the words of Dr. Bolley, which we translate from a work of his, entitled "Das Kochsalz:—

"We awake in the morning; the linen which we put on betrays by its whiteness that it has been bleached by the chlorine derived from salt; the shoe with which we cover our feet required salt in the hands of the tanner; in the soap that we use for the toilet, we seize a transformed piece of salt; the glass, which we bring to the mouth, hides the chief ingredient of salt; from the crude ore by means of salt was produced the bright, white metal of the tea-spoon, which is so highly esteemed by the world; the tea-kettle is soldered with borax which holds soda produced from salt; the milk before us contains salt; the butter has been preserved by it perhaps for months; the bread betrays to the palate that the dough has been mixed with salt. We grasp the paper; it required the application of chlorine from salt in order to please us by its whiteness. The clean spectacles through which we see are partly composed of what once was salt. A visit is announced; a patient wishes to consult us; he enters, and, seeking scientific aid, we reflect upon the remedies at our command and commence to write. Out of ten medicines we find that five of them owe their origin, either by their composition or the mode of their preparation, to salt.

"Who is able to forget for one moment this ever present Protenus that appears in a thousand forms?"—*Technologist.*

The Kuro Siwo.

The Equatorial current of the Pacific is wider and grander even than that of the Atlantic. It is the parent stream, out of which so many other hodies obtain their volume. It moves (so do all such currents of the ocean) on the line of a great circle, and this circle intersects the Equator at an angle of only a few degrees. It sweeps to the westward, in "uninterrupted grandeur," as one expresses it, around three-eighths of the circumference of the globe, until diverted by the continent of Asia and split into innumerable streams by the Polynesian Islands. Reaching the Ladrões, it imparts a much warmer climate than it has given to the Sandwich or Marquesas. The Philippines are made oppressively hot even in Winter, and one familiar with it has said: "The fervor increases as we reach Malacca, is all aglow in India, and becomes stifling in its intensity as these equatorial waters, after traveling fifteen thousand miles, and being fully three hundred days under a vertical sun, are thrown against the eastern shores of Africa." This equatorial current is as broad as the Torrid Zone, and out of it comes the Kuro Siwo.

The latter possesses a temperature more striking in its contrast with the surrounding waters than does the Gulf Stream of the Atlantic.

Striking off at Formosa from the great Equatorial, it moves with majestic powers, heedless of the fiercest gale, and to the eye of the thoughtful observer is bent upon the discharge of some momentous mission. Reaching the fortieth parallel of north latitude, its surface is swept by the "brave west winds" of the Northern Hemisphere. It now seems to turn away from its course, and curve away to the American shores. On the track of the northeasterly flow, the map-maker writes another name, as if some mighty power had diverted it. But it has not been turned; only a little of its foamy surface has been borne along in the easterly set. The vast torrent is only skimmed. The recirculation which pours around the southern coasts of Alaska, and leaves the western shores of Sitka Island, is but drift. The tremendous hulk of equatorial water rushes on in a chargeless course. It is moving in obedience to a steady and almighty hand. Every drop feels the impulse of a force it cannot resist. Every drop is lighter than the drop of polar water, with which it is hasting to exchange places, lest the equilibrium of nature be overthrown.

But on its way it receives, every moment, an impact from the earth rotation. And thus it moves on the line of a great circle to the northeast, and, entering Bebrings Sea, knocks for admission at the very gates of the Polar Ocean. In its course the pathway is strewn with the marks of its thermal and climatic power. If the Gulf Stream has clothed Ireland with its robe of verdure, and made it the "Emerald Isle," the Kuro Siwo has done as much for the Alutian Islands and Alaska. They are mantled with living green. The flocks scarcely need shelter in Winter. If their soil is treeless, their Gulf Stream richly supplies them with timber for their canoes, and camphor-wood of Japan and China for their furnitures.—*Atlantic Monthly.*

Gov. GILPIN, of Colorado, was introduced to the British Association by Mr. Hepworth Dixon. Mr. D. delivered himself of quite an amount of flattering sayings with regard to the Governor, his sagacity in locating Colorado so that it included both sides of the Rocky Mountains, which thus formed "a connecting link, instead of a dividing band," for the peoples on each sides of this mountain chain, etc., etc. Governor Gilpin then made a characteristic address, after which Mr. Dixon had supplementary remarks to make, as might have been expected.

INDIANS AND AGRICULTURE.—On the same day, Mr. J. Heywood read a paper on the aptitude of the North American Indians for agriculture. He took rather a sunny view of the subject, and thought that the Indians managed their farms with intelligence and success, where they had had any to manage. The Indian Department, however, supplied them very badly and showed much ignorance of their requirements. As a sample, a supply of elastic garters was sent to the reservations, which, as the Indians did not wear stockings, were rather

out of place. The Association thought this a good joke, and laughed accordingly. If they had known more about the matter, they might have perceived that, although it might have been a good joke for the contractors, it was rather serious for the Indians and for the people who paid the money therefor. In conclusion, he expressed his belief that there was a large number of red men capable of agricultural work, and his point was that the Government should afford them much more encouragement than at present. Sir Stafford Northcote and others took similar sunny views. These gentlemen would do well to settle for a short period of time in Arizona, and test their theories by practical experience.

A Two-Headed Child.

Ohio claims a curiosity which puts the Siamese Twins entirely in the shade. This curiosity has among other points, the faculty of existing in at least two different localities in the State. Or else there are two two-headed children residing in two places, if we are to believe the newspapers, which we always do. We append one description. It is not necessary to say to which locality this belongs. Our readers can first puzzle out the question of how the child sits down and then, when they have solved this riddle, they will no doubt be easily able to guess anything else necessary for a full understanding of the matter.

"We have a monstrosity a short distance from here that will heat the world. Last Tuesday morning a lady gave birth to a double child. It is of the natural length of a child, with perfect head on each end. On one side there are two perfect legs, with feet; this side, only, is the gender apparent—that of a female. On the other side there is one leg, which is as large as both the others, and appears to be double; the feet displays eight toes. The creature is healthy. It takes its food well in both mouths, and digests well. There is but one set of bowels, and it had but one navel string. *One end will cry at a time!* I think the old women will say: 'Did you ever?'"

A HOLE FILLING A HOLE.—We notice a decidedly novel and original plan adopted in some of the mines along the Comstock ledge, for filling in worked-out chambers where there is not enough waste material to do it with. A short drift of 15 or 20 feet is run into the East clay wall, inclining upward at a sufficient angle, and widening as it advances. In a few hours the firm tough clay begins to slack from exposure to the air and falls from the face of the drift in large flakes and masses, sliding down the incline into the chamber where required. As each mass falls, it leaves a still larger surface exposed to the air, consequently more keeps falling until a continuous stream of loose clay comes sliding down, and keeps doing so until the chamber is filled, when the drift goes on and fills itself up. After that, all there can be is a gradual settling, which may or may not ever reach the surface.—*Gold Hill News.*

PIANOS.—Go through one of the fashionable streets of any of our great cities and listen to the tinkle tinkle of the piano. Go into another street and hear it repeated; try the experiment in another city and you will find it the same. The piano is everywhere, from the cottages of the poor to the palaces of the rich, in city or country, and in native and foreign homes. Three hundred manufacturers in our land are engaged in this branch of business, employing fifty thousand men, and turning out twenty-five thousand instruments per year. Every hotel has from one to a dozen, every boarding school from six to thirty, and there are thousands of places besides where two or three may be found. The sound of the piano in the United States never ceases. Before the last music-hall in San Francisco closes for the evening, the pupils in boarding schools in Maine have caught up the melody and repeat it until midnight. A business that is large enough to supply all these various instruments cannot be small. Large capital is employed, long experience, and the greatest skill.—*Rowell's Directory.*

THE GOLD WIZARD has been traveling about Nevada City with his divining rod of whale-bone with a metallic hob in the center. He has been astonishing some of the miners. If they give him the chance he'll astonish them still more.

PHOTOGRAPHY.—For Cabinet Photographs, of Enamelled Cards, of the very best quality, you must go to the NEW YORK GALLERY, Nos. 23 and 27 Third Street, San Francisco. Every picture warranted to give satisfaction.
1015 6m B. F. HOWLAND.

BOILER FELTING saves twenty-five per cent. of fuel, BERRY & PLACK'S MACHINERY DEPOT, No. 114 California Street. 1v21-3m

BLOCK TIN AND SOLDER WIRE, broom wire, piano covering wire, etc., manufactured by Joshua Gray, 437 Braumau street. 1v19-5m

THOMAS O'NEIL Ornamental Glass Cutter, No. 10 Stevenson street, up stairs. Stained, Ground and Ornamental Cut Glass to order on reasonable terms. 1v20

HAVING had numerous applications to purchase the right to manufacture CHAMPAGNE MEAD (the great temperance drink), we will state that we are now prepared to sell State and County Rights on reasonable terms.
KENTON, GASS & CO.
San Francisco, July 10, 1870. 2v21-3m

THE GREAT ENIGMA.—A thousand guesses have been made at the ingredients of Sazouo r, the most wholesome and perfect dental purifier the world has ever seen. They were all wrong, so, by way of throwing light on the subject, it is now announced that the LUBER, or inner bark of the QUILLAYA SAPONARIA, the Soap Tree of the Valley of the Andes, is one of the components of that peerless dentifrice.

"SPALDING'S BLUE," useful and true.

FROM A READER.—Duncan's Mill, Sonoma Co., Oct. 10, 1870.—Messrs Dewey & Co: Don't stop my paper. Your journal is very valuable. No better investment for \$4.
Respt. B. C. B.

CONTINENTAL Life Insurance Co., 302 Montgomery street, corner of Pine.

BRAZILIAN Pebble Spectacles to suit all eyes. Opera Glasses of the most elegant styles; and all kinds of optical and mathematical instruments at C. Muller's, No. 20 Montgomery street.


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This Book contains 120 pages. Price, \$2.50, gold, or \$3 currency. postage paid.

Notice to Miners.

Mounted on wheels suitable for mining, irrigating or distillery purposes, was built for slushing. The pump is in good order and will be put to test for any parties wishing to purchase. For further particulars apply to
CHAS. O. FARCIOT,
No. 13 Fremont Street.
18v21-1m16p

Mining and Company Advt's.

Land Purchasers' Association—Office, No. 301 Montgomery street San Francisco.

Notice.—There are delinquent, upon the shares of the following named persons on account of Assessment levied on the first day of October, 1870, the several amounts set against the names of the respective shareholders as follows:

Names.	No. Certificates.	No. Install.	Amount.
Thomas R. Hayes.....	123,4,5	5	\$230 00
James E. Boyce.....	3	30 00	
J. W. Cherry.....	10	6	60 00
John Dyer.....	28	8	80 00
Thomas H. Day.....	32,33	2	40 00
Gustavo Scott.....	44	4	40 00
James E. Ager.....	75,76	1	20 00
E. P. Donald.....	66	1	10 00
Philip Bond.....	87	1	10 00
H. H. Mayhew.....	91	7	70 00
Martin L. Hass.....	97,98	7	140 00
C. M. Kline.....	100,101	6	120 00
John C. Koch.....	106	1	10 00
A. Whitney.....	108	7	70 00
S. S. Spangline.....	114,119	6	120 00
John H. McGarity.....	121	1	10 00
W. Green.....	117	1	10 00
Henry Keller.....	127,128,129,130	3	300 00
	131,132,133,134		
	135,136		
Dr. D. O. Cono.....	157	2	20 00
G. C. Burnett.....	160	2	20 00
Charles Prey.....	171	5	50 00
Otis Jackson.....	173,171	3	60 00

And in accordance with law, and an order of the Board of Trustees, made on the first day of October, 1870, so many shares of each parcel of said Stocks may be necessary, will be sold at the office of the Secretary No. 301 Montgomery Street, San Francisco, on Saturday, the twenty-sixth day of November 1870, at the hour of 12 o'clock M., of said day, to pay said delinquent assessment thereon together with costs of Advertising and expenses of sale.

J. F. CROSETT, Secretary.
Office 304 Montgomery street, San Francisco. 1v21-3m

I. X. L. Gold & Silver Mining Company,

Location of Mine Silver Mountain District, Alpine County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the eighteenth day of October 1870, an assessment of one dollar (\$1.00) per share was levied upon the capital stock, of said Company, payable immediately in United States gold and silver coin, to the Secretary at his office, Pioneer Hall, 808 Montgomery street, San Francisco, California. Any stock upon which said assessment shall remain unpaid on the nineteenth day of November 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Wednesday the seventh day of December 1870, to pay the delinquent assessment, together with costs of advertising and expense of sale. By order of the Board of Trustees.

J. CROWNSHIELD, Secretary.
Office, Pioneer Hall (up stairs) Montgomery street, San Francisco, California. 1v21-3m

Kincaid Flat Mining Company, Tuolumne County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 20th day of October 1870, an assessment of \$2.50 per share was levied upon the capital stock of said Company, payable immediately in United States gold and silver coin, to the Secretary San Francisco.

Any stock upon which assessment shall remain unpaid on the 21st day of November 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Saturday the 11th day of December, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

D. H. CROWE, Secretary.
Office 220 Clay street, San Francisco. 1v21-3m

Mountain City Mining Company.—Location of Mine: Cope District, Elko County, State of Nevada.

Notice is hereby given that at a meeting of the Board of Trustees of said Company, held on the 29th of September 1870, an assessment of fifty cents per share was levied upon the capital stock of said Company, payable immediately in United States gold coin, to the Secretary at the office of the Company, No. 205, Front Street.

Any stock upon which said assessment shall remain unpaid on the seventh day of November 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday the 28th day of Nov. 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

T. B. WINGARD, Secretary.
Office, No. 205, Front Street, San Francisco. 1v21-3m

Silver Sprout Mining Company.—Location of Works and Mines: Kearnsage District, Inyo County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 25th day of August, 1870, an assessment of twenty-five (25) cents per share was levied upon the capital stock of said Company, payable immediately in United States gold coin, to the Secretary at the office of the Company, No. 408 California street, San Francisco, Cal.

Any stock upon which said assessment shall remain unpaid on the eighteenth day of October, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Thursday, the first (1st) day of December, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

T. B. WINGARD, Secretary,
Office, 408 California street, San Francisco, Cal. 1v21-3m

Mahogany G. & S. M. Company.—Location of Works, Silver City, Owyhee County, Idaho Territory.

Notice is hereby given, that at a meeting of the Trustees of said Company, held on the second day of Nov. 1870, an assessment (No. 1) of \$2.00 per share in United States Gold coin, was levied, payable immediately to the Secretary at the office of the Company, Room No. 2, Express Building, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on Monday Dec. 5, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, on Dec. 10, 1870, and unless payment shall be made before, will be sold on Tuesday December 27, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of the sale.

C. O. M. RICHARDSON, Secy.
Office No. 2, Express Building, San Francisco, Cal. Nov. 5

FOR SALE.—An account due this office for advertising for A. Jackson, of La Crosse, Wis., will discount 99 per cent. if necessary. 18v21 1y.

Notice of Delinquent Sale.

Silver Sprout Mining Company—Location of Works and Mines, Kearnsage District, Inyo County, California.

Notice.—There are delinquent upon the following described stock, on account of assessment levied on the twenty sixth day of Aug. 1870, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. of Certif.	No. Shares.	Amount.
Brown, B. L.....	11	10	2 50
Cleveland, R. H.....	24	10	2 50
Devlin, J. D.....	12	10	2 50
Davis, James H.....	20	40	10 00
Heerst, Geo..... (unissued)		200	50 00
McLaughlin, J. W. (unissued)		1000	250 00
Mott, E. B Jr.....	29	200	50 00
Stowell, Chas E.....	22	1000	250 00
Spaulding, Geo.....	25	40	10 00
Wade, Wm X..... (unissued)		220	55 00

And in accordance with law, and an order of the Board of Trustees, made on the twenty ninth day of Aug. 1870, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the sales room of Maurice Dore & Co., No. 327 Montgomery St., San Francisco, on the first day of December 1870, at the hour of 11 o'clock A. M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

T. B. WINGARD, Secretary.
Office, 206, Front street, San Francisco, California.
Advertising charges \$2.00 each certificate. Oct. 29-2w

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Freshly written, and up with the times, but is also a thorough and complete

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Between Third and Fourth Streets, S. F.

Having been burned out at the late fire on Fremont street, we have removed our business to the above locality, where the manufacture of sash blinds, doors, frames, mouldings, etc., in connection with a general mill business, will be carried on by us as formerly, and where we shall be pleased to see all of our old friends and patrons, and as many new ones as may favor us with a call.

Thankful for past favors, and especially for the sympathy extended to us for our late heavy losses, we intend, as heretofore, to deserve the patronage of the public by strict attention to business, fair dealings, and justice to our customers.
18v21-3m

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Combination Locks,

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All parties are hereby cautioned not to infringe on this patent, as the owners will protect their rights to the full extent of the law. None genuine unless marked K & L's Patent. Manufactured and sold by

KIRTLEDGE & LEAVITT, Patentees,
18v21-1m No. 225 & 227 Beale St.

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AND IS A FIRST CLASS

Literary and Family Newspaper,
AS WELL AS THE
Organ of the Masonic Fraternity on the Pacific Coast.

ENDORSEMENT OF THE GRAND LODGE.

The following resolution was unanimously adopted by the M. W. Grand Lodge, F. A. M. of the State of California, at its Annual Communication, October, 1870. Whereas, in the opinion of this Grand Lodge, a well conducted Masonic Journal is of great benefit to the craft, in disseminating Masonic information among the fraternity, as well as furnishing a medium for general Masonic intelligence. Therefore,
Resolved, That this Grand Lodge, recognizing in the Masonic Mirror, edited by Brothers Amasa W. Bishop and Edwin A. Sherman, as published by the Masonic Publishing Company of San Francisco, a Masonic Journal of the character above set forth, do hereby recommend the said MASONIC MIRROR to the craft generally, as worthy of their most favorable consideration and support.

ENDORSEMENT OF THE GRAND CONSISTORY.

At the communication of the M. P. Grand Consistory, Ancient and Accepted Scottish Rite of Freemasonry in and for the State of California, held October, 1870 at San Francisco, the following resolution was unanimously adopted: Resolved, That the Masonic Mirror, published in this city be the official organ of this Grand Consistory.

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One Square of ten lines, or less, 1 time.....\$ 1.00
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San Francisco Metal Market.

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Jobbing prices rule from ten to fifteen per cent. higher than the following quotations.

THURSDAY, Nov. 3, 1870.

IRON.—Duty: Pig, \$9 per ton; Railroad, 60c per 100 lbs.; Bar, 1 1/4c per lb; Sheet, polished, 3c per lb; common, 1 1/2c per lb; Plate, 1 1/2c per lb; Pipe, 1 1/2c per lb; Galvanized, 2 1/2c per lb.

SCOTCH AND ENG. Pig Iron, per ton... @ \$30 00

White Pig, per ton... @ 28 00

Renned Bar, had assortment, per lb... — 03 —

Renned Bar, good assortment, per lb... — 04 —

Boiler, No. 1 to 4... — 04 1/2 —

Plate, No. 5 to 9... — — 04 1/2

Sheet, No. 10 to 13... — 04 1/2 —

Sheet, No. 14 to 20... — 05 — 05 1/2

Sheet, No. 24 to 27... — 05 — 06 1/2

COPPER.—Duty: Sheathing, 3 1/2c per lb; Pig and Bar, 2 1/2c per lb.

Sheathing, per lb... — — 26

Sheathing, Yellow... — 20 — 21

Sheathing, Old Yellow... — 10 — 11

Composition Nails... — 21 — 22

Composition Nails... — 21 — 22

TRIPLES.—Duty: 25 per cent. ad valorem.

Plates, Charcoal, 1x, per box... 12 00 —

Plates, 1 C Charcoal... 10 00 — 10 50

Roofing Plates... 10 00 — 10 50

Banca Tin, Slabs, per lb... — — 42

STEEL.—English Cast Steel, per lb... — — 15

QUICKSILVER, per lb... — — 7

LEAD.—Pig, per lb... — 6 — 7

Sluc... — 9 — 11

Pipe... — 10 — 11

Bar... — 8 — 9

ZINC.—Sheets, per lb... — 10 1/2 — 11

BORAX... — 35 — 38

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INCORPORATED.....APRIL 30, 1868.

CAPITAL.....\$1,000,000.

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Steam Engine Builders, Boiler Makers, Machinists, Foundrymen, and Manufacturers of Car Wheels equal to the best imported, and guaranteed equal to Eastern Wheels.

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13-20-3m

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Awarded the First Premium at the Paris Exposition.

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REQUIRES Fifty Per Cent. LESS POWER Than any Blower Now in use.

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CAUTION.—Purchasers will find it to their advantage to apply direct to the Stockton Agency, as certain parties, not authorized to manufacture the Blower, have put in the market machines of inferior construction, which do not answer all the requirements of the genuine article.

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4-16-3m

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The above mentioned Novelty Mill is the only mill known to possess all these superior qualifications, and was exhibited and tested at the last Michigan State Fair held at Jackson, Michigan, September 21, 22, and 23, 1869, and bore away the palm over some thirty other different mills from all parts of the United States, including the famous Dicky Mill of Racine, Wisconsin. All who have witnessed here the operations of the NOVELTY MILL, declare it perfection, and the most beneficial invention to the Farmers, Millers, and Grain Dealers ever introduced on the Pacific Coast. The farmers in Santa Clara County, are loud in its praise, and also in other parts of the State where it is being introduced. No. 1 Mill, complete, is capable of cleaning 25 tons of grain per day; No. 2 Mill, 15 tons; No. 3 Mill, 8 tons. A large number of recommendations and certificates of the practical working of the mill will be furnished. Circulars containing references sent free by mail. N. B. Town, County, or State Rights for sale on favorable terms. For further particulars apply to

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3v21

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Flue or Tubular Boilers, with plain circular or spiral courses. Upright Flue or Tubular Boilers, Locomotive and Marine Boilers, and Wrought Iron Tanks of every description.

Hydraulic Pipe supplied at reasonable rates. In ordering, give the quantity of water to be supplied, height of the fall, and total length of pipe, so as to enable the firm to determine the diameter of the pipe and thickness of iron to be used.

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To Boiler Makers and Machinists in the Interior.—The firm is prepared to furnish estimates of Boilers, supply new Heads, drilled and punched, and attend to the selection and forwarding of Iron for Boilers, Pipes and other purposes.

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New York Metal Market.

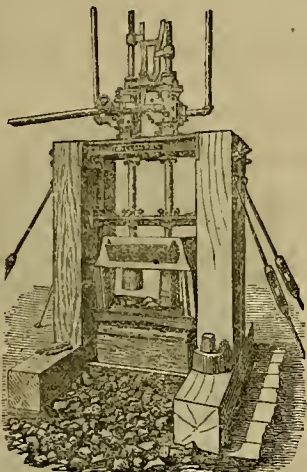
[CORRECTED WEEKLY FROM THE AMERICAN ARTISAN.]

New York City, Saturday, Oct. 22, 1870.

Pig, Scotch, No 1 (cash), per ton..	233 00	@	\$36 50
Pig, American, No 1 (cash).....	33 00	@	34 00
Pig, American, No 2	29 00	@	31 00
Swedish, ordinary sizes.....	110 00	@	125 00
Common.....	75 00	@	80 00
Refined.....	77 50	@	95 00
Rods.....	85 00	@	120 00
Horse-shoe.....	95 00	@	—
Hoop.....	105 00	@	130 00
Scroll.....	97 50	@	125 00
Nail-rods, per lb.....	7 00	@	7 1/4
Spring.....	7 1/4	@	—
Tire.....	8 1/2	@	—
STEEL.			
Bars, best cast, warranted, per lb.....	17 00	@	18 00
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Machinery.

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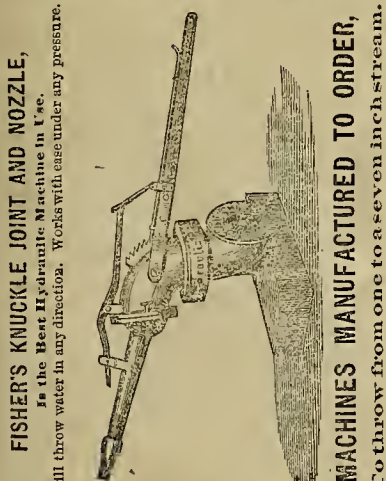
Or of THE WILSON STEAM STAMP MILL CO., 327 Walnut street, Philadelphia, Pa.

NOTICE.—All persons are hereby warned not to manufacture or use any Steam Stamp Mills that are an infringement on the Wilson Patents, as they will be prosecuted to the utmost rigor of the law.

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HYDRAULIC CHIEF.



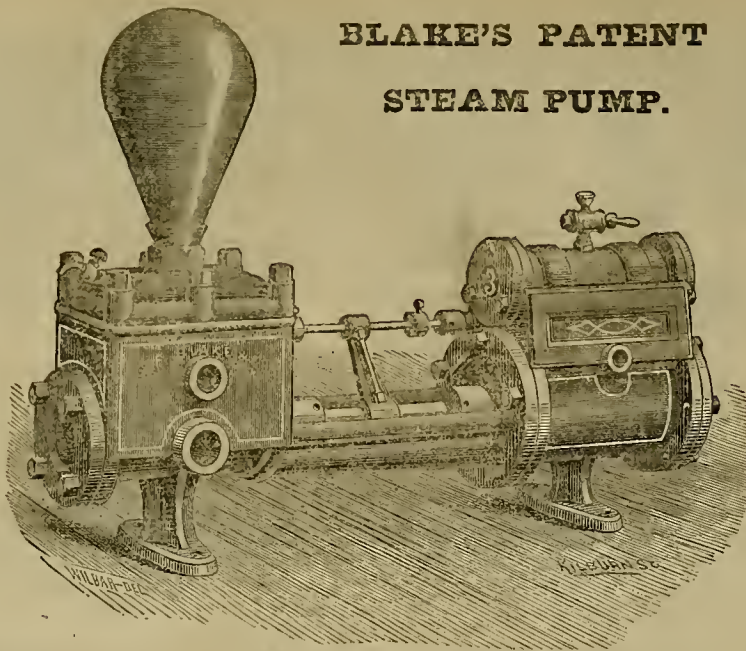
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And as BOILER FEEDERS, wherever steam is employed. In fact, wherever water or other liquids are desired to be raised in large or small quantities, or against heavy or light pressure, it is the

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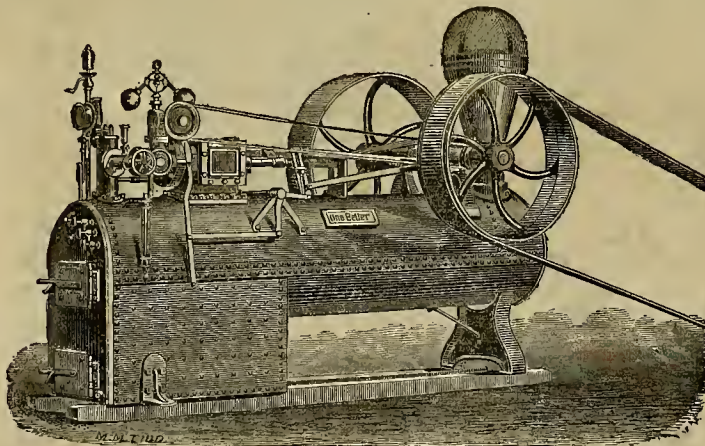
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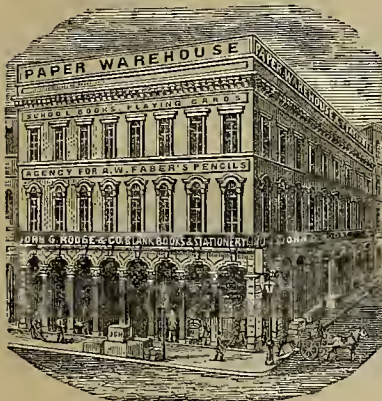
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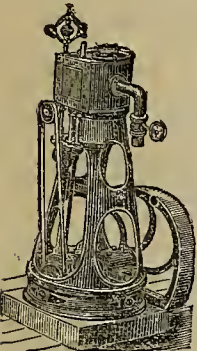
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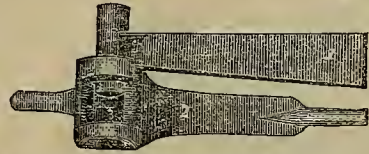
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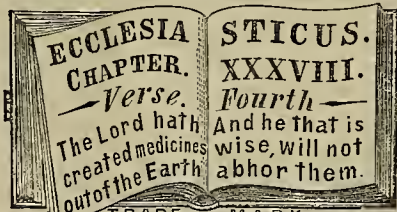
As this Preparation of these plants, lately made public (Patented June 23, 1870), but long proven in Siskiyou county, Cal., owes its efficiency entirely to its remarkable power of INCREASING THE INSENSIBLE PERSPIRATION, or, in other words, the VAPOR ENHALATIONS from the millions of minute pores of the EXTERNAL SKIN, from the crown of the head to the sole of the foot, it is all important that the direction to pass a sponge, or towel, dampened with saleratus water, under the clothing, twice a week, or oftener, be attended to.

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References on application. E. E. ROBERTS & CO.,
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AN ILLUSTRATED JOURNAL OF SCIENTIFIC AND INDUSTRIAL PROGRESS,
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San Francisco, Saturday, November 12, 1870.

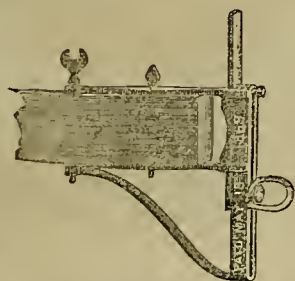
VOLUME XXI.
Number 20.

Mining Edition.

Plow Beam Clevis.

As we announced last week, we hereby give our readers an illustration of an improved construction of a clevis for plow beams, invented by a resident of this State. It is a simple device for regulating the depth at which it is desired to run a plow, and can be readily understood by referring to the cut.

The two arms of the clevis are attached to the end of the plow beam, one arm being placed on the upper, and one on the lower side of the beam, and secured by a screw passing through the beam and similar to that used in the ordinary clevis. The plow is thrown to and from the land in the usual manner by shifting the pin from side to side and placing it in holes prepared for this purpose.



The front ends of the two arms are secured to a metal bar having a slot running longitudinally through it. The arms are slotted behind this so that the second bar, to the bottom of which is attached the link, can slide up and down. The link is secured by a swivel joint to the connecting screw so that it can turn in any direction, and, of course, it rises and drops with the second (sliding) bar. This sliding bar is held at any desired position by a set screw.

The depth at which it is desired to run the plow is regulated by moving the sliding bar up and down. By the use of the swivel joint, the doubletrees, which are secured to the link, are allowed to remain at all times in the proper position. Thus, when it is desired to let the horses stand for a time, the plow is generally thrown over on its side; and when the ordinary clevis is used, the motion turns the double trees and causes the tugs to strike the horses legs, frequently resulting in run-aways. But with this device, when the plow is thus thrown on its side the link turns and allows the doubletrees to remain in their proper position.

A patent was granted for this invention through the SCIENTIFIC PRESS agency, in March, 1869, to Mr. John A. Bilz, of Pleasanton, Alameda county. Mr. Bilz manufactures his clevis and has introduced it quite extensively, and with great success, among the farmers in his section, by whom it is much liked. Messrs. Treadwell & Co., have the agency here and in Sacramento, and our agricultural readers can obtain particulars as to the price, etc., by applying to either of the above named parties.

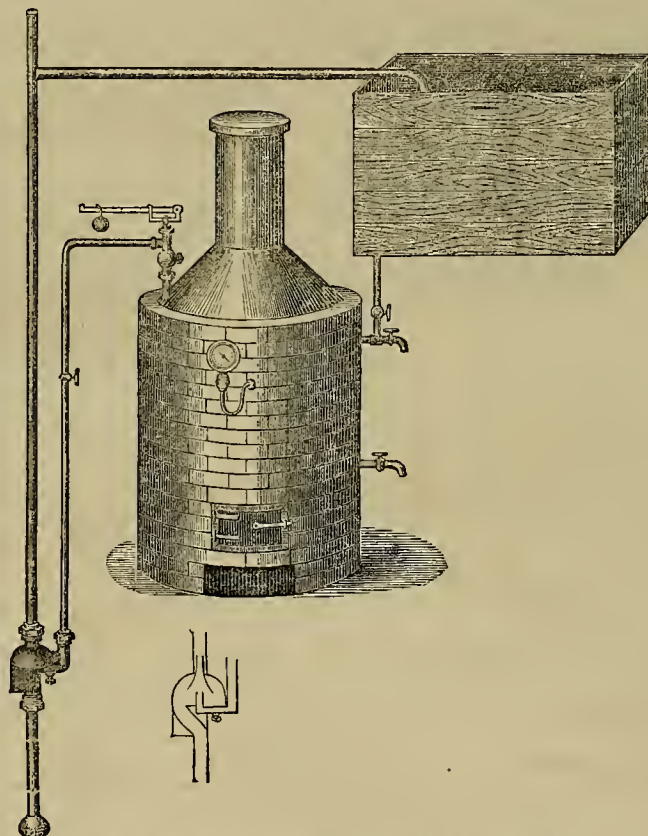
The Steam Jet Pump.

The illustration annexed shows a pump which comes highly recommended for filling tanks for steam engines and for use in mines, quarries, distilleries, on farms, etc. The use of this pump saves the expense of building and running an engine. It may be put in a well or near a stream of water, a long distance from the boiler, and steam carried to it in a pipe, thereby dispensing with the (otherwise) necessary outlay for putting up costly machinery to work a common pump in such localities.

The illustration shows sufficiently well the device, the details of the important

quires no belts or pulleys or other machinery, operates entirely independently of an engine, and costs but comparatively little. They say that it will not choke up with foul water, will not easily wear out or require repairs, is certain to work at all times, and is not liable to injury from freezing.

Practice has shown that no more than twenty-five pounds of steam are to be used to start the water, and when this is done, about one pound of steam for each foot in height through which the water is raised; also that there should not be a suction lift of more than sixteen feet. This applies to the standard size, illustrated in the cut, which throws from fifteen to twenty gal-



BLAKSLEE AND WILLIAMS' PATENT STEAM JET PUMP.

point of this particular pump being shown in the small sectional figure below the boiler. A boiler is set up encased in masonry, as here shown, or otherwise suitably constructed. From this extends a steam pipe which leads into that part of the machine shown in the section. As the steam rushes up the upper part of the supply and discharge pipe, it creates a vacuum, and the water is drawn up through the pipe and can be carried to any proper point. The cut shows a reservoir, which is taken for the purpose of illustration.

This brief explanation shows the grounds on which the inventors base the advantages claimed, bringing many testimonials of practical working to substantiate their claims. They call attention to the points, that it is operated by steam taken directly from the boiler into the pump, that it has no valve or wearing parts of any kind, re-

lons per minute. Other sizes are made on special order to suit any locality and to throw any desired amount to various heights.

The machine is known as the Blakslee & Williams' Steam Jet Pump, and a patent for it was granted on June 15th, 1869. It is manufactured by Messrs. Parker & Hunt, corner 10th and K streets, Sacramento, for raising water, oils, acids, etc. It is made with great care, and each pump is carefully tested at the factory. The steam suction and discharge pipes are attached to the pump with brass nuts and swivels threaded for gas pipe. The steam port and combining pipes are of brass. For use with acids they are made all brass with soldering swivels. The agent in San Francisco is Chas. F. Brock, at Hooker & Cos., 117 and 119, California street. For further information apply as above.

Mechanic Arts College Lectures.

We referred to this matter in an article last week which was set up in the "wee small hours" of the night, just before going to press, and which consequently did not receive the benefit of being read before going into the paper. But the matter is one of the highest importance, and we would again call attention to it.

It ought to be understood that the course is absolutely free to all. It is held in the hall of the Mechanic's Institute, but has no other connection with that establishment. It comprises a list of subjects, most interesting as well as useful; and we hope that it will be fully attended.

The first lecture is held to-night, when after a short introductory address by one of the Regents of the University, Prof. Joseph LeConte will commence a course on the Geology and the Coal Measures of the Pacific coast. Then Prof. John LeConte will follow with a series of lectures on Industrial Mechanics; Prof. Carr, on Chemistry, and the other Professors on practical subjects connected with their departments. We have been permitted to see a general list of the subjects to be treated, and we see that which promises to come home, in one way or another, to almost every person in our city.

The whole course will consist of about forty lectures. The various laws which are brought to bear on our farms, in our mines, our foundries, our manufactures of all kinds, will be treated of in a manner easy to be understood and of practical application. The lectures will be illustrated by such experiments as will aid the understanding and increase the interest. We hope to be able to give a report of each lecture, that those of our readers who live at a distance may likewise share some of the benefits of this most praiseworthy action of the University.

We would again recommend young men of all professions and trades to attend this course which is liberally offered without cost to them. They need the instruction which they can now receive. Moreover, a full attendance, while benefitting the community, will encourage the Regents to further exertions.

COLORADO MINERALS.—We have just received from the author a very valuable catalogue of the principal minerals of Colorado, with annotations on the local peculiarities of several species, by J. Alden Smith. Mr. Smith has been (and is now, we presume,) connected with the Central City Register, and we had the pleasure last year of seeing his interesting collection of minerals at the Register office. Mr. S. has paid attention to the subject for years, and we expect much pleasure in studying out his pamphlet, which came too late for a critical examination before going to press.

UNHAPPY MEXICO has another revolution, which has broken out in Guerrero, and Michoacan. One in Tehuantepec, it is feared, will cause trouble for the U. S. Canal Expedition.

Communications.

IN THIS DEPARTMENT we invite the FREE DISCUSSION of all proper subjects—correspondents alone being responsible for the ideas they advance.

All About Montana.

[Written for the Scientific Press.]

Radersburg.

Radersburg, the county seat of Jefferson county, is situated on Crow Creek, some 70 miles from Virginia City and 45 miles from Helena. It is a small place but has in the mines around it and the farming districts of the Crow Creek Valley the elements sufficient for sure growth and prosperity. The creek flows easterly, past the town, and empties into the Missouri River.

To the West of the town there are a large number of quartz ledges, which have an excellent name. In company with Mr. Chas. G. Hallbeck, who treated me throughout with that genuine hospitality and kindness for which our miners are noted, and to whom I here return my hearty thanks, I visited the principal mines within a range of two to four miles from Radersburg. The first was the BLACKER AND KEATING lode, taken up in 1866 by the present owners who commenced with but little money but have taken from their mine large amounts. We went underground with the foreman, Mr. J. Hockin. The Discovery shaft is down some 90 feet and is only 63 feet from the main shaft where the ore is raised. This last is down 100 feet, at which depth the water has stopped further operations below, and they are stopping out the ledge to the surface. The average width of the ledge is two feet; the general character of the ore is a red or yellowish decomposed quartz, rich in free gold; the ledge is almost perpendicular with a hanging wall of slate and a foot wall of granite. The rock is hauled a short distance to the mill and yields from \$30 to \$100, average \$50, per ton. Mr. Blacker owns a 2-stamp mill, driven by an overshot water-wheel; in six weeks run last Fall, with this mill and two small arrastras, they obtained \$7,000. They are now getting from \$300 to \$800 weekly from ore from the Keating and the Leviathan lodes. The company is drifting on the KEATING lode, having worked 160 feet north and 80 feet south. They are making a large horse-whim for raising ore and intend putting up fine hoisting and pumping machinery at no distant day. This is one of the best mines I have seen in the Territory.

Leaving the mine we pass a large number of bars and gulches worked by the placer miner. The first is the claim of Mr. W. QUINN, located in the gulch below the Keating lode, from which it has evidently been fed. Mr. Q. has three ditches, carrying water from Crow Creek, about 12 miles, and furnishing some 1,200 inches. The water is sold over and over again in the ditches. The third or branch ditch cost \$12,000 and was completed last winter.

In Keating Gulch is the KEATING MILL, with 15 stamps, 18-horse power engine, large copper plates in front of the batteries, a small settler, etc. It is run night and day.

Crossing this gulch is the ONTO lode. The mine of this same name is owned by Ohlmann, Keating & Co. They have a shaft 50 feet deep and a tunnel 100 feet long. The ledge will average two feet in width. It was struck in 1866, but only recently have the owners really commenced work on it. A lot of 70 tons run through the mill yielded \$2,100.

The SAMPLE MILL is situated about half a mile above the last named mill, and has a 15-horse power engine, 12 stamps, copper plates, a settler and an arrastra.

The IRON CLAD lode, discovered in 1867, is four miles from the city, and is traceable for several miles. It has been cut up into numerous claims of 150 to 250 feet in length, and on it ten shafts have been sunk, the deepest being down 130 feet. It runs north and south, has an average width of about three feet, and contains rich ore, generally decomposed, holding free gold and (in some places) sulphurets. The Discovery Shaft is down 90 feet; the Sample, 125 feet; and the Nolle, 40 feet. A lot of 17 tons of rock yielded \$62, and one of 70 tons \$28, to the ton.

Other ledges I must speak of briefly. The SPARRINGTON averages 3½ feet in width and has a shaft 65 feet down. The LEVIATHAN has a shaft 170 feet deep and promises very well. The TWILIGHT, three feet wide, has a shaft down 70 feet; water stopped operations at that depth, but I am told that the rock was very fine, and that operations will soon be re-commenced. The LEE has a shaft 60 feet down. A lot of 150 tons yielded \$43 to the ton.

The section is certainly a most promising one. With its quartz ledges, quite a number of which are proved to be very rich, with its valleys, on Crow Creek and the Missouri, affording excellent opportunities for stock raising and farming, with abundance of wood and water, with a genial climate, it is certain to attract labor and capital and to become an important part of the Territory.

W. H. M.

A Trip Among the Mines.

[Written for the Scientific Press.]

On arriving at Marysville, by the Vallejo route, at 2:15 P. M., the passengers bound for Camptownville and Downieville, tarry until 4 A. M., and then take the stage and arrive in Camptownville at 2 P. M. and at Downieville at 8 P. M. At the

Oregon House

They breakfast. One is not struck very forcibly with the appearance of the old hotel but it has the reputation of providing the best table on the road; our party seemed to think so, as we all were infinitely improved in feelings after partaking of the delicious and well cooked spring chickens. It was just the kind of a meal to fortify us against the fatigues of travel for the coming day. This is quite a resort in the summer time for families, and for ladies in delicate health. I do not know who "keeps the hotel" but from their excellent style of cooking, should judge they were New England people. Leaving here, and passing Dobbins Ranch, which will be remembered by many an old "forty-miner," as a then Way station, we arrived at

Camptownville.

The Downieville passengers change stages here. This is an old mining camp, and has given some rich results in past days. The old channel which appears near the top of a high ridge, is nearly, if not quite, worked out. A company commenced hydraulic work here lately under the impression that the channel ran in towards the town side; but not finding sufficient pay, they abandoned that portion of the enterprise, and now contemplate working on the opposite side. The town consists of a good hotel, two stores, an express office, many pleasant residences, and a good livery stable. There is also a first class saloon, kept in city style, by Mr. Charles Gray, formerly of San Francisco; he is always ready to "minister" to the "spiritual" wants of travelers who happen along that way. I am informed by good authority, that there has been more travel over this road during the last six months, than for a similar period for some years. Our party consisted of three, whose object it was to visit a mining property some ten miles from this place. Mounted on good horses and getting an early start, we passed over Willow Creek, a location which has been noted for its richness, but is now "worked out." We passed Dad's Gulch which is quite a little settlement with some good claims. We next came to the Slate Range House on the top of the ridge, and kept by an old man as a trading post. This was once a flourishing post, when occupied by the Tompkin boys, and while they were running pack trains to and from Marysville.

Continuing on the trail, we soon descended to the North Fork of the Yuba river, to what is known as Bullard's Bar. We found the men were off at work, the ladies only, being at home. H. knew the family, and called on them. A pretty, curly-headed miss opened the store for us; she declined selling us any liquor, as she belonged to the Good Templars; but she was willing to sell us all the cigars we wanted. The ladies were in the midst of preparations for a grand hall, which was to come off soon. Forging the river, we found the Godfrey boys working a portion of the bed of the stream which was overlooked by the early miners. The water being very low this season, they were working profitably; taking out one hundred dollars per day to four men. The trail on the opposite side was very steep and rough, and even C., familiar as he is with Sucker Flat and Timbuctoo, thought it a decidedly hard road to travel. We soon reached

Big Oak Flat,

In Yuba County. The first claim we saw was the Black Crook, which was located some two and a half years since by Robert Parton, Esq., who is now in Arizona. It is owned at present by some San Francisco gentlemen. The gravel shows itself some thirty feet in height, and is very much washed. This mine faces on Rock Creek side of the ridge, and is situated between Slate and Rock Creek. Some work has been done on this claim. A tunnel was run in a short distance, and a side drift run 50 feet, all the way through gravel which prospected from 10 to 20, and as high as 50 cents to the pan. The parties owning the ground have been misled by the impression that during the winter and spring there would be large quantities of snow upon the ridge, which would prevent them from working the mine to advantage. By going up the ridge a short distance, the mine can be opened by hydraulic at quite a small expense compared with the cost of other mines in this part of the country, as the ridge in places is quite narrow, and has a splendid fall on the Rock Creek side.

The mine adjoining this is known as the Manhattan claim and is chiefly owned by San Franciscans. They have a tunnel run in some 400 feet, and have a good deposit of gravel, known in some mines as the boulder, or outside wash of the main channel or inner basin. The hard cement comes in at the end of the 400 foot tunnel and shuts the gravel out. Those who are judges of this class of diggings say the pay deposit or channel will come in not far from 200 feet, after going through the hard lava

or cement some 50 or 100 feet, and then strike the soft pipe clay which lies next to the gravel deposit in the main channel. They also think the hill contains a basin, and that rich deposits of gravel can be found the same as those at Scales', Brandy City and San Juan North. This ridge has all the natural facilities for making a permanent mining district. Passing several places, which I will mention hereafter, we finally reached

Grass Valley

The most important and prosperous quartz region in California. We found the great center of attraction, apparently, to be Alta Hill, some three-fourths of a mile from town, since the Hope Gravel Company have found a rich deposit in the channel of the old Blue lead. Miners are making locations to try their luck once more, and all the ground that there is on the hill has been taken up, and some companies have taken more than really belongs to them, for fear they may not find it on their own ground.

The Hope Company have a splendid mine, and I am glad to say it is as well managed as any mine I have seen in the State. Mr. Bower, the superintendent, and Mr. Ham, the financial agent of the Company, conduct its affairs on safe and economical principles. We were not shown any crooked tunnels, nor did we hear of any unnecessary break down of machinery.

The Company are contracting for a new bed rock tunnel, some 500 feet in length, and to be 16 feet lower than any level in the mine. When this is completed the whole underground mining can be done with ease and dispatch, and can be worked at a distance of 3,000 to 5,000 feet without having to sink any more shafts. It will connect with the east drift, where the richest deposits have been found. The body of gravel in sight in the drifts and breasts are sufficient to encourage any set of stockholders. The hard cement that cannot be washed is thrown one side, and will be worked by mill process, as soon as the company decide to erect a mill. Twenty-three pounds of this hard cement was recently worked under stamps, and through a small steam pan in San Francisco, with a result much greater than had been anticipated. The dump pile contains tons of this cement, and during the last week but one, more than usual has made its appearance in the drift now being opened. The mine gives evidence of being permanent and lasting. Mr. Bower in speaking of the hard cement, says, "I have now over 500 tons of such as the sample in box on the surface ready for milling; and also a large body of the same material in the mine ready for breasting out."

From the 17th of September to the 5th of November, eight weeks, 541 ounces have been taken out, while the mine has been worked to great disadvantage by not having the bed rock tunnel low enough. The tunnel is being cleaned out by contract, to make a connection with Hope Shaft, so in case of a wet winter, water will only have to be lifted from 70 to 80 feet, by means of a 12-inch Cornish pump.

The company has been assessed for the last four years, and at the time of finding the deposit, the company was not greatly in debt, either in San Francisco, or at Grass Valley. As they are now doing so much dead work, it can hardly be expected that a dividend will be paid during the month of November.

November 7th.

CROOKS.

Notes of Travel in Yuba and Sierra Counties.

[Written for the Scientific Press.]

CAMPTOWNVILLE, 41 miles from Marysville, is the most northern mining camp of Yuba Co. It has suffered greatly from fires in years past, but, as a mining camp, up to within the past two years, was rated among the average in the State; at present but little is doing right in the vicinity. CAMPTOWNVILLE CLAIMS. Hugg & Co. are proprietors of all the principal claims adjoining the town, not working at present. CAMP BRIEN CO., adjoining the claims of Hugg & Co., are owned by Jones, Williams & Co., and worked by hydraulic process, during the season of water. HORSE VALLEY DIGGINGS, placer mines, one mile north of C., are owned by Diamond & Co. After being worked for the past 14 years, they still satisfy the proprietors. AT SLATE RANGE, two miles north from Camptownville, the WEEP'S POINT claim, owned by Clow, Sailor & Purenton, and superintended by Wm. Sailor, work five men during the season of water, and run two ordinary pipes, working by hydraulic process.

INDIAN HILL, Sierra Co., seven miles northwest of Camptownville. The principal diggings are owned by Welker & Co., (J. Welker, C. McIntyre and A. McKie). The common pipe and distributor is the only device that has yet found its way here. The main supply pipe is only 11 inches in diameter, too small and inadequate for work, using scarcely 300 inches of water. It is a very rich, hard, cemented gravel, from 50 to 200 feet deep, and the channel is from 500 to 2,000 feet wide. By the present process four men wash out \$100 per day on the average; but with a large supply pipe, (say 18 inches), and some one of the many hydraulic devices in the line of monitors, which could receive 450 or 500 inches of water, these diggings could be made to pay fabulously. Gold is of-

ten visible 30 feet from the bed rock. A strange peculiarity about these diggings is that all the heavy boulders and nearly all the coarse gold is found in the upper 30 to 50 feet.

Crow & Co.'s claim, 1½ miles south-west of Indian Hill, consists of 5,000 feet of rich tailings in Indian Creek—the hydraulic washings from Indian Hill. This claim pays good wages and is worked the year round. R. H. Bliss & Bro., own the water privileges on this hill, and also own and work a fair proportion of the diggings. At GRISLEY HILL, 2½ miles further distant, Messrs. Selferage & Co. and Sharp & Co. own all the mines. They work with common pipe, washing only during the water season, which commences after rain begins to fall in winter and stops about the 1st to 15th of June. These claims are similar in every respect to those on Indian Hill, and, on the average, pay well.

BRANDY CITY, 1½ miles further west, is quite a little village of 100 inhabitants. J. Jones keeps the Public House (and a fair one too). The mines, principal store, water privileges, &c., are owned and run by P. S. Van Rensselaer. He works from 30 to 100 men; his claims consist of about 500 acres of rich hydraulic washings, from 100 to 300 feet deep. Twelve miles of his ditch is solid flume, with a saw mill in running order at either end, the whole of which property is valued (by outsiders) at over a million dollars.

MARBLE VEIN. Six miles north of Camptownville, at Slate Range, Mr. V. C. McMurry has located a very fine marble quarry. The croppings are 80 feet high by 100 feet wide. A specimen may be seen at the office of the *Examiner*, San Francisco. From its look I should say it was susceptible of a very fine polish.

GOON YEARS BAR. The diggings here are in the bed of the river (Yuba) and the principal mining is done by Chinamen. A very few white men are dragging out an existence at this place, and from their conversation I think their entire interests could be bought out for lottery tickets, at par, drawing one chance in 319.

DOWNIEVILLE. Four miles further up the Yuba, and 21 miles from Camptownville, is Downieville, the county seat of Sierra Co., which is reached by stage from Marysville, at the same fare charged 20 years ago. My advice to travelers having to stop over along this road would be to take their own conveyance and horse-feed, and lunch enough to last to the Oregon House, 24 miles from Marysville. Downieville at present is rather thriving. A new County road has just been completed to Sierra City, 12 miles distant, and is to be continued to Sierra Valley, 18 miles further; estimated cost, \$30,000, or about \$1,000 per mile; \$15,000 were by private subscription, which shows a considerable of enterprise, to say the least. C. C. Darling & Co., of Downieville, are running a daily stage to Sierra City, of which I will speak further along. Four different branches of the main Yuba River, fork at or near Downieville; at or near the mouth of the East Fork is situated a fine saw mill, owned by B. Panly, three-fourths of a mile from town.

About 1½ miles from town, at the junction of the North and Middle Forks, on Wisconsin Flat, is situated the McMillan Mine, owned and superintended by S. K. Sale. This is a deep channel, blue gravel, lead putting into the mountain, worked by hydraulic process; seven men are employed; the pay is principally coarse gold, and quartz bearing. The claim has only been opened about 60 days; from indications in the ground sluice a handsome clean up is anticipated.

The GOLD BLUFF mill and mine are just opposite the McMillan, on the North Fork of the Yuba. This is considered one of the first quartz leads of Sierra Co. It is superintended by H. C. Tewes. They have a 12-stamp mill run by water power, night and day, Sunday included; work from 25 to 30 men, and crush from 18 to 20 tons per day. From where they are now working, the rock is landed at the mill by an incline, down the side of the hill, the loaded car down drawing the empty car up; their tunnel is in 1,600 feet and strikes the ledge 550 feet below the croppings. The rock is soft, run with but little cost, no hoisting works nor drainage tunnels are needed and there is free water to run the mill; what they clean up is nobody's business, as the mine is not for sale.

The SIERRA BUTTES quartz mine is situated 1½ miles north-west from Sierra City, and under the shadow of the Downieville Buttes themselves, which tower up 8,200 feet above the level of the sea. The company have two 16-stamp mills in operation on the mine, and another 40-stamp mill in course of erection, to be in running order on the 1st of next month; J. T. Hanks is superintendent. They are at present working 80 men, 20 of whom are preparing rock for the new mill. With the two 16-stamp mills they crush some 50 tons of rock every 24 hours. They are working from five different levels, all of which are run in from the face of the vein. The company own three distinct ledges, varying in width from five to twenty feet. This is one of the oldest and best paying mines in the State, having never levied an assessment. It is near this point that the big 95 pound chunk was taken, which has created such a sensation at Woodward's Gardens in your city.

CHURN EXTRAORDINARY. Midway between Good Year's Bar and Downieville, resides Thos. B. Parke who is the inventor of a churn that will accomplish the arduous task of making butter in one minute! So I am informed by men of integrity who have seen the operation performed. Oh, ye proprietors of the Old Barrel and Dasher, read the above and weep.

L. P. Mc.

Mechanical Progress.

SLIDING OF BELTS.—The *Technologist* says that by the simple covering of the pulleys with leather, attached with glue, ventilators, which hitherto made only 1,100 revolutions per minute, were caused to make 1,400. In a steam mill with five run of stones, each set ground twenty-seven bushels per day to twenty four before. In a paper mill, a rag engine did 15 per cent. more work than before. A spinning-machine was made to produce a uniform thread, while before the pulleys were covered, it produced a thread containing knots and uneven spots. Moreover the belts lasted considerably longer than before.

MACHINE FITTING AT THE LINCOLN IRON WORKS.—The *Engineer's* report of the Annual Meeting of the Institution of Mechanical Engineers, includes an account of a visit to the Stamp End Works at Lincoln, from which we quote briefly:—"The principle of interchangeability of the parts, is here carried out with small engine work. In whatever part of the world an old Stamp End engine may be, on sending it a number any duplicate part required can be at once forwarded. The ends, straps, and cotter holes, for instance, of every connecting rod are slotted and shaped out to fit; the half-round edges of the cottars are shaped in a peculiar lathe; and the only hand-work left to be done is just to take off the arranges. The eccentric sheaves, with a half round groove, are centered on a chuck made with taper wedges that hold it on being screwed up, and the half-round groove is cut out by a tool fixed in a slide made to oscillate on a pin to the exact curve. The eccentric straps are cast together, to be afterwards slotted in two, leaving a small space for a packing piece. The out-sides are turned in a lathe fitted with a tool box, oscillating on the slide rest to the exact curve required. The pair of cylinders for their two-cylinder engines are in one casting, and with the regulator valve. They are bored in a special lathe; then, on being fixed in two brackets with cones, the valve faces are planed out, the faces of the flanges turned up in a lathe, and even their out-sides slotted in a machine, of which one tool cuts during the downward stroke and the other during the return. The curved bottoms are planed out in machine with a tool-box travelling radially to the curve of the outside of the boiler. The stuffing-box glands are slotted out by a tool caused to traverse to the curve required, on the same plan as the Blanchard copying lathe. A tool for drilling out the holes in the boilers, consists of a radial drill, furnished with a supplementary horizontal drill able to slide vertically up and down. The boiler, resting on a framing simply fitted with friction rollers, and itself borne on a central screwed pin, can be easily adjusted transversely to its length, and as easily be turned completely round on the central screwed pivot."

A "GENERAL JOINER."—"Messrs. Robinson's general joiner is practically a combination of four machines on one frame, each "division" being provided with its own independent starting and stopping gear, so that if four men are using the machine, their operations do not interfere with each other. One section of the machine forms a circular saw bench, the saw being capable of being replaced by a cutter disc for planing and squaring up. A second section is a moulding machine capable of working mouldings or skirtings up to 9 in. wide by 3 in. thick; while a third division is a turning and boring machine, this division including arrangements for scribing shoulders, &c. The fourth division is a band-saw machine, while, by removing the band-saw from its pulleys, use can be made of a circular moulding apparatus fitted up in connection with the band-saw table."—*Engineering*.

NEW SNOW-PLOW.—The old one rams the stuff to be removed until it becomes harder and harder. The new one shovels it up and carries it off. The *Railroad Gazette* describes it: A truck is furnished forward with a sloping platform, the front edge of which is just above the top of the rails. A pivot bar permits the platform, when loaded with snow, to fall back into a horizontal position. Truck, platform and snow are then run by the engine backward to some embankment. Two side wings, hinged to the platform, are let drop, and the load of snow is dumped down the slopes of the embankment. Strong cog-wheel gearing and iron chains to a standard behind the platform operate the concern.

A NEW CENTRIPETAL POWER.—Of this recently patented arrangement the *Mechanic and Inventor* thus speaks: "This method of rotating shafts at a high speed has been discussed, and the results claimed doubted. Seeing is believing, however, and we have seen enough to satisfy ourselves that for many purposes it will certainly supersede the old way. The shaft or arbor of a circular saw, for instance, is journaled in the usual manner near the saw-end, the other end being supported on a single friction-wheel, journaled under it. Two band wheels are journaled parallel with the axis of the arbor with which their peripheries roll in contact, motion being communicated from one band wheel to the other by a belt passing around both, whereby the power of one wheel is communicated to the arbor as a friction wheel on one side of it, while the other band wheel in contact with the other side also communicates its power thereto, so that the usual thrust in boxes is done away with; the weight of the belt being sufficient to keep the band wheels in contact with the arbor, which is faced with leather at the point of contact. We have tested its work in sawing boards, and can safely say that one man can nearly do the work of one horse, as compared with machines of the usual construction."

THE TANITE EMERY GRINDER.—The *Artisan* says this is rapidly growing in favor. It is furnished with two rests; one arranged to support work before the face of the wheel, the other at the side. "The mechanic once fitted out with a tanite emery-grinder, with all its overhead work and varied rests, and with a good assortment of wheels, possesses a machine which supplies the place, to a great extent, not only of the file and the grindstone, but of the lathe and the planer, besides doing quickly and cheaply much work for which a special machine would otherwise be required."

SOREL'S ARTIFICIAL STONE.—A company has been formed in Boston for the manufacture of artificial stone, according to the method of Sorel. The base of this stone is a cement—calcined magnesite, in some suitable solvent. The process consists in mixing the magnesite cement with suitable material; with sand it gives brick; with flint, wet stones and oil stones; with kaolin, ornaments of all kinds, statuettes, etc.; with sawdust it gives a good material for covering floors; with carbonate of lime imitation of marbles.

MUZZLE VS. BREACH.—In an article on "Field Artillery," *The Engineer* says: "It has been finally settled that breech-loading guns possess no advantage whatever over muzzle-loaders, save one of very doubtful importance. It is claimed for breech-loaders that light iron mantlets can be used to screen the gunners from hostile riflemen, which mantlets cannot be used with muzzle-loaders. This is partially true, but when we bear in mind the disadvantages which attend the use of all breech-loaders yet made, the ease with which they are placed *hors de combat*, and the enormous difficulties met with in timing the explosion of shells fired from them, we confess we see no reason whatever for believing breech-loaders to be anything else but inferior to muzzle-loaders."

ROLLING RAILWAY AXLES.—The *Engineer* briefly describes a recently invented machine for doing this. Heretofore railway axles have been shaped by hammering. The machine in question having not yet been tested, we devote no space to particulars.

GLASS FOR BEARINGS.—The *Chicago Mechanic and Inventor* says that several railroad companies have adopted the glass bearings and are fitting their locomotives with them. The patent covers the use of glass in all working parts of machinery. It has been applied to cross-heads, packing-rings, link-blocks, and eccentrics, as well as shaft bearings.

SOMETHING NEW ABOUT GUN COTTON.—At the New York Lyceum, "Professor Seely gave information of an extensive use, just now, in the manufacture of imitations of ivory, for billiard balls, etc., of a newly discovered property of gun-cotton of being softened, rendered plastic, and compressible, by incorporation with camphor. A collodion may be made by dissolving gun-cotton in an alcoholic solution of camphor. He has discovered also that gun-cotton will explode in the vapor of camphor at a temperature as low as boiling water."

Scientific Progress.

"NATURE" ON WALLACE.—An article in *London Nature*, upon Wallace's "Contributions to the Theory of Natural Selection," has the following:—"The working of the law of natural selection on the human race, is probably the most difficult, as it is the most interesting, of the questions affecting the origin of animal species. * * Mr Wallace shows how mental and moral qualities must interfere with the absolute carrying out of the law, &c. * * But, beside and apart from the operation of the general law of organic life, with these various modifications and restrictions, Mr. Wallace believes that another and independent cause has been at work in the evolution of the human frame, and that this has been a supernatural one. He maintains that the large size of the brain in man, the scantiness of his hairy covering, the great specialisation of his extremities, and some other peculiarly human characters, cannot be explained, except as the result of the direct action of the Creator's will. * * The theory of divine artificial selection supplying the deficiencies of natural selection in the formation of man may, we think, be at once met by the following considerations. The theory of natural selection does not suppose a kind of large female divinity, whose name is Nature, and whose function is to select from animals and plants those fittest for survival. The theory rests, as Mr. Wallace, in another part of his work, is careful to remind the reader, on proved certain facts which necessitate the survival of certain forms by virtue of the proved physical laws which we see in daily operation. But these so called laws are, to all who believe in a Creator, simply the manner of His action. To say that our brains were made by God, and our lungs by natural selection, is really to exclude the Creator from half His creation, and natural science from half of nature. All the phenomena we know are of necessity ultimately referable to the First Great Cause: the object of science is to discover their secondary causes; and if the theory of natural selection does not explain how the larynx or the brain of man were developed, then we must try to find another which will. To fall back for explanation upon the primary efficient cause of their existence and the design with which they were framed, is only to confuse two distinct branches of inquiry."

May we not be allowed to suggest, that although we have not seen Mr. Wallace's book, we believe his idea to be really this, viz: that the operation of the law of natural selection is, in man, essentially modified by his consciousness of the existence of a Supreme Creator. This consciousness causes him to be more or less *en rapport* with that Creator; and it is easy to see that (on the supposition that such Creator exists) man is therefore, so far, an exception to the rest of creation. Brain action certainly modifies development; and here is an outside inducer of brain action, an outside thought—prompter,—which no other organism has, reached the stage of development which make such consciousness possible. This does not make the doctrine of natural selection any the less true. On the contrary, it is, in our belief, quite possible, that the sooner scientists admit the existence of this modifying element, the sooner will the truth of that doctrine become clear to them. [Eds. Press.]

RELATIONS OF SILICA TO LIFE.—At a late meeting of the New York Lyceum of Natural History, "Prof. Wurtz presented a new theory, or generalization, of the *Relations of Silica to Life* throughout all geological ages. He exhibited an elaborate diagram, representing the "Geogenic Migrations of Silica throughout the Kingdoms of Life," and brought forward, among other peculiar views, which he proposes further to sustain, in future communications, the new Postulate that all Silica, in isolated forms, even when crystalline, as quartz, owes its primary isolation from the original silicates of the continental nuclei to the agency of Plant-Life."

VENOM OF THE SCORPION.—M. Claude Bernard has been experimenting with this by inoculation upon tree frogs. He found that it caused the red globules of the blood to become at once agglutinated together, thereby obstructing the circulation. The extent of the action was in proportion to the quantity of the poison.

CROSS-FERTILIZATION IN PLANTS.—From a paper by Alfred W. Bennett, F. L. S.: "The arrangement of the reproductive organs in hermaphrodite plants, the presence in the same flower of both pistil and stamens, suggested to the minds of the older botanists no other idea than that of fertilization. It is, however, now generally admitted that, even in hermaphrodite flowers, cross-fertilization is the rule, self-fertilization the exception. Two sets of facts have been especially observed,—in particular by Darwin in this country, Hildebrand in Germany, and Delpino in Italy,—to favor cross-fertilization in hermaphrodite flowers; the phenomena of dimorphism and trimorphism, and the special arrangements which render it easier for the pollen to be brushed off by insects visiting the flower than to fall on its own stigma. But, besides these, another arrangement exists by which self-fertilization is hindered, the simple fact that the stamens and pistil belonging to the same flower are frequently not ripe, so to speak, at the same time."

CHEMICAL TESTS FOR MIXED FABRICS.—J. C. Spiller, F. C. S., read a paper before the Chemical Section, in which he refers to the fact that silk alone, of all the materials ordinarily used in textile fabrics, is soluble in concentrated hydrochloric acid, so that this reagent may be resorted to for testing the purity of silk, and also for determining the proportion entering into the composition of mixed goods. For identifying wool in the presence of cotton, flax, &c., it is recommended to immerse the fabric or fibres in a warm aqueous solution of picric acid, which dyes the wool a bright yellow, without imparting any color to cotton. Thus, by testing mixed fabrics successively with hydrochloric and picric acids, valuable indications are afforded regarding their constitution. The chemical properties of certain compounds formed in this manner from silk were described, and a photographic application pointed out which turns to account the extraordinary degree of sensitiveness to light exhibited by a modified form of argentic chloride produced by precipitation from such hydrochloric solutions.

PHOTOGRAPHING SUN SPOTS.—The *Journal of the Franklin Institute* thus describes the plan adopted by Prof. Winlock, of Harvard: "A tin tube, some 40 feet in length, is supported in a horizontal position about north and south, and carries at its north end a lens of six inches aperture and 40 feet focal length. The other end of the tube enters a small house which serves as a photographic dark-room, and is there provided with the usual adjustable plate holder employed in an ordinary camera. At a short distance in front of the lens, or north end of the tube, is set a plate of unsilvered glass, slightly wedge-shaped to avoid the reflection from the second surface, so mounted as to follow the sun, and throw the reflection constantly on the lens. The image of the sun on the sensitive plate is about 4 inches in diameter, and so greatly over all errors of the lens reduced by the long focus and small aperture of 2 1/2 inches, that with a common uncorrected glass the most admirable pictures have been obtained. The exposure is regulated by dropping a diaphragm-slide outside of the lens."

"COLD FUSION" BY LIGHTNING.—This was a theory of Franklin's, afterward rejected by him. Prof. André Poëy says it is, however, perfectly admissible in accordance with our present knowledge upon the thermo-mechanical action of electrical discharges; and M. Riess has shown that the incandescence, fusion, and pulverization produced by discharges of a certain intensity must be due to a mechanical and not a thermal effect. In this connection, we quote Prof. Poëy from the *Journal of the Franklin Institute*: "To a cause purely mechanical, analogous to that of Franklin's cold fusion, we must attribute very frequent occurrences of the following kind. A thunder-bolt having struck a magazine containing 800 casks of powder, reduced two of them to fine particles without igniting any of the powder. In this instance the lightning discharge acted as a dynamical force without liberating heat. Other effects analogous to the foregoing consist in its melting only the extremities of the metals traversed by it, and not heating them (in their length) sufficiently to disarrange every combustible supporting them. These results are evidently due to the instantaneousity of the discharge, which produces the mechanical action of molecular disgregation before the molecules of the thunder-struck body have time to become heated."

Mining Summary.

THE following information is gleaned mostly from journals published in the interior, in close proximity to the mines mentioned.

California.

ALPINE COUNTY.

GLOBE.—*Miner*, Oct 29th: The grading is being done for the Mill at this mine, the lumber is arriving, and machinery entire for the mill is already on the way. We saw some rock from the face of the main tunnel this morning which is an improvement on any yet found.

PUMPING OUT.—The Schenectady is being freed from water in the upper works, preparatory to making the connection from the lower, the winze being very near through.

GOOD CROPPINGS.—Just over beyond the Monitor tunnel number three, is a large body of ore bearing rock which holds precious metals to the very top. This is a vein of the Tarshish which has not yet been penetrated. Mr. Lewis has taken rock therefrom, and a dozen assays go from \$7 to \$56 per ton in gold and silver. The Silver Gance tunnel is running directly for this ore vein.

AMADOR COUNTY.

KENNEDY.—*Ledger*, Nov. 5th: We visited this mine last Tuesday. The new hoisting works, will be in running order in about four weeks. The engine and boiler to be used are the very best.

CALAVERAS COUNTY.

RAILROAD FLAT.—*Cor. of Chronicle*, 5th: The Buckeye lode, which suspended operations on account of the insufficiency of the works to keep the mine clear of water, is again to be placed in working order. H. N. Sargent, has the necessary machinery on the ground. Parties owning the old Cook & Smith lode have been for some time running a tunnel to the shaft to drain it; they are now on the eve of tapping it, and will soon be taking out rich rock. The Swank Bros. have taken some excellent rock from their mine, which is the extension of the Petticoat. The amount of rock out will not fall short of a thousand tons. This accumulation is owing to the stopping of the mill for alterations.

CHAPMAN & Co., at Railroad Flat, are running a tunnel to intersect their lead. They are in 190 feet and will reach the vein in a few weeks, cutting it at the depth of 70 feet. From the shaft previously sunk, first-class ore was obtained. The tunnel is for the purpose of draining the mine.

EL DORADO COUNTY.

GEORGETOWN.—*Cor. Placerville Democrat*, Nov. 5th: The Taylor mine keeps paying and looks encouraging. All the miners are making preparations for winter, and the hope of every one is for rain. The ditch remains quiet, but I have been informed that it will come next year. The parties decline to form a stock company unless \$50,000 would be subscribed on this divide.

INYO COUNTY.

STOPPED BY SNOW.—*Independent*, Oct. 31st: The transportation of ore, at Cerro Gordo and at Kearsarge, has been suspended on account of the snow. The operations will soon be resumed in both places.

NEW DISTRICT.—Messrs. Egan, Watt and Bennett returned on Thursday from a prospecting tour. They found extensive leads of very pure galena in Darwin Cañon, a mile south of the trail to Death Valley. The miners are conveniently situated, wood and water being abundant. This region lies 20 or 25 miles southeast of the Belmont mine at Cerro Gordo. A new district has been formed, called the "Granite Mountain."

NEVADA COUNTY.

ITEMS.—*Gazette*, Nov. 2d: All the Chinese companies, seven in number, from Wood's ravine to Stocking Flat, have resumed work in Deer creek.... Same of Nov. 3d: The Erie mine, at Eureka, owned by Veatch & Co., is yielding splendid ore. Last week, from a thirteen days' run of a thirteen stamp mill they cleaned up \$8,000. The rock averages over \$30 a ton.... Same of Nov. 5th: The Coe mill is now crushing rock. It has been idle some time, as the company have been sinking their main shaft and running drifts.

YELLOW DIAMOND.—*Transcript*, Nov. 1st: This Co. has been taking out some excellent rock from a new ledge on Brush creek. Four hundred pounds have been taken to Maltman's for prospecting, and it is estimated will yield at the rate of \$200 to \$250 per ton.

NORTH BLOOMFIELD Co.—This Co. has a party out surveying a ditch to carry water from Humbug Creek to Grizzly Hill. The shaft they are sinking to the bed rock is

down 125 feet, through 30 feet of blue gravel which yields a good prospect of fine gold. They are also making preparations to sink another shaft in the old Hillerschiedt claims.

EUREKA TOWNSHIP.—Same of 4th: Just above Orleans Flat new prospects have been found, indicating a continuation of the channel. At Snow Point a tunnel is being run to open the gravel. Between Eureka and South Fork good gravel prospects have been found, and at the former place are a number of excellent quartz ledges. The Jim, Black & Young, Birchville, and several others were doing well.

OMEGA.—As soon as winter comes, nine hydraulics will be started. Only six were worked last year.

LITTLE YORK.—A considerable amount of prospecting is being done. An the ridge, a large amount of capital is invested. Prospects at Quaker Hill are excellent.

ROUGH & READY.—McSorley & Co., Webster & Co. and Hayes & Co., with others about Randolph Flat, will soon be ready for work. At this point some rich discoveries were made last Spring, and the miners have been opening the ground for regular work.

MEADOW LAKE.—The Grant Co's. mill is about completed, and will soon start up. A new furnace is to be put up for roasting ores, and a number of men are prospecting. Recently copper ore has been struck.

ITEMS.—*Grass Valley Union*, Nov. 1st: The October returns for the Eureka, gave \$53,000. Profits for the year, \$429,487.... Empire mill is being rapidly reconstructed. The new mill will be at work about January 1st.... Perrin's 16 men keep the mill running. Last week they took out 40 ounces, and the week before, 43.... The lessees of the Dromedary have contracted for a 5-stamp mill.... There are two Phoenix ledges. Pat. Hennessy's pays \$20 to the ton in the croppings. Four men get out four tons a day for \$3.50 per ton.... Wild Emigrant grows better and is widening. The rock is worth \$40 per ton.... Very rich rock coming out of the North Star.... The Pennsylvania, on Kate Hayes' Hill, has kept the Gold Hill mill running on good rock for several days.... The Orleans Shaft, 75 feet deep gives rock with free gold plainly visible.

THE GRAVEL MINES.—Same of 3d: The Hope Co. made a very good run last week. Sixty-seven ounces of gold were washed out, and the tailings are good for much more.... Webster & Co. have found a wide channel, which contains a large amount of pay gravel, and will sink a shaft from the surface for hoisting the pay dirt. This company have diggings good for \$20 a day to the man.... The Alta Co. No. 3, have machinery which will be used in sinking for the lead.... McSorley & Co. will have their tunnel completed in a few days, when their flume will be lengthened and piping commence.... The Town Talk Co. are waiting for water to run their cement crushing mill. A fine "chunk" of the rich metal was picked up after the rain, worth in the neighborhood of \$50.

PLACER COUNTY.

DUTCH FLAT.—*Stars and Stripes*, Nov. 3d: Plug-Ugly Hill is one mile south of town, and a spur from the main ridge, crossing the line of the great Dutch Flat pay lead. It is in the same range with the Somerset, Jehoshaphat and other rich mines south of Dutch Flat. The Summit claims, owned by the Rablin brothers and others, take in the entire lower portion, and embrace one hundred and twenty three acres of mining ground, to which the owners have applied for a patent. Their preparations for work include a supply-pipe of heavy iron, 30 inches in diameter at the head, thence tapering for 250 ft. to 14½ inches. Of this diameter there is 4,500 feet, and then comes 1250 feet of 11 inch pipe, making in all one mile and one seventh. The fall is about 300 feet. The outlet of the washings will be through a tunnel five feet wide and seven high in the clear. Below the tunnel are a succession of "under currents."

RICH POCKETS.—Within the past week A. O. Bell and the Evening Star Co. have made rich strikes in their respective mines, in the vicinity of Rock Creek and Bald Hill. The latter are reported to have taken out \$5,000 in the space of a day or two.

COLFAX.—Last Sunday we saw a piece of quartz from the Rising Sun Mine, a sample of several tons taken out within a few days, which made a liberal showing of gold. This was from the three-hundred foot level.

SOLD OUT.—*Herald*, 5th: We learn that the Battis claim on the Shipley ledge has been sold to McFadden and Sears, for \$4,000. The claim covers 1,000 feet of a heavy ledge and shows finely as far as opened.

SHASTA COUNTY.

SOUTH FORK.—*Courier*, 5th: We understand that the new proprietors of the Chicago mine have a force at work developing the ledge and taking out quartz. Some of the rock is said to be very rich, portions containing native silver.

SISKIYOU COUNTY.

SCARCITY OF WATER.—*Yreka Union*, Nov. 2d: Water has become so scarce that Lash & Co., are able to run but five of their fifteen stamps. No such scarcity was ever before known. Jones & Co. have their mill in condition for running at the Forks of Humbug, but they have so little water that it does not pay to bother with it.

WILL PROSPECT.—Squire Barry of Humbug has sold his claim at French Flat, and intends to devote himself this winter to the prospecting of a quartz ledge on Punch Creek.

VIRGINIA BAR.—This is on the Klamath River four or five miles below the mouth of Humbug. It is an old mining district. The most important claim at present is the one owned by Penninger & Co. There are four partners, and they take out regularly four or five ounces a day. Their claim embraces ground enough for twenty years.

TRINITY COUNTY.

THE DEEP HOLE.—*Journal*, 5th: This is down 135 feet. The shaft is now below the hard bed-rock of which we spoke; the bottom is in a hard cement gravel, showing no gold: water is increasing.

TRINITY CENTER.—H. M. Whitmore & Co. will put in a big flume this season, and mine Weaver fashion.

MARSHALL & MASON'S.—The claim on Union Hill above Douglas City, will not be worked this winter for want of fall. It is contemplated to run a bed-rock tunnel from Trinity river under a ridge between the river and their claim. The richness of their ground has been tested by several years' work, and by prospecting tunnels that paid ten dollars per day for running.

THE BIG FLUME.—There has never been a work of the magnitude and importance of the Weaver creek flume within our knowledge, about which so little was said by the parties interested. The company have already laid down thirty-seven boxes and intend to put in seventeen more. Each box is twelve feet long and sixteen feet wide, is partitioned inside, sided ten feet high, capped and the bottom paved with ten inch blocks.

Nevada.

COPE DISTRICT.

ITEMS.—*Elko Independent*, Nov. 5th: The Norton Mill commenced running Tuesday. The mill is of thirteen stamps.... The Mountain City having a new Supt. work has again commenced.

BULL RUN.—*Cor. of same*: "Affairs look promising. There are 150 miners in the district, most of them making preparations for winter. The mines generally are looking well. On the different dumps there are one thousand tons of rich ore. Some has been shipped which paid well. The Hope mine owners bonded it to Mr. Fogus, of Silver City, Idaho. This is the richest mine in the district. Its course is due north and south, and the ore assays \$400 to \$10,000 per ton. It was discovered by W. D. Porterfield and Virgil Bartlett, of Mountain City, last June, but did not prove so rich until after they had done considerable work. All we want here is mills and capital."

ESMERALDA.

THE DUNDERBERG MINE.—*Cor. Enterprise*, Nov. 5th: I have visited nearly all the most valuable mines in California and Nevada and the Dunderberg beats them all. It is a true fissure vein 20 to 30 feet wide, running nearly north and south. From the shaft, which is down 50 feet, the rock has paid in mill process \$50 to \$100 to the ton; the gold largely predominating. There is a tunnel in 600 feet which taps the ledge near 300 feet from the surface. Drifts have been run along the ledge 200 feet. Good ore has been found all the way—some assays have given \$2,000 to the ton. Some ore was taken out to-day which I am satisfied will mill \$5,000. I send the result of four assays which, as you will see, average \$250 to the ton. In these samples, silver predominated. Dr. Munton is working 30 men in the mine. The Doctor stuck to it after others that were interested refused to invest another cent in prospecting the claim. A 10-stamp mill which Mr. Dague is erecting will be completed in two weeks.

REESE RIVER.

ITEMS.—*Reveille*, Nov. 1st: During October there were shipped from the office of Wells, Fargo & Co. in this city, 55 bars

of bullion, weighing 4,734 pounds, and valued at \$74,295 76.... We are informed that work on the Tolyabe mine, Lander bill, had been resumed with every prospect of success.... A very fine lot of ore from the Page and Corwin mine, Secret cañon, 70 miles southeast from Austin, has been brought to the Manhattan mill for reduction.

SILVER BEND.—A correspondent at Belmont informs us that there was a pleasant time, on the occasion of the completion and use of the steam hoisting apparatus on the El Dorado South mine, Oct. 31. All the residents of Belmont were present. The first note of the steam told of a new era in mining in that district.

MINERAL HILL.—The *Elko Independent* of Nov. 5th learns that the mill is running; the town is growing, and people are coming in from all directions. A large amount of ore is waiting its turn at the mill.

A correspondent of the *Grass Valley Union* writes from Mineral Hill that the 10-stamp mill will turn out \$50,000 per month. A Grass Valley Co. is prospecting there.

WASHOE.

HALE & NORCROSS.—*Enterprise*, 6th:—The mine is yielding 180 tons of ore per day. On the lowest level, south of the shaft, there is a decided improvement in the amount and quality of the ore. It is found to extend further south than in any level in the mine. The drift east from the bottom is in forty-five feet.

OPHIR.—A cross-cut has been commenced on the south drift, while the drift itself is being driven ahead. The rock is becoming harder and water coming in.

SEGREGATED BELCHER.—The east deposit is yielding well and looking better than ever. The 350 tons of ore crushed averaged \$27.

VIRGINIA CONSOLIDATED.—The drift west for the ledge is in 716 feet. The rock is now quite soft. They are making four to five feet per day.

SACRAMENTO AND MEREDITH.—All goes well at mine and mill. They have an abundance of good ore and keep the mill in constant operation.

SAVAGE.—The drift on the ninth level has connected with the winze from the eighth, giving a good circulation of air. There are good indications south of the shaft on the ninth level. The daily yield is 80 tons.

BELCHER.—The raise above the 200-foot level is in quartz which assays \$25 to \$70 per ton.

CROWN POINT.—The incline is down 108 feet below the 1,100-foot level, and the south drift from the same level is still in barren rock. From the upper parts they are getting out 60 tons of ore per day.

DANEY.—The machinery and pumps are working finely. The shaft has been drained. Sinking was resumed on the 3d.

SIERRA NEVADA.—The mill is kept in motion and the supply of ore is inexhaustible.

IMPERIAL-EMPIRE.—The drift east from the 1,300-foot station is in 60 feet, the face showing lively quartz. The winze from the level above is down 70 feet.

CHOLLAR-PORTOS.—The mine is yielding 280 tons daily.

CALEDONIA.—The body of ore on the 300-foot level is looking fine. They are taking out 80 tons per day, and supplying the Piute and Sapphire mills.

GOULD AND CURRY.—The mine is yielding as usual. A good deal of prospecting is being done.

OCCIDENTAL.—Both mine and mill shut down, owing to financial difficulties.

OVERMAN.—There is nothing new. The yield is 60 tons per day.

YELLOW JACKET.—*Gold Hill News*, 5th: Daily yield 165 tons. from the three lowest working levels. The drift north of the 1,000-foot level will connect with the winze from the level above, to-morrow. Some good lumps of rich ore are developed at that point. At the 900-foot level, a connection will be made to-morrow with the drift from the 1,100-foot level of the Imperial-Empire shaft, south, to meet the one from the 900-foot level of the Yellow Jacket. They meet in the Confidence ground. Next week the Yellow Jacket will be one of the best ventilated mines in this section. General Winters, who has resigned his position as Supt., leaves the mine in first rate condition.

SACRAMENTO AND MEREDITH.—Some rich spots of free gold specimen ore are met with, but not of great extent. The mill is kept running to its full capacity.

WHITE PINE.

ITEMS.—*News*, Nov. 6th: O. H. Treasure presents nothing new.... South Aurora is taking out more good ore than usual. A large ore house is being built.... In Eberhardt new and valuable developments have been made during

the week. A new shaft has been started on the southern part of the mine. Aurora Consolidated is worked under contract, and shows good ore and plenty of it. In Ward Beecher, the dumps are full of good ore, which is being hauled to the mill as fast as possible. The sale to the English Co. has not been completed yet.

Silver Wedge shaft has reached a depth of 90 feet. Noonday is in good ore, and working its usual force. Virginia has only a few men at work, who are taking out rock of fair quality. Mammoth has started a tunnel on the east side of the hill. Wabash & Hemlock, on Pogonip Flat, are worked under contract. Consolidated Chloride Flat, leased by the Metropolitan Mill Co. are taking out bunches of good ore.

BANK METAL MINES.—Trench and Robinson, at Mount Ophir, are working 10 men and have 150 tons of good ore on the dumps. Imperial has 35 tons of ore out. Great Valley is taking out large quantities of good ore, 100 tons on the dump is being hauled to the smelting works. Mineral Point, on the road to Shermantown, has 18 tons out. Misco's Dream, Carbonate City, has 50 tons of fair rock on dump. Caroline, Lizzie D. and Ore, belonging to Gov. Matteson, on the west side of White Pine Mountain, are taking out plenty of ore, which is being hauled to the Governor's furnace. Yosemite is working 4 men and has 30 tons on dump. Uncle Sam has 4 men at work and 20 tons of fine ore. Jennie A.—working 16 men and, 100 tons out. Are hauling ore to their furnaces, near the Three-mile House.

MILLS AND SMELTING WORKS.—Nearly all the mills running. The Eberhardt City is progressing rapidly and will certainly be running by the 1st of January. We hear of another 30-stamp mill lying in Elko, which is to be put up in Eberhardt City. The Rothschild Works are still running. The first furnace has been running 57 days without stopping, and is likely to hold out as much longer. The refining works will be ready in a few days. Rathburn furnace is running successfully; also the Hamilton works. A small furnace behind the Big Smoky mill has been run by Mr. Everett for a short time, turning out splendid bullion.

BULLION.—Wells, Fargo & Co.'s bullion shipment during October, amounted to 134 bars, valued at \$151,005.13. Of this, 81 bars, valued at \$88,644.82, were sent Westward, and 53 bars, of the value of \$62,360.31, Eastward. The above does not include the bullion from Pioche.

ELK DISTRICT.—The Record says: The new ten-stamp mill belonging to Ely, Raymond & Burke is crushing 25 tons per day of ore from the Burke mine; the Pioneer five-stamp belonging to Ely & Raymond, crushes 10 tons from the same. The ore yields by mill process an average of \$147 per ton. The Meadow Valley mill is crushing 40 tons each day.

HUMBOLDT.

BATTLE MOUNTAIN.—A correspondent sends us, Nov. 7th, these items: The Little Giant mill, which has been running on tailings for two months, started on rock today. The mine is owned by a San Francisco Co. E. Wertheimer, Supt., employs 25 men. The mine looks well and yields finely. At Galena, the White and Shiloh mines are both turning out well. The White is owned in S. Feo. It yields 8 or 9 tons of high grade ore daily. Supt. is S. H. Knowles. They have an engine for hoisting and pumping. The Brooklyn ledge bids fair to be one of the best. At depth of 30 ft., they have a 2-foot vein of galena which assays up to \$100. The Accident, Avalanche, and Buena Vista, all look well. Lower down the coast the Butte mine yields large quantities of high grade ore, which is shipped to Reno for reduction. J. T. McLean is manager. The Confidence, Oronoco, and Toledo copper ledges all look well, and are lying still on account of the low price of copper.

Colorado.

GRAND ISLAND DISTRICT.—Central City Herald, Nov. 2d: Several parties have been negotiating for the purchase of the Idaho mine. The price asked was \$50,000. This lead yields as rich ore as ever, while the crevice has lately increased to from four to five feet in width. Several new discoveries have been made near Pugh's mine and the Boulder County, which prospect well. The Trojan lode, owned by Carter, Hines & Co., is beginning to attract attention. The ore from the main shaft, which is 45 feet deep, is rich in silver and gold. Prof. Hill is receiving regular shipments from this lode. A month ago the purchase was made of the Cariboo mine by Mr. Carter for Mr. Breed, and the west half transferred to their possession. During the past thirty days nearly 200 tons of ore have been sent to Hill's works by Mr. Carter. Of the above nearly three tons selected ore, valued at \$10,000 per ton. The remainder consists of ore which runs from 250 to 800 ounces per ton, and of 2d class, seldom yielding below 100 ozs. The ore represents a value of over \$40,000, and with the selected ore, makes a total of between \$60,000 and \$70,000 from the west half of the lead within thirty days. Between ten and twelve thousand dollars worth have been taken out in the same time, from the east half, worked by the old Cariboo.

IDAHO DISTRICT.—Gulch mining has almost ceased, and the miners gone into winter quarters. More men are, however, employed in lead mining than ever. Many mines which have been idle, are now turning out large quantities of ore, while the new silver mines of Chicago Creek promise large bullion. The Whale lead is paying better than ever. A rich pocket of 600 ounce ore has been lately struck. Dr. Rae is running his Electric process at the Myers

mill, below Fall River, on quartz from the Raymond and other lodes, and other lodes, and is supplied with all the ore he can treat. John Baker is obtaining rich gold bearing quartz from the Shafter lode in Ingle gulch. The Seaton lode is proving to be one of the best silver mines in Colorado. Mr. Womach is said to be making a thousand dollars per week.

SUMMIT COUNTY.—Eastern capital has been extensively invested in the rich placers this fall; several companies are making preparations for extensive operations in the summer of 1871. An immense number of claims have been taken up by individuals in all directions.

NEVADA DISTRICT.—The California, Prize and Rhoderick Dhu lodes, are yielding large quantities of valuable ore. Stalker's claim on the California is again producing ten ounces ore. Collins, Mackay & Co. are putting in a steam engine on No. 4 of the same lead. Their shaft is 300 feet deep with wide crevice of first-class ore. This is one of the best paying claims in the country. Davey, Veran & Co. are sinking on No. 5. They have reached a depth of 320 feet. After sinking through 85 feet of cap, they have reached pay again. The Rhoderick Dhu returns nine ounces of gold to the cord, while the crevice varies from five to eight feet in width. The coming winter will probably see more than usual activity in mining.

TRINITY.—Register Nov. 2d: On Trail creek, Thompson & Weedham have a nice piece of rich surface ore out. Stotts & Converse are driving work on the Freeland lode. The Champion is producing very rich ore in paying quantities. The Stonewall lode, is now producing extremely rich ore from two shafts. There is considerable excitement. No. 10 on the Kansas, idle since '63 is now worked by Mr. Whitcomb, who turned out a 93-ounce retort the other day from seven cords of ore.

The Georgetown correspondence of the Register gives a table showing amount silver produced in Clear Creek county during the past ten months, with the average yield per ton, for each of the principal reduction works. The average yield of all classes of ore treated in Clear Creek county for ten months, ending Oct. 27, 1870, \$123.16 per ton coin value. The same gives the yield of the Terrible lode to date as \$283,000.

GEORGETOWN.—Miner, Nov. 3d: On Tuesday last the Brown Silver Mining Company shipped a button of silver weighing 5,016 ounces, (419 lbs Troy) coin value \$6,270. Prentice lode 125 feet west of discovery carries one foot of galena and sulphurets that will run \$300 per ton. The first class ore from the Federal mine runs 1,000 ozs. to the ton. The Monticello Tunnel has struck a lode 172 feet from the mouth of the tunnel. One specimen of the ore assayed \$118 per ton.

Idaho.

ORO FINO.—Avalanche, Oct. 29: The water is being hoisted at the rate of 50 buckets per hour, each bucket holding 160 gallons. It is expected that the mine will be free of water inside of two weeks.

GOLDEN CHARIOT.—The sixth level will be worked extensively next month, and indications show that it will prove the best level yet opened.

READY.—Sommercamp, Miller & Hoffer have their Florida Mountain placer diggings about ready for spring. They have three large hydraulics and 750 feet of stout iron pipe; besides a large quantity of double hose.

FLINT DISTRICT.—The Sherman mine, tunnel and right, have been sold to a Chicago Co. for \$65,000. We understand that the property has been incorporated under the name of the Sherman G. & S. M. Co.

Black's mill is running on tailings.

Montana.

ITEMS.—Deer Lodge Independent, Oct. 29th: C. D. Everett, Supt. of the Everett Mill and Green Campbell mine, at Silver Star, writes that the mill is running regularly, with fine results, and the mine looking splendidly, with enough pay ore in sight for years. Water has been turned out of the Divide Creek ditch at Silver Bow, and mining has ceased. The same is true of Carpenter's Bar. At Elk Creek, all the large flumes are running and most of them paying handsomely. Dugan & Dooley's claims are paying an ounce per day to the hand. Henry Grant & Co. and Stone & McKibben are doing as well as at any time this year.

PHILIPSBURG.—Cor. of Helena Gazette, Oct. 31st: The Cole Saunders Co. have found out the secret in the smelting of Flint Creek ores. All that is required is plenty of lead ore to mix for fluxing, which they have been experimenting on for the last six months. The furnace started up to-day, and is running beautifully. They have made a contract for 11,000 hshls of charcoal.

Messrs. Ullery & Murrell on the Franklin lode are taking out very fine ore. Mr. Holland and James Estell are taking out fine quartz from the Western Camanche lode.

CEDAR CREEK.—Cor. of same: Powers & Co. are down thirty feet, have struck rim-rock, and drifted twenty feet, with prospects of pay. From claim No. 63 above discovery, to No. 67, the ground, averages \$12 per day to the hand, but above the ground increases in depth. On the 13th of October bed-rock was struck on 75 and 84 above. All the ground from 84 to 103 was re-located a few days ago on account of pay supposed to have been struck thirty-seven feet deep on 83. Mike Sullivan and Wm. Holland sold claim No. 63 above, (which is in Forest City) for \$7,000. Louisville is very dull on account of the great influx of Chinamen, they having purchased many claims in the shallow diggings. They offered \$10,000 for the four

claims owned by Lyons, Cooney & Co., Nos. 20, 21, 22 and 23 below. No. 19 sold for \$1,400 a short time since. There are now but nine companies of white men between Louisville and the Junction, seven miles.

Mining Stocks.

SAN FRANCISCO, THURSDAY EVE., NOV. 10.

The share market has been quite active in certain descriptions and moderately steady. Chollar-Potosi was quoted at 76 a week ago and to-day at 75, but on Tuesday and Wednesday it advanced up to 84 and 85 with brisk sales. Crown Point has been dull after reaching 3 3/4 on Friday, when quite a number of sales were made and since when it has steadily decreased to 2 3/4. Golden Chariot has been quite brisk, and has fluctuated from 68 to 60. The company reports having received \$78,884 on October account. Gould and Curry has also fluctuated considerably, reaching 94 on Saturday and to-day selling at 76.

Meadow Valley has made some large sales. It paid this week its first dividend, \$1 per share, amounting to \$60,000. The receipts for October exceed \$150,000, and the prospects of the company are reported as excellent. The Ophir has been exceedingly brisk during the week and has fluctuated between 3 and 4 1/4. On the 8th an assessment was levied of \$2 per share, delinquent December 13th.

The great demand in the market this week has been for Ophir, Original Hidden Treasure, Savage and Yellow Jacket. Original Hidden Treasure has gradually ascended, and the other two have descended in price. During the month of October, the Sierra Nevada Co. crushed 1,400 tons of ore, yielding \$21,076.

The following dividends were paid to-day: Chollar-Potosi, \$112,000; Hale & Norcross, \$4,000; North Star, \$4,500; Sierra Nevada, \$7,500. A meeting will be held December 8th to consider a proposition to increase the capital stock of the Hope Gravel Co. to \$600,000.

North Star G. M. Co.

During the past year the North Star reports having extracted over 7,800 tons of ore, yielding an average of \$21.37 per ton. Of the total receipts (amounting in all to \$176,000) \$6,000 have been paid in dividends, the rest for current expenses and liabilities carried over from the previous year. The company has paid in all five dividends before this last,—three of \$5 per share, in June, July and August, 1868, and two of \$1 per share in May and June of this year. The Bulletin has the following comments:

A comparison of the working of this mine with that of the Eureka (another Grass Valley claim) shows that there is room for improvement on the part of the North Star management, satisfactory as that management may have been thus far. During the past fiscal year the Eureka took out nearly 20,000 tons of ore, averaging \$31.75 per ton, the total receipts being \$632,000, of which \$400,000 was paid in dividends to stockholders. In other words, the stockholders of the Eureka received nearly 60 per cent. of the receipts for the year, while the North Star stockholders received less than 3 1/2 per cent. of the annual income. Of course, the payment of nearly \$15,000 for debts incurred during the previous year, and \$18,000 for dead work and improvements, had something to do with this small percentage of returns. But there is another and more important reason for this discrepancy. The secret lies in the expense of working the ores. At the Eureka mine, the ore turned out averaged \$31.75, against \$21.37 at the North Star. The average cost of mining the ore at the Eureka was \$8.32, and of milling, \$1.84, or combined, \$10.16, against \$16.73 at the North Star. Here we have a difference of \$6.57 per ton in the cost of producing bullion between the two mines. On the quantity of ore crushed at the North Star, this difference alone amounts to over \$50,000. At the Eureka mine, the net profit on the ore manipulated was \$21.59 per ton, aggregating nearly \$435,000. At the North Star the net profit was \$4.64, aggregating a little over \$36,000. The real difference in the average net profit is \$16.95, of which \$10.38 is due to the increased value of the ore and \$6.57 to the lessened cost of converting the same into bullion.

Latest Mining Stock Prices.

[S. F. Stock and Exchange Board.]

	MD. ASKED.		MD. ASKED.
Alpha Cons.	244	Ida Elmore.	31 1/2
Anaconda.	25	Imperial.	31 1/2
Belcher.	75 1/2	Keenuek.	40
Chollar-Potosi.	75 1/2	Occidental.	50c
Confidence.	2 1/2	Ophir.	3 1/2
Crown Point.	2 1/2	Orig. Hld. Treas.	7
Empire Mill.	25c	Overman.	6 1/2
Eureka.	32c	Savage.	27
Golden Chariot.	60	Silver Wave.	—
Gould & Curry.	75	Sierra Nevada.	13 1/2
Hale-Norcross.	114	Yellow Jacket.	32 1/2

THIRTY-SIX pieces of Folsom granite, weighing 20 tons, were shipped over the Central Pacific on Saturday, to be used in the construction of the University.

New Incorporations.

The following have filed certificates with the County Clerk, San Francisco.

PACIFIC FILE WORKS Co.—Nov. 1. Capital Stock, \$150,000 in 1,500 shares. Trustees: T. Nelson, C. J. Pillsbury, J. Linforth, J. G. Thwing and G. W. Shanklin.

S. F. STARCH WORKS Co.—Nov. 2. Capital Stock, \$150,000 in 1,500 shares. Trustees: I. Blaisome, E. F. Clarke, J. W. Livery, E. W. Haines and W. Gray.

The following have been recorded in the Secretary of State's Office, Sacramento.

ANAHEIM R. R. Co.—Oct. 28. Capital Stock, \$140,000 in 1,400 shares. Directors: C. R. Johnson, M. Strobel, G. Fischer, H. Kronger and F. Jorehol.

COULTERVILLE AND YOSEMITE TURNPIKE Co.—Oct. 29. Capital Stock, \$20,000.

FIRST-STREET HORSE RAILROAD Co.—Nov. 7. Capital Stock, \$200,000. Directors: C. Martin, A. L. Boggs, P. DeSaisset, M. Schroder, E. F. Spence, A. E. Pomeroy and J. McLellan.

GRASS VALLEY TUNNEL AND M. Co.—Capital Stock, \$600,000 in 12,000 shares. Trustees: G. C. Ling (President), S. M. Harris (Treasurer), C. W. Hayd, W. Chollar and J. W. Lockwood, J. Webber, Secretary; J. Noel, Superintendent.

ENTERPRISE GRAVEL M. Co., Grass Valley.—Capital Stock \$200,000 in 2,000 shares. Trustees: A. E. Davis, T. Shea and M. M. Horam.

Mining Shareholders' Directory—Meetings, Assessments and Dividends.

[Compiled weekly from advertisements in the SCIENTIFIC PRESS and other San Francisco journals.]

NAME, LOCATION, AMOUNT AND DATE OF ASSESSMENT.	DAY	DAY
Columbia, Copie Dist., Sept. 24, 25c.	Oct. 29	Nov. 22
Columbus, Placer Co., Sept. 28, 75c.	Nov. 2	Nov. 19
Cons. Virginia, Storey, Sept. 19, \$1.	Oct. 10	Nov. 24
Crown Point, Gold Hill, Oct. 28, \$3.50.	Dec. 1	Dec. 20
El Dorado, Va. City, Oct. 24, \$2.	Nov. 28	Dec. 17
Empire, G. H., Oct. 18, \$4.	Nov. 22	Dec. 13
Ida Elmore, Idaho Ter., Sept. 10, \$3.	Oct. 15	Nov. 5
I. X. L. Alpine Co., Oct. 18, \$2.	Nov. 19	Dec. 7
Kincaid Flat, Tuolumne Co., Oct. 20, \$2.50.	Nov. 21	Dec. 3
Mahogany, Idaho, Nov. 2, \$2.	Dec. 5	Dec. 27
Mammoth, W. P., Oct. 6, 10c.	Nov. 11	Dec. 21
Maxwell, Amador Co., Oct. 4, \$3.	Nov. 10	Dec. 9
Morning Star, Alpine Co., Oct. 17, 50c.	Nov. 24	Dec. 12
Mountain City, Elko Co., Sept. 29, 50c.	Nov. 7	Nov. 28
Meadow Valley Ex., Sept. 19, 50c.	Oct. 25	Nov. 21
N. Bloomfield, Nevada Co., Sept. 22, \$4.	Oct. 25	Nov. 11
Oriental, Sierra Co., Oct. 11, 30c.	Nov. 10	Nov. 30
Ophir, Virginia City, Nov. 8, \$3.	Dec. 15	Jan. 4
Silver Sprout, Inyo Co., Aug. 23, 25c.	Oct. 18	Dec. 1
San Marcial, Mex., Oct. 13, \$2.50.	Nov. 19	Dec. 5
Tallulah, Nev. Oct. 14, \$1.50.	Nov. 22	Dec. 20
Trinidad & San Joce, Oct. 24, \$5.	Nov. 28	Dec. 19

MEETINGS TO BE HELD.

Confidence. Annual Meeting, Nov. 11
Hope Gravel. Special Meeting, Dec. 3
Independent Coal. Annual Meeting, Nov. 19
Keenuek. Annual Meeting, Nov. 23
Keenuek. Annual Meeting, Nov. 25
LATEST DIVIDENDS.—(Within Three Months).
Chollar-Potosi, \$4. Payable Nov. 10
Eureka, div. \$7.50. Payable August, 1870
Golden Chariot, div. \$2.50. Payable Oct. 20
Hale & Norcross, div. \$5. Payable Nov. 10
Sierra Nevada, div. 50c. Payable Nov. 10, 1870
Union, div. \$1. Payable Aug. 5, 1870
*Advised in this journal

THE PLUG UGLY Co., Dutch Flat, Placer county, have been making preparations on a large scale for opening their hydraulic workings during the approaching season. They have had constructed, by R. Hoskin of Dutch Flat, 6,300 feet of iron pipe, varying from 30 inches in diameter down to 11 inches, as it approaches the diggings, and made of No. 16 and 18 iron (about 1-18 to 1-16 inch in thickness). They have a pressure of 285 feet and will use two of Hoskin's "Dictator" joints. The supply and the demand for water in this locality will be increased this season, showing a decided improvement in mining prospects. The Plug Ugly company expect to use 500 inches day and night.

THE BOLD ROBBERIES of the overland trains have taken everybody by surprise. Similar operations have been carried out on various stage lines, and these are but culminations. The Central Pacific now keys the bolts connecting the cars on its express trains, rendering such attempts more difficult.

ROASTING OF GOLD AND SILVER ORES and the extraction of their respective metals without quicksilver; by G. Kustel, mining engineer and metallurgist. Contains 142 pages embracing illustrations of furnaces, implements and working apparatus. It is a work of great merit by an author whose reputation is unsurpassed in his speciality. Price \$2.50 coin or \$3 currency. Published and sold by Dewey & Co., Scientific Press Office, San Francisco, 1870.

THE CONCENTRATION OF ORES (of all kinds,) including the Chlorination Process for gold-bearing sulphurets, arsenurets, and gold and silver ores generally, by Guido Kustel, with 120 lithographic diagrams. Published and sold by Dewey & Co., Scientific Press, San Francisco, 1868. Price, postage paid, \$7.50, in gold or its equivalent. The best treatise published.

What it Costs to Commence Farming.

There are so many conditions involved in the above proposition that it is difficult to give a solution that shall be at all satisfactory to any one of the hundreds or thousands who are interested therein. A satisfactory answer would require a knowledge of the particular location, amount and character of the land to be cultivated, extent and description of the crops to be raised, number of family of the proposer, his style of living, habits of industry, etc., etc. The "Cost to Commence Farming" may range all the way from nothing up to many thousands of dollars.

To put the worst face upon it, if you are a single man, altogether "inexperienced," and entirely without money, you may nevertheless commence farming immediately, by going directly into the country and hiring out to the best farmer you can find, and remaining in his employ until you have gained experience and accumulated sufficient money to get a small start yourself. If your employer, as will probably be the case, cannot give you constant work, he can at least furnish you with a little piece of land on which you can spend your leisure days, and such labor will probably result in more profit than that devoted to the service of your employer. The crops which you then cultivate should of course be those whose periods of care will come between the intervals of service required by your employer.

The prairies of Illinois and Indiana are dotted over with thousands of farms whose proprietors, now wealthy and prosperous, made their start in life as hired laborers, and in just the way here pointed out. The more early of them went out upon the prairies, took up government land, built a little cabin or shelter of some kind, worked a part of the time for the older settlers, and thus secured present support and earned the means to fence in their own land, set out orchards and start herds from small beginnings, which grew and increased while they labored elsewhere. Later emigrants hired out in the same way, and earned the means to buy improved lands.

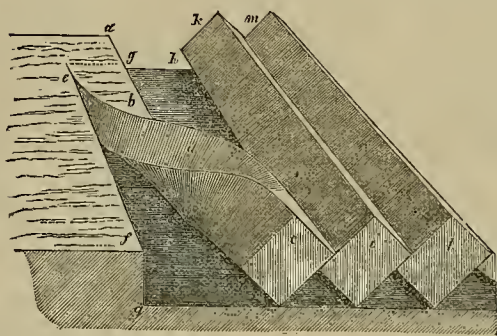
Of course a person whose circumstances require the adoption of such a method must exercise patience and perseverance, and practice the most rigid economy. The world has little mercy on those thus situated who lack the necessary willingness to "go slow" in laying the foundation of their fortune. Although the advance of such must of necessity be slow, no towering pile of brick and mortar rises more surely, steadily or firmly upon its foundations, than does the fortune of one who will thus deliberately choose his calling, study it faithfully, stick to it perseveringly, work hard, exercise good common sense, cultivate intelligently, and always keep within his means. There is no such thing as failing in such an enterprise, so conducted—if health and life is spared. We do not believe there is a young man of fair intelligence in the entire State who cannot, by following out the above advice, accumulate a comfortable fortune inside of twenty years by the direct results of his industry and the advance in the property which he may thus gradually acquire; and have the wherewith to spare, in the meantime, to gather around him and support a little family, which shall grow up to bless and care for him while he travels the down-hill of life.

To start in any kind of business, without money, is not pleasant; but it is a necessity to which most young men are brought, and, as a general thing, takes one through a course of schooling, which, in after life, more than makes amends for the inconveniences and irksomeness of the probation. It builds up, develops and establishes character. One who boldly strikes out in such a course, never lacks for friends, and

if he needs and seeks employment he will always find it.

We need not go as far as Illinois or Indiana to find proof of what we have written. The living evidences are all around us, and may be found in every agricultural county in the State.

The Marysville *Appeal*, in refuting the oft repeated assertion, lately taken up by the *Examiner* of this city, that poor men cannot take up lands in this State and get a start upon them as farmers, says, in substance: There is always a field for laborers throughout this section, either in harvesting, planting, wood-cutting or some other pursuit. A man without a dollar in the world takes up a quarter section and pays the first fee of \$10 or \$15 in currency, out of his first week's or first month's wages. He puts up a little shanty, at a cost of \$20 or \$100, according to means and taste, where he sleeps at night and works for neighbors by day. When no employment offers he puts in some wheat, beans or vegetables; and cultivates at his leisure. Gradually a few chickens, a couple of pigs, a cow [and we would add a few sheep] are



VIEW OF THE PROPER MOVEMENT OF A FURROW SLICE.

obtained, whose proceeds and increase come for him while he sleeps or works for himself or others. His stock increases, his harvests mature. He sells his butter, cheese, eggs, crops, etc., and lays money up to pay for his land, buy clothing, add to his stock, etc.

The *Appeal* adds: "If the *Examiner* editor could see the sun-browned yeomanry coming to the Land Office every day, with their rolls of greenbacks to pay for lands taken up the year before, *by men without means*, we scarcely believe he would continue to discourage such enterprise, or advise needy workmen to remain in overcrowded cities. Come out of the city, you working men. Shake its dust from your feet. Come into the foot hills, the valleys and the plains. Leave those places where you say you are crushed under the heels of capital. Stand upon your own soil and be independent of the world. Capital can not drive you from that, it cannot control the moisture that nourishes your crops, the bright sun that ripens them or the fire on your hearth; while the low sweet music of your rustling grain will be an inspiring anthem of liberty and independence."

Having demonstrated how a poor man, without either experience or money, may commence farming, we will next week endeavor to show how much it will cost a man of means to commence in the regular way, from the start; and as we proceed we will do the best we can to answer, in full, each particular question of our last week's correspondent, who signed himself "A Constant Reader of the Press." In the mean time we cordially invite suggestions or objections from correspondents.

THE CEREALS IN OREGON.—The Dalles *Mountaineer* says that the good quality of Oregon cereals, has at length attracted the attention of the Department of Agriculture at Washington, and an order for one hundred bushels of the best Winter Wheat, has been received by Messrs. Everding & Beebe, of that city, which has been shipped. The sample will probably be distributed among the prominent agriculturists of the various wheat growing States.

Correct Plowing.—A New Plowshare.

Plowing is an operation variously modified according to the objects sought to be obtained, as in breaking new ground, in covering manure, in cultivating or destroying weeds, in making soil, etc. The kind of plowing, however, to which we desire to call attention, at this time, is designed for "making soil," or putting the ground in the best condition for aeration and receiving seed without manuring. Farmers are well aware that this operation involves the turning of the soil in such a manner as to expose the largest amount of surface to the action of the atmosphere.

In our issue of Sept. 4th, 1869, we published an article on this subject, from the pen of Mr. L. Begou, of Sacramento, in connection with which a diagram was given wherein it was demonstrated that there was only one proportion between the width and depth of the furrow slice, which would accomplish this object in its greatest perfection; all variations from which reduced the surface of the ground exposed to the atmosphere below the attainable standard. That proportion was as 10 is to 14. That is, in correct plowing, if we decide upon a depth of 10 inches, the width must not be taken at random, but must be fixed at 14 inches exactly; or if the depth decided upon is 7 inches, the width of the furrow should be 9.8 inches; and moreover, that the furrows should be placed in precisely the position shown in the accompanying engraving, a feat which will be found very difficult of accomplishment by any of the plows now in use.

We do not propose, at this time, to repeat that demonstration, although we may do so on some future occasion. Our present purpose is simply to state that our correspondent, Mr. Begou, after much research and experiment, has succeeded in devising a plow, which, to all appearances, accomplishes the work desired, and that too, at the least expense of power for draught. In the claims for which he asks protection at the Patent office, he sets forth that his "invention relates to an improved manner of constructing the mold board of plows, in order that they shall meet with the least resistance possible while passing through the ground, and to more perfectly adapt them for turning the soil, and leaving it in a proper position for being acted upon by atmospheric influences."

The accompanying engraving, which has been especially prepared for this demonstration, is a correct representation of the work which this plow will do. The letters *i, k* and *l, m* represent two furrow slices which have already been turned over, while *c, d* represents a furrow in the process of being turned, but from which the plow has been removed; *e, f* represents the edge of the land from which the slice is being removed; *a, b* the edge as cut by the preceding furrow and *g, h, g, h* the sole of the furrows.

A careful consideration of the figure will also show that the extension of the slice, in process of removal, takes place along the land-edge, *c, d*, only from *c* to where the backward flexure is given to it, when rising on the mold-board, and where it is again restored to its original form, by the rear portion of the mold-board correctly placing it in its true position, instead of leaving that duty to the accident of its being uprightly poised or just sufficiently inclined to be brought to its proper position by gravitation or the thrust of the plowman's foot.

By the proportions given, of 10 to 14, the furrow faces are inclined to the exact au-

gle of 45°, the importance of which is fully understood by every person thoroughly versed in the art and theory of plowing; while any deviation from that proportion changes this angle, and necessarily causes faulty plowing. We propose at some future time, to go more thoroughly and fully into the principles of plowing, which are merely hinted at in this article, and illustrate the same with suitable diagrams. In the mean time we would call especial attention of plow manufacturers and dealers to the invention of Mr. Begou, whose principle may be applied to nearly all the various plow devices now in use.

CALIFORNIA FRUIT AT ST. LOUIS.—The exhibition of fruit formed the chief attraction in the pomological department of the late St. Louis Agricultural Fair. It is spoken of as having been truly magnificent in size, beauty and color. The show consisted chiefly of pears, quinces and grapes. The pears are said to have averaged about twice the size of the same varieties when grown in Missouri or Illinois.

NEBRASKA VS. CALIFORNIA.—The Nebraska folks are talking about a machine recently invented by a citizen of that State which carries two men who do the hinding as fast as the machine cuts and gathers in the wheat. It may be news to our Nebraska neighbors that a Californian has invented a machine, which harvests, threshes and sacks the wheat, so that all that has to be done is to remove, close up and drop the sacks of grain upon the ground as the machine progresses; just as the Nebraska men drop their sheaves.

POTATO BUGS CROSSING LAKE MICHIGAN.—The St. Joseph (Michigan) *Herald* says that immense numbers of the Colorado potato beetle were recently found on the eastern shores of Lake Michigan—many dead, some living—which must have crossed the Lake from its western shore. A vessel's deck, in the midst of the lake was also, about the same time, covered with great numbers of this insect, which must have flown from the shore.

POTATOES AND GRAIN.—The East Pennsylvania Experimental Farm, located in Chester county, has raised, the present season, 150 varieties of potatoes, between 30 and 40 varieties of wheat, and 30 varieties of oats.

San Francisco Market Rates.

Wholesale Prices.

THURSDAY EVENING NOV. 10, 1870.		
Flour, Extra, 3 bbls.	25 50	@ 5 50
Do. Superfine.	24 00	@ 5 00
Co. Meal, 3 100 lbs.	2 25	@ 2 25
Wheat, 3 100 lbs.	1 75	@ 2 10
Oats, 3 100 lbs.	1 25	@ 1 50
Barley, 3 100 lbs.	1 15	@ 1 25
Do. Green.	1 00	@ 1 10
Potatoes, 3 100 lbs.	1 00	@ 1 50
Hay, 3 ton.	19 00	@ 14 00
Live Oak Wood, 3 cord.	10 00	@ 12 00
Seed, extra, dressed.	7 00	@ 10 00
Sheep, on foot.	2 00	@ 2 50
Hogs, on foot.	6 00	@ 6 00
Hogs, dressed, 3 lb.	7 50	@ 8 00

GROCERIES, ETC.

Sugar, crushed, 3 lb.	14 50	@ 14 50
Do. Hawaiian.	14 50	@ 14 50
Co. Rice, 3 lb.	2 00	@ 2 00
Do. Rio.	2 00	@ 2 00
Tea, Japan, 3 lb.	65 00	@ 1 00
Do. Green.	60 00	@ 1 00
Hawanna Rice, 3 lb.	7 50	@ 8 00
China Rice, 3 lb.	7 00	@ 7 50
Coat Oil, 3 gallon.	40 00	@ 50 00
Do. Sperm.	14 00	@ 1 50
Overland Butter, 3 lb.	30 00	@ 35 00
Ranch Butter, 3 lb.	25 00	@ 30 00
Island Butter, 3 lb.	25 00	@ 30 00
Cheese, California, 3 lb.	12 00	@ 15 00
Eggs, 3 dozen.	60 00	@ 65 00
Lard, 3 lb.	14 50	@ 14 50
Ham and Bacon, 3 lb.	15 00	@ 17 00
Shoulders, 3 lb.	9 00	@ 10 00

Retail Prices.

Butter, California, fresh, 3 lb.	50 00	@ 75 00
Do. picked, 3 lb.	40 00	@ 50 00
Do. Oregon, 3 lb.	20 00	@ 25 00
Cheese, 3 lb.	20 00	@ 25 00
Honey, 3 lb.	25 00	@ 30 00
Potatoes, 3 lb.	60 00	@ 65 00
Lard, 3 lb.	18 00	@ 20 00
Ham and Bacon, 3 lb.	22 00	@ 25 00
Granberries, 3 gallon.	75 00	@ 1 00
Potatoes, 3 lb.	2 00	@ 2 50
Potatoes, sweet, 3 lb.	2 00	@ 2 50
Potatoes, 3 lb.	2 00	@ 2 50
Onions, 3 lb.	4 00	@ 5 00
Apples, 3 lb.	4 00	@ 5 00
Pears, Table, 3 lb.	5 00	@ 5 00
Plums, dried, 3 lb.	10 00	@ 12 00
Oranges, 3 lb.	10 00	@ 15 00
Lemons, 3 dozen.	— 00	@ 1 00
Chickens, piece.	75 00	@ 1 00
Turkeys, 3 lb.	10 00	@ 15 00
Soap, Palm and C. O.	10 00	@ 15 00
Soap, Castile, 3 lb.	15 00	@ 20 00

THE POTATOE ROT.—The microscope reveals the fact that a speck of potato-rot the size of a pin contains two hundred ferocious little animals, biting and clawing each other savagely.

Household Reading.

The Philosophy of Eating.

The human body is a kind of furnace, or perhaps, more properly, a chemical laboratory designed for certain specified work. The food which is taken into the system, to be there elaborated for its sustenance, consists mainly of two kinds—carbonaceous from which heat and fat is produced, and nitrogenous, which goes to make the bones and muscles or red meat of the system. The first, or carbonaceous is composed principally of starch and sugar, which constitutes about 65 per cent. of wheat, 45 per cent. of corn, 20 per cent. of potatoes and an average of about 35 per cent. of meat, (veal containing only 17 per cent. and pork 50; beef and mutton being intermediate.) The second or nitrogenous consists chiefly of gluten and albumen, which constitutes about 15 per cent. of wheat, 8 per cent. of corn, 13 per cent. of meats and less than 2 per cent. of potatoes. In addition to the carbonates and nitrates phosphorus and lime is also needed to keep up the waste of bone and brain. This waste which is very small, is made up from the mineral portions of whatever we eat, (from two to six per cent. of the bulk) and is found in greatest abundance in the outer covering of grain and in fish and meat.

When food is taken into the stomach it undergoes a change which is called digestion, during which sugar is largely formed from the carbonaceous portion and in that form is first appropriated to keeping up the animal heat, the supply being deposited as fat. The nitrogenous and mineral portions after being properly elaborated go to the building up of the muscle and bone. Whatever remains over and above the necessities for such supplies, or is unfitted for them, is voided as waste. Every part of the food goes to its proper destination. If the fat producing elements are wanting, those parts suffer; if the muscle producing elements are not present, the muscle must go unprovided for; as no one kind of food can by any art be made to take the place of another. Hence *variety* is just as necessary to sustain life as quantity. Unbolted wheat flour is the only kind of food which contains all the constituents necessary to sustain life. Hence a person who uses such flour may do without meat; but one who uses white flour must have meat or its equivalent.

The supply of *animal heat* is the first and chief requisite to life, and about three-quarters of all the solid food taken into the stomach is appropriated in keeping up this supply. This heat is mainly generated in the lungs by the action of the air upon the blood. When the blood enters the lungs it is loaded with particles of carbon which are brought into such intimate connection with the oxygen of the air inhaled, that a chemical union takes place between the carbon and oxygen, forming carbonic acid gas. This union is so rapid that a notable quantity of heat is developed, which is carried by the out going blood into every part of the system. Every one knows how rapidly any part of the system becomes cold when the circulation of the blood is slow or weak.

It is from the heat producing action mentioned that the lungs have sometimes been likened to a furnace. Indeed the action is very much like that of burning wood or coal. But the food which we eat is not directly consumed. After digestion, it is taken up by the red or arterial blood, and carried to every part of the body to do its office of building up the system—is deposited as fat, or muscle, which by the incessant activity of the system, is constantly being wasted or used up, or changed into useless particles of carbon, which must then be got rid of. The blood takes up these particles of carbon and carries them to the lungs where they become the fuel necessary

to keep up the heat of the system, the unconsumable gases passing off through the mouth or nose, as through a chimney from a furnace. This reciprocity of activity and waste, is constantly going on in every living organization. We cannot breathe or wink, or move a finger, without a corresponding waste of tissue, (fat or muscle.) Thus food forms tissue, and tissue is wasted by activity. Hence the more active we are, the more food we need to repair the waste of activity.

How to Prepare Salad.

All are fond of good salad. It has been used from the days of the ancient Romans to the present time, and in almost every country it is composed of nearly the same ingredients, which are well known and generally quite uniform; but the correct mode of preparation is not so well understood. Mr. Septimus Piesse makes some remarks upon this dish and gives a formula for its preparation, which we would commend to the attention of all housewives:—In spring and summer, lettuce, mustard, watercress, and radishes form the staple; in autumn, endive and cabbage lettuce predominate. Nothing spoils a salad so much, both in appearance and flavor, as cutting it up too fine. Every atom should maintain its individuality. Radishes cannot be cut too fine, but the slices should be cut in rings, and not dice shape. Onions must remain a matter of taste; but not so as regards mint. Every salad should contain from three to six leaves of young mint, as it greatly assists its digestion. No salad can be properly made without one or two hard-boiled eggs, because the yolks are necessary to blend the oil. The mixture should be made thus: Boil two eggs quite hard; when done take them out of the saucepan and put them into cold water. This causes the eggs to shrink, and the shells can easily be removed without disfiguring the white. Cut each egg into three parts, and remove the yolk into the salad-bowl; cut the white into fine rings, some of the best of which should be preserved to place on the top of the salad when served. With a wood or silver spoon break up the yolk in the salad-bowl, and add one teaspoonful of oil; these ingredients rub together, and they will blend; then add at least three teaspoonfuls more of oil, and again rub altogether; now add a teaspoonful of moist sugar, again rub, and all will blend. Now add gradually, a little at a time, the vinegar, in quantity about twice as much as the oil used; lastly, put in pepper, salt, and ready-mixed mustard, the latter but little; but on no account use mustard that has not been previously mixed with water.

It is very essential to mix the ingredients in the order laid down as above. When this is carefully done, an excellent salad will be the result—soft, yet aromatic; creamy, but not greasy. There are true chemical reasons for mixing yolk of egg with oil, as there are for mixing flour-of-mustard with water, and not vinegar; but this is not the place for examining them—the facts stated must be accepted. It is the general want of the knowledge of how to blend the oil that causes the common remark: 'I am very fond of salad, but I'll not take any oil, thank you.' Of course, served up as it frequently is, all floating and greasy, few things can be more objectionable.

The old fashioned spinning wheels are still much used in the up-river counties of Maine, and a large wholesale business is done in these articles in Bangor. It would be better on many accounts if both the wheel and loom were to find their way once more into a large number of dwellings, in all parts of the country.

THE RICHEST MILK—Once a Week has the following:—"Everybody knows the value of milk as liquid food for the young and weak; but everybody does not know that of all milks, that from the sow is the richest and most nutritious. It contains fifty per cent more solid constituents, such as butter, cheesy matter and sugar, than does the lactiferous produce of the cow. This is shown in a recent analysis by Professor Cameron, of Dublin."

A NEW USE FOR OLD BOOTS.—Excellent jelly or glue is now said to be made out of old boots. At a recent meeting of the Liberal Club, Prof. Van de Weyde demonstrated the feasibility of such a transaction. The leather being treated with lime, under increased atmospheric pressure, parts with its tannin and reverts to the condition of gelatin, when it may be converted either into glue or cast in a mould for edible or ornamental purposes. Think of boiled boots as a light diet!

Mechanical Items.

WATCH KEYS.—Unsuitable watch keys and careless winding injure watches more than is generally supposed. If a key slips, the entire "works" receive a shock, which cannot fail to work a permanent injury. Hence watch keys should fit perfectly. In winding, insert the key firmly and turn the key—not the watch. A brass key is best, a soft steel pipe next, while a hard steel pipe should never be used.

LUBRICATING OIL.—The Central Pacific Railroad Co. are manufacturing their own lubricating oil from the crude petroleum of San Buenaventura.

THE LARGEST PANE OF GLASS ever set up, as it is claimed, has just been placed in position in a window in New York. It is seventeen feet high and ten feet wide.

TWO-STORY RAILROAD CARS.—The French appear to be getting somewhat elevated in their notions. They are experimenting with two-story railway cars and balloon mail transportation.

A SIMPLE MOLD FOR BEESWAX.—Wrap any smooth paper about a round stick, and pour the melted wax into the mould. When cold, tear off the paper, and you have a smooth, nice stick of wax, to be cut into any desired lengths.

CHEAP AND EFFECTUAL WINDOW FASTENER.—As villains will find their way into houses without window fastenings, we would suggest a simple and almost costless window fastener. Take a few inches of wire and bend at one end a ring to attach a string to, to hang to the sash or window frame; with a gimlet make a few holes to insert the wires in the sash and frame at such places as will allow the sash to be fastened whether closed, or down for ventilation.

Household Receipts.

AROMATIC BLACKBERRY SYRUP.—Take of blackberry juice 2 pints; sugar, 1 lb; grated nutmegs, No. 6; powdered cinnamon, ½ oz.; powdered cloves ¼ oz.; powdered allspice ¼ oz.; brandy 1 pint. Steep the spices in the brandy 48 hours; filter, and after making a syrup of the juice and sugar, add to it the syrup, when it will be ready for use. Dose for an adult, one tablespoonful; for a child, one teaspoonful as required.

HOW TO PRESERVE FRUIT.—E. A. Davis, of Santa Clara, sends the following:—"As it is fruit time, perhaps it would be well to inform your readers that shellack varnish, put on to apples or pears, (two or three coats) will preserve them twelve months. My plan is to put the varnish on with a brush and hang them up by the stem, this is not a slow job after one gets the hang of it; but dipping them in the varnish is a much faster way of doing it; fruit prepared in this way will keep the same colors when varnished. The varnish will not injure the fruit in the least."

We have seen *apples* keep so prepared for twelve months, which would have decayed, under ordinary circumstances, in three. We see no reason why pears may not also be kept as long. Eggs may be kept in a similar way. The secret consists in keeping the juices of the fruit or eggs completely isolated from the action of the atmosphere.

A HINT IN CANNING FRUIT.—A lady correspondent writes that in canning fruits she always cuts thick writing paper in round pieces, the size of the tops of the cans, and just before sealing, slips a piece in upon the top of the fruit, and pours a little boiling juice over it. The paper so placed keeps the fruit from mouldering on the top, a circumstance which sometimes occurs without injuring the flavor of the fruit, if the mould is carefully taken off immediately after opening. The paper will also act as a trap to collect and hold the sealing wax, if any drops into the can while opening or closing it up.

WHITENING YELLOW FLANNEL.—Flannel which has become yellow with use may be whitened by putting it for some time in a solution of hard soap, to which strong ammonia has been added. The proportions are one and a half pounds of hard soap, fifty pounds of soft water, and two-thirds of a pound of strong ammonia. The same object may be attained in a shorter time by placing the garments for a quarter of an hour in a weak solution of bisulphate of soda to which a little hydrochloric acid has been added.

Life Thoughts.

VIRTUE shines, though contemptibly clad and is recognized and respected by noble minds.

GREAT difficulties, when manfully met, bring out great virtues.

He who can suppress a moment's anger, may prevent days of sorrow.

A man should think little of the evil that is said of him, unless he thinks much of him who says it.

A HAPPY life is made up of happy thoughts, and a man should be a very miser in hoarding conscientiously every mill of the treasure.

HOW TO TREAT AN ENEMY.—If you have an enemy, act kindly towards him and make him your friend. You may not win him at once, but try again. Let one kindness be followed by another, until you have accomplished your object.

HOPE is the last thing that dies in a man, and although it may often deceive us in the journey of life, yet it conducts us along an easier and more pleasant path to our journey's end.

KIND WORDS AND ACTS should be freely given and rendered; for such are fragrant gifts, whose perfume will gladden the heart and sweeten the life of all who hear or receive them.

PRIDE.—Spencer speaking of pride very aptly says that only a little wind is required to expand a bladder to great size, when if a few beans be put in and shaken, the noise will frighten an army; but only a pin is required to reduce it to insignificance.

TO LEARN A MAN'S CHARACTER.—If you wish to know a man's character, wait till some misfortune or disgrace happens to him, and you will soon see all his greatness or all his weakness.

A Thought.

[WRITTEN FOR THE SCIENTIFIC PRESS.]

When we stand beneath the shadow of a principle we often feel an enthusiasm that blinds us with an assurance that we are possessed of or acting from the principle itself; but we often fail, and the delusion still lingers, that our mind holds the principle upon which the action was based; and we wonder at the failure, instead of investigating, analyzing, and with steady aim, moving onward, until the limmering shadow passes over us, and we stand firm on the rock of the principle—the *knowledge* of it, instead of the *faith*. Then our enthusiasm changes into a grand and sublime veneration of law, and the customs and trammels of past ages cannot reach us, or erwee us from our post. We are beyond the confines of fear and all earthly dissolutions, leading or bearing, upon this one great truth that has exalted us.

Our enthusiasm oftentimes holds us in the shadow until we reach the reality; but possibilities, and conditions will not insure steadfastness, until we reach the rock, of knowledge. When we do, the waves may flow and dash, but no mortal bearings can reach our standard. High above earth's billows, we stand in tranquility and gaze on cause and effect, blendings and changes, along the path to a truth.

Why should the mind act with the confidence of knowledge, while passing through the shadow of it; and waken only at the portal, to the delusion that has held, and strengthened it onward by the faith, and hope of a possession?

The shadow contains elementary emanations from the principle.

One component part after another, must have successive growths in the mind, until we reach a crowning element that culminates, and leads the mind out to an immortal truth. The illumined soul then basks mid the sunshine of eternity, beyond the bounds of earth's domains; and life's standpoint, in one direction at least, gives us glimpses of unerring laws, that suggest to the mind, the possibilities of this life. Heaven is not far off then, and the soul is inspired to go forward and gather from the inexhaustible founts, knowing that the path will widen and transcend continually.

Until the mind deals with principles, its creations are unreliable in themselves unless viewed and dealt with as complements of an undeveloped principle.

NELLIE W. HUTCHINSON.

San Francisco, Oct. 25, 1870.

Scientific Press.

W. B. EWER.....SENIOR EDITOR.

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Two Editions.—We now issue a mining edition and a farming edition of the Press. The difference consists in changing the reading matter of the 6th and 7th pages. [All advertisements appear in both issues, affording an immense circulation.] Subscribers will please notify us if they do not receive the edition they prefer. Both editions furnished to one address for \$1 per annum.

San Francisco:

Saturday Morning, Nov. 12, 1870

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Gold and Legal Tender Rates.

San Francisco, Thursday, Nov. 10, 1870.—Legal Tenders buying @91; selling @91½. Gold in New York to-day 110½.

Notices to Correspondents.

THE communications of which we spoke last week are unavoidably postponed until the next issue by press of matter.

Resigned.

We see that Col. Fisher, who has filled the position of Commissioner of Patents for the last year or two in a most acceptable manner, has just resigned his position. What his reasons were for this action, we do not know. We have always understood that exceedingly little fault (there always will be some) has been found with the Commissioner, and can only suspect that there may be some political grounds somehow connected with the resignation.

We ought to confess that this suspicion is founded on general principles. The accursed system of "rotation in office," no matter what that office may be, has worked a tremendous injury to our country. We believe strongly in an improved civil service system, founded on principles similar to those included in Mr. Jenckes' bill, which has been so wrongly ignored by Congress. We believe that in such departments as that of the Patent Office, for instance, politics should be kept entirely aloof, and that there should be inducements held out for well qualified persons to enter and remain in such places, with the certainty that they can, in time, obtain high positions. Thua we should always have good men in important offices of trust, while with the present system we must call ourselves simply "lucky" to have as many as we do.

It is stated that William Bakewell, of Pittsburgh, will succeed Col. Fisher. We are not acquainted with Mr. Bakewell but are willing to believe that he may be excellently well qualified for the position. But by our plan, the next in office would succeed to the Commissionership, and people would then have the certainty that that office would be held by one who had had long experience in its duties, to say the least.

The Thompson Road Steamer.

After all that has been said concerning this machine here and elsewhere, we were a little surprised to find a morning paper commenting on it as if the paper had just discovered its existence. For not only have California (and other) papers discussed the subject and given results of practical experiments, but a California association, the Tide Land Reclamation company, has now, and has had for several weeks, one of these very locomotives in this city, lying in a bonded warehouse.

Although we have spoken frequently concerning the steamer, a brief description may be of interest under the present circumstances. There is a vertical pot boiler (with water tank, etc.) hung between two driving wheels, 5 feet in diameter, with a steering wheel 3 feet in diameter, in front, over which is the seat for the engineer. The engine is very neatly and compactly constructed, with two jacketed cylinders, 12x6 inches, and cog-work connecting with a gear wheel on each of the driving wheels. It is claimed, but the claim seems too large, that 28-horse power can be obtained by the construction. The whole arrangement would seem to be some 13 feet long and as wide as an ordinary truck. The gear wheels, cylinders and the like are protected from dirt, etc.

The three wheels are all made alike and differ only in size, as stated above. They are the great and important feature of the engine. They are light drums of boiler iron with rubber tires, four inches thick and twelve inches wide, which are made a little smaller than the wheel and hence clasp it tightly. A flange on each side, moreover, keeps them from slipping off. They are made of gutta-percha combined with antimony. They are capped or protected from the wear of the road by a steel chain or reticulation of bars (about 1 to 1½ inches apart, 3 inches wide and ½ inch thick, and with ends bent up on each side of the rubber) hinged so that they yield when the tire yields, and spring out of the rubber when the pressure on them is released. When running (without a load) a pressure of three tons (the whole weight is six tons) on each wheel at the point of contact with the ground flattens out the rubber so that there is a pressing surface said to be nearly a foot wide. With a load this surface is increased.

Together with the engine comes a gang of eight plows. The mold-boards are very long in comparison with those generally used here. The price of the whole we have heard stated at about \$10,000. Elsewhere we have seen the price of the engine given as \$5,000.

The New York Farmers' Club lately sent a committee of four gentlemen to witness plowing and traction with this machine at Patterson, N. J. They all concurred in recommending the engine for use about foundries, ship yards, mines, quarries, etc. And with the exception of Prof. Whitney, (of the *Am. Artizan*) they concurred in the opinion that with some alterations and simplification it was to be recommended to the farmer. The performance we saw shows, they say, in our opinion that we have offered to American farmers, a motive power that can pull as hard as 14 horses, and on a uniform surface can so continue for a day to move and plow seven furrows a foot wide and eight inches deep. We recommend this machine, or such modification of it as we have described, to the attention and fostering interest of American farmers and engineers; for we believe that in this direction lies the strength of the tillage that is to be, and the chief material victory that is to enrich the next generation.

A TIME CHANGE has occurred in the running of the Oakland and Alameda routes of the C. P. R. R. See advertisement.

The State University.

The Board of Regents held a meeting last week and transacted considerable business on matters pertaining to the Fifth Class (now numbering between 80 and 90 students), the Board of medical examiners, outside University property, the abolition of the Professorship of Chemistry, Mining and Metallurgy, etc. Prof. George Davidson, chief of the Pacific Division of the U. S. Coast Survey, was elected Prof. of Astronomy and Geodesy, that professorship being created but no salary attached to it. On account of the election of President of the University, the executive committee was abolished.

A communication was received from Prof. Fisher in regard to the abolition of his chair. In reply, a resolution was passed to the effect that no charges have been made against that gentleman. But a motion to reconsider the vote abolishing the chair, was lost by a strong vote, only two declaring on the affirmative side.

The matter now stands thus: One of the most important professorships in the University, held by a professor against whom all charges are expressly disclaimed, is abolished for no given reason, except the inadmissible one of economy, and part of its duties given to another chair on which now devolves an amount of work impossible to be done by one man.

In regard to mining and metallurgy, which might be thought important in our State if anywhere, we say nothing at present. But chemistry, certainly, is absolutely indispensable in each of the five colleges which compose the University. And that Prof. Carr, with his lectures in this city and in the various sections of the State and his instruction in his own wide department, can give the proper amount of attention to it, is plainly impossible. All institutions of any standing have a separate professor and one or more assistants for this one subject. It must follow that an assistant be appointed here, and we strongly suspect that when a man satisfactory to the Board is found, the office of assistant will be elevated to the dignity of professorship.

If there are any hidden reasons, unknown to the public, which can justify the action of the Board, which can explain its mode of action, dismissing an important professor without charges, without previous intimation and without subsequent notification—we are fully ready, and shall only be too glad, to inform our readers of further facts in the case. We know that many of the Regents are of the highest reputation; but we have labored in vain thus far to obtain any information which would seem to justify this action of the Board, and we cannot but fear gloomy prospects for what ought to be California's brightest jewel,—the State University.

Preserved Meat.

The packages of meat, which were recently opened at the Melbourne Custom House, and which proved to be offensively worthless, were shipped from England as an experiment of a new process. Had it been Australian meat, it would not have been in the Custom House, which is employed for imports, not exports. The shipment of preserved meat from Victoria to England has become an established business. Thousands of cases and casks of beef and mutton are shipped monthly to London where it finds a ready sale. Mr. Talleman, the agent, experienced much difficulty at first in introducing the meat, but by giving a series of dinners to which he invited many of the most prominent men to partake, and by opening eating houses at which people could obtain a dinner for one penny or two cents, he succeeded in overcoming the prejudices. He

has established agencies in every town and district throughout the country. Test shipments to the East Indies have given satisfaction and orders for more have been given. The success of the Pioneer Company at Melbourne has caused the establishment of several more companies. M.

Academy of Sciences.

The regular meeting of the Academy was held on Monday and was unusually well attended. After the election of members and the presentation of contributions, Dr. Kellogg presented a plant lately found by him near Summit station and at one or two other places on the Sierra Nevada. This is a new species of *Dicentra* which, from its distinguishing characteristic the doctor proposed to designate as *uni-flora*. A specimen of mineralized wood, changed to carbonate of iron, from the Mt. Diablo coal mines was shown. It belongs in the Pioche collection.

Judge Hastings read a paper on earthquakes in which he advanced the theory that the shocks are caused by the caving in of subterranean caverns, this caving in being caused by the action of water. This leads to the conclusion that earthquakes belong to countries of later geological formations, and that as a country grows older the caverns gradually are filled up and the shocks cease. The theory was founded principally on his personal experience. Naturally the subject was discussed, this proposition generally opposed and others advanced. But the President closed the matter by a sensible remarking that we have not yet sufficient facts on which to build a satisfactory theory. In the course of the discussion Prof. Davidson remarked that earthquakes are much more common extensive and severe in Alaska than in Mexico or California and adjacent regions.

The subject led also to the discussion of springs, the rise of rivers, etc., in which Dr. Gibbons referred to his theory advanced several years ago. The matter of evaporation, of closing or opening rents in the ground, etc., was gone over.

Dr. Gibbons gave the result of some interesting observations on the direction of the clouds in the different strata, the harmonic rise and fall, etc., during the first days of this month. Prof. Davidson had investigated to a certain extent the glacial markings on Vancouver and adjacent islands. In regard to their direction, he found the average of 10 grooves, which were from 30 to 40 feet long and one to three feet deep, to be N. 8½° E. true. He had measured Mt. Baker and found it 10,719 feet high; height of snow line in summer, 5,301 feet.

Mr. Hanks brought up the matter of the wreck in the Colorado Desert and thought that the Academy ought to investigate the assertions made and find out whether there actually was such a vessel in the locality claimed, and if so; whether this would not lead to interesting geological data. After considerable discussion as to whether this was a fit subject for the Academy to take up, it was decided to invite Col. Evans, (who claims to have seen the ship) to address the society on the matter at the next meeting.

FORT YUMA AND SAN DIEGO ROAD.—We are glad to see that the Chamber of Commerce of this city appears inclined to co-operate with the Chamber of Commerce of San Diego in relation to the above-mentioned road. The subject is one of considerable importance to the business of San Francisco.

FIFTY TIERCES of El Dorado wine were forwarded on one train this week for Meadville, Penn.

MEDICAL SOCIETY.—The annual meeting of this society was held on Tuesday. Dr. Baul y, U. S. A., delivered the annual address.

Patents and Inventions.

Full List of U. S. Patents Issued to Pacific Coast Inventors.

(FROM OFFICIAL REPORTS TO DEWEY & CO., U. S. AND FOREIGN PATENT AGENTS, AND PUBLISHERS OF THE SCIENTIFIC PRESS.)

FOR THE WEEK ENDING NOVEMBER 1st.

BALING-PRESS.—George Duncan, San Francisco, Cal., assignor to himself and William Blackmore.

CLOTHES-LINE HOOK.—James Garvey and Matthew H. Kimball, San Francisco, Cal.

CLEANSING ATTACHMENT FOR HOES.—Robert R. Spedden and Harrie T. Spedden, Astoria, Oregon.

NOTE.—Copies of U. S. and Foreign Patents furnished by DEWEY & CO., in the shortest time possible (by telegraph or otherwise) at the lowest rates. All patent business for Pacific coast inventors transacted with greater security and in much less time than by any other agency.

Notices of Recent Patents.

Among the patents recently obtained through Dewey & Co.'s Scientific Press American and Foreign Patent Agency, the following are worthy of mention:

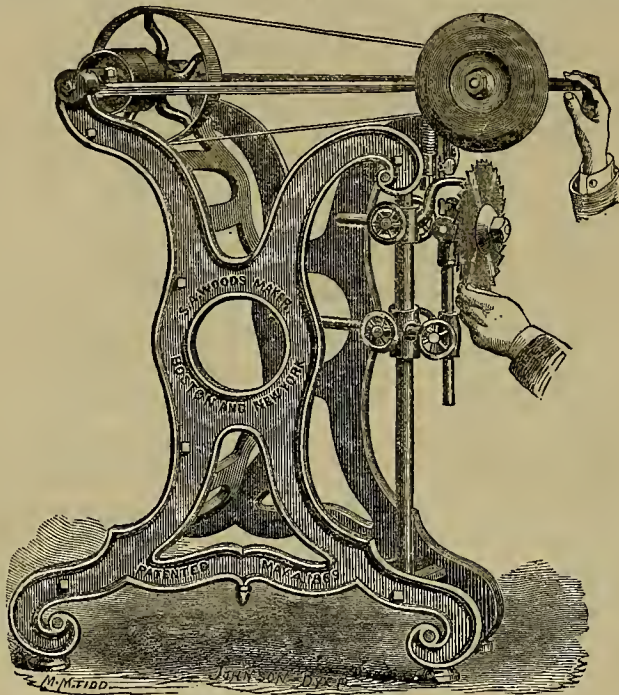
FEED CUTTER.—C. R. Donner, Sonora, Cal. For chopping straw and other fibrous substances to be used principally for feeding horses and cattle, this device has several excellent points which can be more readily appreciated by seeing the machine at work than from the brief description to which our space limits us. The invention consists in placing at the end of a cutting box of the usual form, a balance wheel which revolves on a shaft running parallel to the sides of the box. The knife which cuts the straw or other substance, is attached to one of the arms of the balance wheel and is carried around with it, cutting the straw between the knife and the square cutting edge of a metal plate attached to the bottom of the box. The straw passes under a roller in the box, and is fed to the knives by teeth, which, by a peculiar mechanism, are caused to move it forward at each revolution of the balance wheel and bring it under the knife. By this construction the cutting box is made self-feeding, it being necessary only to place the straw in the box and to turn the wheel. The knife requires sharpening very seldom, as its contact with the steel plate on the box will tend to keep it in good condition.

GRAIN SEPARATOR.—A. Duus, S. F. This is another invention called forth by the ever increasing demand for good agricultural machinery on our coast. In fact, the number of devices invented for the benefit of our farming interests is one indication of the growing prosperity of our farmers. And this invention is one applicable to a very important point, the freeing of wheat from chaff, barley, cheat, mustard, etc. It consists of an arrangement of screens, in a suitable frame, in such a manner that the straw and chaff will be thrown off from the upper screen by a fan blower; the barley will be caught by another lower screen and conveyed by its inclination and motion to the proper point; the wheat will be arrested in a similar manner by a third screen; and the smaller grains, like mustard, will be saved by a fourth and last screen. An important feature is the novel device by which each screen or set of screens receives the proper motion best adapted for facilitating the separating process.

VALVE-GEAR FOR ENGINES.—T. Hill, Vallejo, Cal. This is one of the last inventions of Mr. Hill, who has done so much in the way of improving the construction of various parts of the steam engine. It is a device which renders it possible to dispense with a portion of the mechanism hitherto found indispensable. It is intended to apply more especially to double oscillating marine engines, and by its use only one link and two eccentrics are necessary to reverse both engines; and by a slight modification only one eccentric will be needed. It is likewise applicable to

other than marine engines and especially to locomotives. As we hope to illustrate this ingenious device hereafter, it will not be necessary to enter into details at present.

TRUNNION FOR STEAM ENGINES AND CALENDERS.—T. Hill, Vallejo, Cal. In this class of machinery, the steam is passed through some form of steam tight joint to the engine or calender, as the case may be. In the first case, the movement of the supporting trunnions is vibratory, and in the calender they revolve continuously; but in both they soon become warm and must eventually be replaced. To lessen the expense and time in such removal, Mr. H. constructs the inner part of the trunnion, in which the joint is made and through which the steam passes, so that an end view shows a cross or star with blunt points which are accurately turned. A sleeve is fitted over these points, and upon the outside of this fall the friction and wear. A further advantage is derived from the circulation of air through the spaces between the points or ends on which the sleeve rests, this keeping the bearing comparatively cool. When too much worn, the sleeve can be replaced in a short time. Illustrations of this and the preceding will shortly be given to the readers of the Press.



WOODS' SAW GUMMING AND SHARPENING MACHINE.

A USEFUL DEVICE.—We hereby illustrate a device which will be found, we think, exceedingly useful to many. It is a collar stud and tie holder, which renders the task of fastening the loop of a "butterfly" tie exceedingly easy, while it prevents the unpleasant liability of losing this article of common wear. The cut shows the construction of the stud. The loop of the tie is slipped into the slot in the bulb and is there held firmly. It is a little thing, but a little thing of considerable importance to a large number of the sterner sex. The studs are durably plated with gold and are very cheap. It is the invention of Mr. W. E. Simonds of Hartford, Conn. Wiester & Co., 17 New Montgomery street, Grand Hotel, will give any further information desired.

THE FIRST POST OFFICE in Victoria was established at Melbourne in 1837: the number of letters was 1,050, of newspapers 1,955. In 1850, the number of letters was 381,658, of newspapers 381,158. In 1860, nearly 10,000,000 letters, 5,000,000 newspapers, and 500,000 packages passed through the Melbourne Post Office; of the letters 8,000,000 were inland, the remainder ship and intercolonial; of the newspapers 2,527,549 were inland, the remainder, British, foreign, ship and intercolonial.

TESTS for the reduction of iron ore from a mine near Shingle Springs are said to have been made with satisfactory results.

New Saw Gumming and Sharpening Machine.

The accompanying engraving represents a new saw gumming and sharpening machine. It was patented about a year ago by S. A. Woods of Boston, by whom it is manufactured. The machine is so very simple in its construction and operation, that a few words only will suffice to make it readily understood.

The working parts are constructed upon a triangular iron frame, upon the top of which is suspended a swing frame, the back end having a driving shaft (forming the hinge) with tight and loose pulleys; from this, power is transmitted to the arbor upon which is secured a Solid Emery Wheel. The arbor on which the saw is placed is so arranged that universal motion is readily obtained, any size of saw or shape of tooth desired. The wheel is held away from the saw by means of a spring, under the swing frame. The frame is pressed down, bringing the wheel in contact with the saw, with one hand, and the saw turned on the

calling on these gentlemen, will have his wants courteously attended to, and can learn any thing desired with regard to the device.

GEORGETOWN TUNNELS.—The Colorado Herald has the following concerning the tunnels around Georgetown, Colorado: The tunnels which have been started within a few miles of this place, would amount, in the aggregate, to hundreds of miles in length. A tunnel site has been located for every five hundred feet between the forks of the creek. Three miles below Georgetown, to the Baker Company's works above, it would be safe to say that five hundred tunnels have been located, and a great many of them sold to eastern capitalists who have commenced operations. A few of these schemes may be called legitimate; that is, the men who organized the companies owned good property and have started their tunnels with a plausible show of ultimately accomplishing something. But it is also true that a large majority are the most barefaced humbugs that have ever been attempted in this country. * * * The serious truth is well understood here, that these tunnel schemes are ruining the country. They must result disastrously to those who buy the stock in nine cases out of ten. They will surely bring ruin on the innocent parties who are gulled by the big stories which are gotten up expressly for the purpose of selling stock, and nothing else. * * * Marshall's tunnel is now over 850 feet long—Barleigh's over 700 feet, I believe, and one or two others have been driven 500 feet, or thereabouts. The hopes of the tunnel fraternity depend on the success of these. It would be better, perhaps, that they all prove failures, if they are to be the means of inducing innocent parties to invest in bogue concerns. The bulk of the capital which has been invested in Clear Creek county this year has been put into Tunnel Companies. The result is, few if any have realized a dollar in dividends from their investments, and a large majority never will. This is a good enough mining district. There is plenty of ore, and it is rich enough to pay handsomely—but if the present reckless and dishonest manner of organizing Companies is continued, it will require ten years for the district to recover from the bad effects which must follow.

PACIFIC COAST SURVEY.—Prof. Pierce, Chief of the U. S. Coast Survey, states that the work now in progress on the Pacific coast comprises the following operations: Determination of the latitude, azimuth, and magnetic elements at three principal stations on the Santa Barbara Channel, coast of California, and difference of longitude between San Francisco and the light house on Point Arena; coast topography between Santa Barbara and Point Conception, and between San Pedro and Point Dumas; special examination of the tides and currents of San Francisco Bay; azimuth, triangulation and topography in the vicinity of Point Arena; reconnaissance and topography of Humboldt Bay, and special examination of changes in shore line at the mouth of the Eel River; shore line survey from Red Bluff to Eureka; azimuth near Crescent City, and topography north from Point St. George; plane table survey of the north shore of the Columbia River, Oregon; completion of the topography of Fort Discovery and Washington Harbor and their connection with New Dungeness rock; plane table survey of Blunt's Island, from Admiralty Head to Deception Point.

SURVEY OF PLACER CLAIMS.—Commissioner Wilson, in a letter called out by correspondence with regard to a case on Deer Creek, near Nevada City, says:

"As to the particular method of subdividing legal subdivisions into ten-acre lots, I have to observe that they are susceptible of being subdivided, either into square lots of ten by ten chains, or into lots of five by twenty chains, by running measuring, and marking lines in the field due east and west, or due north and south, through the legal subdivisions desired to be subdivided into ten-acre lots, and in regard to which method the Surveyors-General have this day been instructed."

THE STEAMING DISTANCE between Melbourne, Australia, and Southampton, England, in nautical miles, via the Cape of Good Hope is 11,837 miles; Overland, via Suez and Gibraltar, 11,154; via Marseilles, 10,139; via California, 13,480. The actual distance as the crow flies is 9,179 miles.

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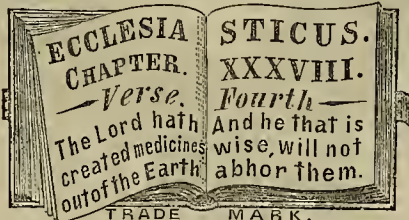
Also, that when taken by LADIES, for IMPROVING THE COMPLEXION, for which it is very successful, that it should be in half doses, often repeated; and that one of the PILLS of Citrate of Iron and Gum Myrrh, which are beneath the bottom label of each bottle, be taken at night, much aiding in restoring Color in the Cheeks and Lips. To CHILDREN also, give it "little and often." It is agreeable to them any way, but especially if sweetened a bit; and it is admirably suited to their Diseases, which generally are those of the MUCOUS MEMBRANES.

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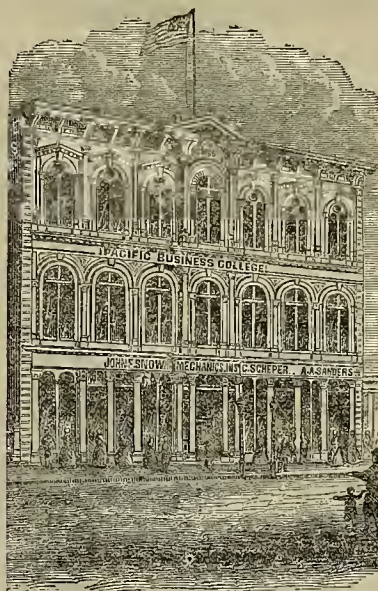
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No. 2—Ornamental Trees 10 cents.
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No. 4—Wholesale FREE.

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W. B. WEST,
NURSERYMAN AND FLORIST,
Evergreens, Fruit Trees,
—AND—
GREENHOUSE PLANTS.
Wine and Table Grapes a Specialty.
Nursery and Greenhouses: one mile North of the Asy-
lum, 15v21-4m.

Fruit and Ornamental

TREES.

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A very large and superior stock of trees, etc., of best se-
lected varieties of everything usually produced in well
kept nurseries. Our trees are grown on good alluvial
soil, and are unsurpassed for thrifty growth of root and
stock, and are reliable as to name on labels. Orders re-
ceived by Mail or Express, will be strictly attended to,
and PACKING done so as to INSURE A SAFE TRANSIT
to any distance.

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Gentlemen Residing in the Country who

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BRILLIANT AND SAFE LIGHT IN THEIR HOUSE

during the winter months, and store and saloon keepers
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A MEDICINE AS OLD AS TIME.—For aught we know to
the contrary, the Seltzer Spring was bubbling and spur-
tling when Adam walked with Eve in Paradise. Be that
as it may, its salutary properties have never been sur-
passed by any medicine of human invention. They have
however been embodied in all their native efficacy in
the delicious duplicate of the Spa itself, which is
cures of dyspepsia, biliousness, constipation, cholera,
nervous debility, dropsy, rheumatism, &c. &c. &c. &c. &c.
and as marvelous as those attributed to the famous
Spring, and which the faculty of Europe have placed on
records as among the medical miracles of the age.
SOLD BY ALL DRUGGISTS

Travellers' Guide.

Central Pacific Railroad.

Time Schedule, September 2, 1870.

EASTWARD.		Express.	Passenger	Sunday	Mixed.*
Train	Daily	Daily	excepted	excepted	
San Francisco	Leave	8:00 A.M.	8:10 P.M.	7:00 P.M.	
Oakland	"	8:45 A.M.	8:55 P.M.	7:45 P.M.	
Stockton	"	9:30 A.M.	9:40 P.M.	8:30 P.M.	
Sacramento	Arrive	1:00 P.M.	1:10 P.M.	7:40 A.M.	
Sacramento	Leave	2:10 P.M.	2:20 P.M.	8:50 A.M.	
Marysville	Arrive	3:40 P.M.	3:50 P.M.	1:15 P.M.	
Colfax	Leave	4:10 P.M.	4:20 P.M.	5:40 P.M.	
Colfax	Leave	5:10 P.M.	5:20 P.M.	6:40 P.M.	
Reino	"	5:15 A.M.	5:25 A.M.	5:45 A.M.	
Winnemucca	"	5:10 A.M.	5:20 A.M.	5:15 P.M.	
Battle Mountain	"	5:20 A.M.	5:30 A.M.	5:51 A.M.	
Carlin	"	5:10 P.M.	5:20 P.M.	6:00 A.M.	
Elko	"	4:40 P.M.	4:50 P.M.	12:30 P.M.	
Kelton	"	4:30 A.M.	4:40 A.M.	7:45 A.M.	
Ogden	Arrive	6:10 A.M.	6:20 A.M.	5:00 A.M.	

WESTWARD.		Express.	Passenger	Sunday	Mixed.*
Train	Daily	Daily	excepted	excepted	
Ogden	Leave	6:00 P.M.	6:10 P.M.	5:00 P.M.	
Kelton	"	10:42 P.M.	10:52 P.M.	1:30 A.M.	
Elko	"	8:45 A.M.	8:55 A.M.	7:15 P.M.	
Carlin	"	10:15 A.M.	10:25 A.M.	9:45 P.M.	
Battle Mountain	"	1:25 P.M.	1:35 P.M.	9:10 A.M.	
Winnemucca	"	4:05 P.M.	4:15 P.M.	9:10 A.M.	
Reino	"	1:00 A.M.	1:10 A.M.	11:30 A.M.	
Colfax	"	5:45 A.M.	5:55 A.M.	12:30 A.M.	

From	From	From
SAN FRANCISCO	OAKLAND.	BROOKLYN.
B 6 50 A. M.	B 6 35 A. M.	B 5 2 A. M.

S 8:10	"	B 8:35	E 7:41
9:00	"	8:10	7:50 "
D 10:00	"	9:00	"
11:30	"	10:00	9:50 "
D 12:00 M.	"	11:10	"
2:00 P. M.	"	12:20	11:50 "
D 3:30	"	2:00 P. M.	"
4:40	"	3:00	2:50 P. M.
6:15	"	4:10	"
6:45	"	6:20	5:10 "
B 11:30	"	6:50	6:40 "
FROM		FROM	FROM
SAN FRANCISCO.		ALABAMA.	BAYARDS.
B 7:20 A. M.		B 4:41 A. M.	B 3:15 A. M.
E 9:00		B 7:35	B 7:00
B 8:30		E 9:05	E 8:30
EC 11:30		B 9:16	E 9:10
1:30 P. M.		11:26	E 11:10
4:00		1:16 P. M.	"
6:00		4:05	3:55 P. M.
		E 6:05	"

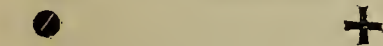
Reading for the Hour.

Curiosities of Vision.

We presume that most of our readers have a general notion of the structure and working of the human eye. They know that the little sphere, of an inch or so in diameter, which forms the eye-ball is a camera, essentially like the one used by the photographer to throw the image of external objects upon the surface prepared to receive it and placed within the apparatus. The mere forming of this picture inside the eye is not, however, seeing. The picture might as well be anywhere else if there were not some means of making the mind aware of its existence. The optic nerve answers this purpose—a branch of the brain which enters the eye through a small hole in its rear, and spreads out in a delicate network over the surface whereon the picture is formed. The impression made by the rays of light upon this network of nerves is telegraphed to the mind, which then sees the object, or, rather, from seeing its image in the eye, comes to recognize the existence of the object itself outside the eye.

If the optic nerve should be severed, the picture in the eye might be as perfect as before, but we should nevertheless be blind to it. If any portion of the network of nerves just mentioned should be paralyzed, we should cease to see the part of the picture formed on that portion of the eye's inner surface. If the entire image of some small object should fall upon that insensible spot, we could no more see it, even though looking straight at it, than if we had no eyes or kept them shut. Now it is a curious fact that there is such a "blind spot" in every human eye; and, what is more curious, it is found to be just where the optic nerve enters the eye—the very place which we might suppose would have the keenest sight of all.

Here is a simple little experiment by which we can prove the existence of this blind spot in our eyes. Shut your left eye, and with the right one look steadily at the cross just below, holding the paper ten or



twelve inches from the eye. Now move the paper slowly toward the eye, which must be kept fixed on the cross. At a certain distance the other figure—the black dot—will suddenly disappear; but, if you bring the paper nearer, it will come into view again. You may not succeed in the experiment on the first trial, but with a little patience you can hardly fail; and the suddenness with which the black spot vanishes and reappears is very striking. Now, examination has shown that when it disappears its image falls exactly on the spot where the optic nerve enters the eye; thus proving that spot to be blind.—*Jour. of Chemistry.*

JAPANESE SCIENCE.—A writer from Japan describes an ingenious method practised in that country for getting water from the bottom of a deep lake. For this purpose a cono-shaped earthenware bottle was employed, having a hole at its apex and a very small one at the broad part, which was stopped by a gum soluble in water. The bottle was then sunk apex downwards, by means of a weight and a line, and allowed to remain about a quarter of an hour at the bottom of the lake, by which time the gum was dissolved and entrance for the water obtained, the air being forced out through a little hole at the bottom. It was then drawn up, and the hole at the bottom plugged with a tiny wooden peg.

THE POWER OF A BIRD'S SONG.—When we hear the song of a soaring lark, we may be sure that the entire atmosphere between us and the bird is filled with pulses, or undulations, or waves, as they are often called, produced by the little songster's organ of voice. This organ is a vibrating instrument, resembling in principle the reed of a clarinet. Let us suppose that we hear the song of a lark, elevated to a height of five hundred feet in the air. Before this is possible, the bird must have agitated a sphere of air one thousand feet in diameter; that is to say, it must have communicated to 17,888 tons of air a motion sufficiently intense to be appreciated by our organs of hearing.—*Prof. Tyndall.*

PIONEER'S CABINET.—The Pioneers have put up a handsome mineral cabinet in their hall, and invite donations.

Washing Diamonds.

The Cape Town *Argus* of August 27th gives a description of the manner in which diamonds are washed out of the claims in the African diamond fields which have been creating so much sensation of late. Thinking that it will be of interest to many of our readers, we condense and quote. The writer affirms, by the way, that, while many valuable gems are found, the affair is like a lottery,—only the few "lucky" ones win prizes; but if all the stones found were to be divided equally among all the diggers, no one would have paid expenses.

In the first place the ground is got out, and in the getting out of that, stones have to be removed, sometimes two hundred pounds in weight. When you have a heap out, of say ten Scotch cartloads, it is sieved. At first this was done in a common round corn sieve, but —, the Yankee, whom you knew in Cape Town, has invented a machine by which we can concentrate ten loads into four in about two hours. This is what is called the "Yankee baby." The whole is slung with a strap on to a frame, consisting of four uprights, and binders holding it together. The ground is thrown by one man on to a sieve. The rocking of the sieves causes the gravel and sand to pass through the meshes—about one inch square—and the large stones are thrown off at the point. After passing through the sieve, the gravel and sand are caught on a sliding board and conducted over another sieve, which is made of fine corn sieving. The rocking causes all the sand to pass through a sieve, and all the gravel ready for washing is ejected without a single large stone or particle of sand. This latter portion is ridden down in Scotch carts to the banks of the Vaal, where it is passed through the cradle.

The ground is thrown into a sieve into which water is either pumped or poured in with buckets. When clear enough through the water and rocking on rockers, the top sieve is taken out, and a sieve, consisting of pierced iron, zinc or tin, with holes, is then roughly washed, being the most important. When washed it is thrown out on a table to be sorted. Three of us with hard work, can turn out about three loads of sifted stuff in six hours; but we are quick sorters, and some men with two sorters can only do one load a day.

Nuptial Hymning.

Among the many specimens of her great agricultural fertility which Oregon is continually producing, we notice from time to time several of a rythmical tendency. One, sprouted during the last month or two, has particularly attracted our attention, as showing something of the immense amount of melancholy enjoyment which can be derived from a wedding. We give it below. We've enjoyed it very much ourselves, although not quite certain as to what that "same" might be, which is spoken of in the first line of the second stanza.

May God receive her to his Throne,
When on earth her race is run;
For she is gentle like a dove;
Long may she live in peace and love.

For all of us have done the same;
But she is happy and we'll not complain;
God only knows how we shall miss her;
Thus are we deprived of our baby sister.

The bold originality of transferring the range of such poetry to the broad untrodden field of weddings from the more confined and over-worked limits of funerals is simply affecting. And in order to afford the reader the renewed pleasure of reading the effusion a second time, and as, moreover, it doesn't seem to make any difference with the sense or rhyme, we have "stood" the poem on its head, so to speak. By commencing at the bottom and reading upwards, lovers of the curiously beautiful and the beautifully curious will discover exactly how the thing originally appeared.

A SCIENTIFIC POPULATION.—A correspondent of the St. Louis *Republican* says of the town of Greeley, in Colorado, that it has 238 voters, nearly one half of them professional men, 40 college graduates and 16 ex-members of legislatures. They already have about 20 prospective governors, and 30 members of the legislature when Colorado attains to the dignity of Stateship. In time, no doubt, the town will be able to supply the entire West with officials.

Ideal Feet.

The celebrated anatomist, Professor Hytel, of Vienna University, recently opened one of his lectures to his class with the singular question, "Which is the most beautiful foot, considered from the anatomical stand-point?" and then said: "It is remarkable that there can be so many divergent opinions on this subject. While the sons of men look upon a small, slender, and graceful foot (if a lady's foot) as an ideal one, the anatomist utterly rejects it as beautiful; and only the large, long, and broad foot is the ideal one in his eyes. Even the greatest classical writers of antiquity—Horace, Catullus, and others—who had great appreciation of feminine beauty, never mentioned, in the descriptions of their beloved, their small feet. The people belonging to the Celtic race have small feet; the Hindoos, especially, have such small feet and hands that they may be envied by many European countesses. The native troops of the English army in India possess in England their own armory, whose peculiar kinds of weapons are constructed for them. The sword-hilts made for them are much too small for us to grasp with ease. The greatest beauties of Europe—the Italians—have really long and broad feet."

A SURGEON'S BILL.—We find the following anecdote concerning the celebrated surgeon, Nélaton, whose name is familiar to every one in connection with the physical troubles of the Emperor Napoleon. Going through one of the streets of Paris one day, he came upon a crowd standing in front of a drug store. There a man lay stretched out, who had been terribly wounded in the abdomen by a sharp buggy shaft, so that a large part of his intestines protruded. His life could be saved only by a very difficult and dangerous operation; but Nélaton was equal to the occasion; and soon his patient, quite a wealthy man, was sent home out of danger. For three weeks Nélaton heard nothing more of him; but then he made his appearance, and asked his preserver how much he owed him. "Hundred and fifty francs," replied the surgeon. "That is too much," said the man, "but give me a specified bill; here is your money." Nélaton sat down and wrote as follows: "For adjusting a metre and a half of the intestinal canal, at a hundred francs per metre, one hundred and fifty francs."

BRIGHAM YOUNG ON LAWYERS.—Brigham Young is reported to have paid his respects to lawyers, in a late discourse at Salt Lake City, in the following terms:

I will say right here that of all men who ever did live upon the face of the earth, lawyers are the worst. Doctors and priests are bad enough, but lawyers will ruin everybody and send all to hell. They are the worst and most unfit for human society of any beings that live, and if mankind would do as Peter, the Emperor of Russia, talked of doing when watching the doings of lawyers in Westminster Hall, England, they would not do a bad thing. Being asked, "do you not have lawyers in your kingdom?" Peter replied; "Yes I have two, and when I get home I shall hang one of them." If all lawyers were served in the same way, communities would be saved a great deal of anxiety and trouble.

ANTIQUITY OF SOAP.—The word Soap or Sope, from the Greek *sapa*, first occurs in the works of Pliny and Galen. Pliny states soap to have been discovered by the Gauls, that it was composed of tallow and ashes, and that the German soap was considered the best. According to Sismondi a soap-maker was included in the retinue of Charlemagne. At Pompeii (overwhelmed by an eruption of Vesuvius, A. D. 79), a soap-boiler's shop, with soap in it, was discovered during an excavation made there not many years ago. Hence the manufacture of soap is of very ancient origin; indeed Jeremiah figuratively mentions it—"For though thou wash thee with natron, and take thee much sope, yet thine iniquity is marked before me." (Jer. ii. 22).

In making experiments with tuning-forks by holding one to each ear at the same time, Herr Fessel, of Cologne, discovered the ears do not possess an equal power of hearing. It appears that from numerous trials on various individuals the hearing is generally best with the right ear. A similar difference in the power of the right and left eye is also more common than is generally supposed, as the impression made on the weaker eye is generally absorbed or dissipated by the stronger.

CURIOUS EXPERIMENT.—An interesting experiment, which, though not new, is not generally known, may be performed as follows: Roll up a large card into a tube a quarter of an inch in diameter, and make the joint tight by a little sealing-wax. Then cut a disc of card two inches in diameter, make a hole through its center exactly big enough to admit the tube. Sealing-wax the card disc on the top of the tube so as to form a flange, taking care not to let the tube project above the surface of the disc. Cut another card disc of the same diameter, and lay it on the former, holding the tube quite upright with the disc uppermost. Blow gently through the tube, and the loose disc will be thrown off the flange. Replace it, and blow with great vehemence. The disc will then not be thrown off, but will remain close to the flange, vibrating strongly. The loose disc may then be placed on the table, and the tube with the flange downwards held very near it. On blowing violently the loose disc will spring up toward the flange and vibrate as before.—*Sci. Discovery.*

TRIMMED AND READY FOR BURNING.—Several years since a company was formed for the purpose of prospecting for gold in the Butte mountains. They sunk a shaft about eighty feet deep at the base of the South Butte. Through this shaft a strong current of gas issued, which induced them to put in a pipe about two inches in diameter and fill up the shaft. Since that time a constant stream of gas has been flowing, which, if touched with a burning match, will blaze perpetually, and during the night furnishes a brilliant light, which may be seen a considerable distance. This gas well is situated close to the residence of Wm. Vanfleet, who contemplated making this light available, by conducting it through pipes to his house, believing it to be too good a thing to lose. This gas, taken in connection with the color and appearance of the dirt raised from the bottom of the shaft, sh was conclusively that a stone-coal bed is not far off.—*Appal.*

WALKING.—Our women, an accurate and critical observer (G. W. Curtis, if we mistake not) remarks, are too stiff in their walk and attitude. In walking, an American woman only bends her knees, and hardly that; she should yield a little in the upper joints. Her gait gives a movement to her body like the squirming motion of a wounded insect with a naturalist's pin through its midriff. American women hold their arms badly in walking; they almost universally bring them forward, crossing their hands in front; they have, in consequence, the look of a trusted fowl, and have about as much freedom of motion. If the arms were allowed to fall freely by the side, our women would move more gracefully, walk better, and look better. The prevailing mode of carrying the arms hoops the shoulders, contracts the breast, prevents all proper development of the bust, ruins health, and what our ladies will be more likely to attend to, destroys beauty of form and all grace of movement.

ANTIQUITY OF PERFUMES.—Pliny describes a mixture of dried flowers and spices, corresponding with the *pot-pourri*, of the modern perfumer. Among the curiosities shown at Alnwick Castle, is a vase that was taken from an Egyptian catacomb. It is full of a mixture of gum, resins, etc., which evolve a pleasant odor to the present day, although probably 3,000 years old. Frangipani Powder (spices, orris-root, and musk or civet) was invented by one of the earliest of the Roman nobles named Frangipani. The Egyptian ladies carried a little pouch of odoriferous gums, as the Chinese do to the present day. Several passages in Exodus prove the use of perfumes at a very early period among the Hebrews, as "sweet spices, stacte, onycha, and galbanum, with pure frankincense;" and the "bellium" mentioned by Moses in Genesis is a perfuming gum resembling frankincense, if not identical with it. Perfumes were also mixed with the oil and wax for the lamps and lights commanded to be burned in the house of the Lord. Galen, the celebrated physician of Pergamos, who lived about 1,700 years ago, invented the *ceratum Galeni*, the cold cream of the present day. In southern Italy so great was the trade in unguents and perfumes, that the unguentarii or perfumers are said to have filled the great street of ancient Capua.—*Piesse.*

VALUABLE.—A Pennsylvania miner wants to sell to the Central Pacific a bed of coal "six feet square," situated within 80 miles of Ogden.

PHOTOGRAPHY.—FOR CABINET PHOTOGRAPHS, OF Enameled Cards, of the very best quality, you must go to the NEW YORK GALLERY, Nos 25 and 27 Third street, San Francisco. Every picture warranted to give satisfaction. oct18-6m B. F. HOWLAND.

BOILER FILING saves twenty-five per cent. of fuel. **BERRY & PLACK'S MACHINERY DEPOT**, No. 114 California street. 1v21-3m

COLORED TIN AND SOLDER WIRE, broom wire, piano covering wire, etc., manufactured by Joshua Gray, 437 Broadway street. 7v19-3m

THOMAS O'NEIL, Ornamental Glass Cutter, No. 10 Stevenson street, up stairs. Stained, Ground and Ornamental Cut Glass to order on reasonable terms. 1v20

Having had numerous applications to purchase the right to manufacture **CHAMPAGNE MEAN** (the great temperance drink), we will state that we are now prepared to sell State and County Rights on reasonable terms. KENYON, GARR & CO. San Francisco, July 10, 1870. 2v21-3m

The word "SOZODONT," which is fast becoming a household word, is derived from the Greek, and composed of two words, "SOZO," and "ODONTES." "SOZO," translated, means to preserve, and "ODONTES," the teeth. SOZODONT, a preserver of the teeth. And it is true to its name.

"SPATULINO'S GLUE" will mend your ways, or anything else that needs mending.

FROM A READER.—Duncan's Mill, Sonoma Co., Oct. 10, 1870.—Messrs Dewey & Co: Don't stop my paper. Your journal is very valuable. No better investment for \$1. Respt. B. C. B.

CONTINENTAL Life Insurance Co., 302 Montgomery street, corner of Pine.

CO-OPERATIVE UNION STORE.—This is becoming one of the most useful institutions in the city, and the mechanic and laboring man fully appreciate it. They are now enabled to buy their groceries and provisions 20 per cent. cheaper than ever before, and the very best articles in the market. The store is located at 115 Sutter street, Lick House Block.

Mining and Company Adv'ts.

Every Advertisement in this journal is published throughout its entire Mining, Agricultural, Monthly and Quarterly Editions.

Mountain City Mining Company.—Location of Works: Cope District, Elko County, State of Nevada.

NOTICE.—There are delinquent upon the following described stock on account of assessment levied on the 25th day of Sept. 1870, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificates.	No. Shares.	Amount.
Best, John T.	61	400	\$200.00
Greck, H. J.	42	100	50.00
Read, Francis.	62	400	200.00
Rogers, F. A.	11	500	250.00
Rogers, F. A.	12	200	100.00
Rogers, F. A.	13	100	50.00
Rogers, F. A.	14	100	50.00
Rogers, F. A.	15	50	25.00
Rogers, F. A.	16	50	25.00
Rogers, F. A.	17	50	25.00
Rogers, F. A.	18	20	5.00
Rogers, F. A.	19	10	5.00
Rogers, F. A.	20	10	5.00
Strong, Harvey.	28	125	62.50
Sharp, Wm H.	31	900	450.00

And in accordance with law, and an order of the Board of Trustees, made on the 29th day of Sept. 1870, so many shares of each parcel of said stock as may be necessary will be sold at public auction at the salesroom of Maurice Dore & Co., No. 327 Montgomery Street, S. F., on the 26th day of November 1870 at the hour of 11 o'clock A. M., of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

T. B. WINGARD, Secretary.
Office, No. 206, Front Street, San Francisco.
Advertising charges \$2 each certificate. nov12-2w

Land Purchasers' Association.—Office, No. 304 Montgomery street San Francisco.

NOTICE.—There are delinquent, upon the shares of the following named persons on account of Assessment levied on the 1st day of October, 1870, the several amounts set against the names of the respective Shareholders as follows:

Names.	No. Certificates.	No. Install.	Amount.
Thomas H. Hayes.	1,2,3,4,5	5	\$250.00
James E. Boyce.	9	3	30.00
J. W. Cherry.	10	8	60.00
John Jays.	23	8	80.00
Thomas H. Day.	32,33	2	20.00
Gustave Scott.	44	4	40.00
James E. Ager.	75,76	1	20.00
E. P. Heald.	86	1	10.00
Philo Dond.	87	1	10.00
H. H. Mayhew.	91	7	70.00
Martin L. Hass.	97,98	7	140.00
O. M. Kinn.	100,101	6	120.00
John C. Koch.	106	1	10.00
A. Whitney.	108	7	70.00
S. S. Spangue.	114,119	6	120.00
Mrs Nellie McOrty.	113	4	40.00
W. Green.	117	1	10.00
Henry Keller.	127,128,129,130	8	300.00
	131,132,133,134		

Dr. D. C. Cons.	137	2	20.00
G. O. Burnett.	140	2	20.00
Charles Prey.	171	5	50.00
Otis Jackson.	173,174	3	60.00

And in accordance with law, and an order of the Board of Trustees, made on the 1st day of October, 1870, so many shares of each parcel of said stock as may be necessary will be sold at the office of the Secretary No. 304 Montgomery Street, San Francisco, on Saturday, the twenty-sixth day of November 1870, at the hour of 12 o'clock M., of said day, to pay said delinquent Assessment thereon together with costs of Advertising and expenses of sale.

J. F. CROSETT, Secretary.
Office 304 Montgomery street, San Francisco. nov5

Mahogany G. & S. M. Company.—Location of Works, Silver City, Owyhee County, Idaho Territory.

Notice is hereby given, that at a meeting of the Trustees of said Company, held on the second day of Nov. 1870, an assessment (No. 1) of \$2.00 per share in United States Gold coin, was levied, payable immediately to the Secretary at the office of the Company, Room No. 2, Express Building, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on Monday Dec. 5, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, on Dec. 10, 1870, and unless payment shall be made before, will be sold on Tuesday December 27, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of the sale.

G. M. RICHARDSON, Secy.
Office No. 2, Express Building, San Francisco, Cal. Nov. 5

I. X. L. Gold & Silver Mining Company.

Location of Mine Silver Mountain District, Alpine County California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the eighteenth day of October 1870, an assessment of one dollar (\$1.00) per share was levied upon the capital stock of said Company, payable immediately in United States gold and silver coin, to the Secretary at his office, Pioneer Hall, 808 Montgomery street, San Francisco, California. Any stock upon which said assessment shall remain unpaid on the nineteenth day of November 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Wednesday the seventh day of December 1870, to pay the delinquent assessment, together with costs of advertising and expense of sale. By order of the Board of Trustees.

J. CROWNINSHIELD, Secretary.
Office, Pioneer Hall (up stairs) Montgomery street, San Francisco, California. oct 29.

Kincaid Fiat Mining Company, Tuolumne County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 20th day of October 1870, an assessment of \$2.50 per share was levied upon the capital stock of said Company, payable immediately in United States gold and silver coin, to the Secretary San Francisco.

Any stock upon which assessment shall remain unpaid on the 21st day of November 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Saturday the 3d day of December, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

D. H. CROWE, Secretary.
Office 250 Clay street, San Francisco. oct22

Notice of Delinquent Sale.

Silver Sprout Mining Company.—Location of Works and Mines, Kearsage District, Inyo County California.

Notice.—There are delinquent upon the following described stock, on account of assessment levied on the twenty ninth day of Aug. 1870, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. of Certif.	No. Shares.	Amount.
Brown, B L.	11	10	2 50
Cleveland, R H.	24	10	2 50
Devlin, J D.	12	10	2 50
Davis, James H.	20	40	10 00
Hearst, Geo.	(unissued)	200	50 00
McLaughlin, J W.	(unissued)	1000	250 00
Mott, E B Jr.	29	200	50 00
Stowell, Chas E.	22	1000	2 50 00
Spaulding, Geo.	25	40	10 00
Wade, Wm N.	(unissued)	220	55 00

And in accordance with law, and an order of the Board of Trustees, made on the twenty ninth day of Aug. 1870, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the salesroom of Maurice Dore & Co., No. 327 Montgomery St., San Francisco, on the first day of December 1870, at the hour of 11 o'clock A. M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

T. B. WINGARD, Secretary.
Office, 206, Front street, San Francisco, California.
Advertising charges \$2.00 each certificate. Oct. 29-2w

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AS WELL AS THE

Organ of the Masonic Fraternity on the Pacific Coast.

ENDORSEMENT OF THE GRAND LODGE.

The following resolution was unanimously adopted by the M. W. Grand Lodge, F. A. M., of the State of California, at its Annual Communication, October, 1870.

Whereas, in the opinion of this Grand Lodge, a well conducted Masonic Journal is of great benefit to the craft, in disseminating Masonic information among the fraternity, as well as furnishing a medium for general Masonic intelligence. Therefore,

Resolved, That this Grand Lodge, recognizing in the Masonic Mirror, edited by Brothers Amasa W. Bishop and Edwin A. Sherman, and published by the Masonic Publishing Company of San Francisco, a Masonic Journal of the character above set forth, do hereby recommend the said Masonic Mirror to the craft generally, as worthy of their most favorable consideration and support.

ENDORSEMENT OF THE GRAND CONSISTORY.

At the communication of the M. F. Grand Consistory, Ancient and Accepted Scottish Rite of Freemasonry in and for the State of California, held October, 1870 at San Francisco, the following resolution was unanimously adopted: Resolved, That the Masonic Mirror, published in this city be the official organ of this Grand Consistory.

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The Mirror presents the best Advertising medium on the Pacific Coast, as it circulates in every town and hamlet, and among a class of citizens that it will be of advantage to advertisers to reach.

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One Square of ten lines, or less, 1 time	\$ 1.00
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San Francisco Metal Market.

PRICES FOR INVOICES

Jobbing prices rule from ten to fifteen per cent. higher than the following quotations.

THURSDAY, Nov. 10, 1870.

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Plate, No. 5 to 9... 04 1/2 @ —

Sheet, No. 10 to 13... 05 @ —

Sheet, No. 14 to 20... 05 1/2 @ —

Sheet, No. 21 to 27... 06 @ —

COPPER.—Duty: Sheathing, 3 1/2¢ per lb; Pig and Bar, 2 1/2¢ per lb.

Sheathing, per lb... 26 @ —

Sheathing, Yellow... 20 @ —

Sheathing, Old Yellow... 10 @ —

Composition Nails... 21 @ —

Composition Bolts... 22 @ —

TR. PLATES.—Duty: 25¢ cent. ad valorem.

Plates, Charcoal, IX, per box... 12 00 @ —

Plates, I C Charcoal... 10 00 @ 10 50

Roofing Plates... 10 00 @ 10 50

Banca Tin, Slabs, per lb... 42 @ —

STEEL.—English Cast Steel, per lb... 15 @ —

QUICKSILVER.—per lb... 73 @ —

LEAD.—Pig, per lb... 6 @ 7

Sheet... 9 @ —

Pipe... 10 @ 11

Bar... 8 @ 9

ZINC.—Sheets, per lb... 10 1/2 @ 11

BORAX... 35 @ 23

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Foundry and Iron Works.

HINCKLEY & CO.,

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Quartz, Flour and Saw Mills,

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Steam Engine Builders, Boiler Makers, Machinists, Foundrymen, and Manufacturers of Car Wheels equal to the best imported, and guaranteed equal to Eastern Wheels.

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And all kinds of Mining Machinery.

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Steam Engines and Boilers,

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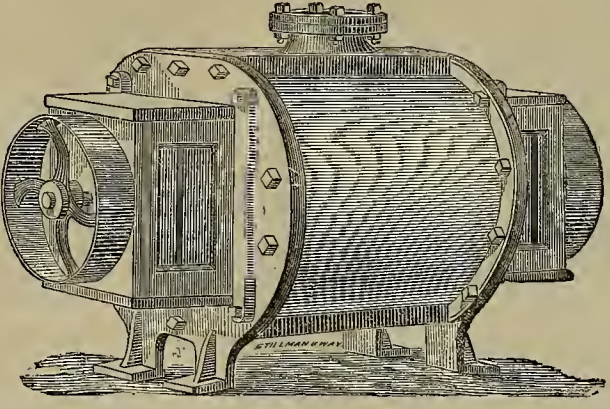
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Quartz, Saw and Grist Mill Irons, Steam Engines, Horse Powers, High and Low Pressure Steam Engines, Steamboats and Propellers, made at short notice.

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NOVELTY MILL AND GRAIN SEPEARATOR.

THE undersigned having purchased of the Patentees, WIRTS & SWIFT, of Hudson, Michigan, their right to this mill, Patented June 25d, 1869, for California, Oregon, Washington Territory, Montana, Utah, New Mexico and Arizona, wishes to call the attention of FARMERS, MILLERS AND GRAIN DEALERS to one of THE GREATEST IMPROVEMENTS OF THE AGE for cleaning and separating grain. While it combines all the essential qualities of a first-class FANNING MILL, it also far exceeds anything that has ever been invented for the separation of grain. It has been thoroughly tested on all the different kinds of mixed grain, separating all the different seeds in almost a magical manner, placing them in their different compartments in the mill arranged for their reception, at the same time taking out all the Mustard, Grass Seed, Barley and Oats, and making two distinct qualities of wheat if desired, thereby selecting superior, large plump and perfect kernels for SEED WHEAT, and all the small and out kernels, such as merchantable wheat, is deposited in another compartment. By the use of this Mill a great quantity of wheat usually sown that has been cleaned in the common mills will be saved to the farmer, as the cut or shrunken kernels will never germinate.

The above mentioned Novelty Mill is the only mill known to possess all these superior qualifications, and was exhibited and tested at the last Michigan State Fair held at Jackson, Michigan, September 21, 22, and 23, 1869, and bore away the palm over some thirty other different mills from all parts of the United States, including the famous Dickey Mill of Racine, Wisconsin. All who have witnessed here the operations of the NOVELTY MILL, declare it perfection, and the most beneficial invention to the Farmers, Millers, and Grain Dealers ever introduced on the Pacific Coast. The farmers in Santa Clara County, are loud in its praise, and also in other parts of the State where it is being introduced. No. 1 Mill, complete, is capable of cleaning 25 tons of grain per day; No. 2 Mill, 15 tons; No. 3 Mill, 9 tons. A large number of recommendations and certificates of the practical working of the mill will be furnished. Circulars containing references sent free by mail. N. B. Town, County, or State Rights for sale on favorable terms. For further particulars apply to

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Flue or Tubular Boilers, with plain circular or spiral courses. Upright Flue or Tubular Boilers, Locomotive and Marine Boilers, and Wrought Iron Tanks of every description.

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11v16f

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14v21-2m

New York Metal Market.

[CORRECTED WEEKLY FROM THE AMERICAN ARTISAN.]

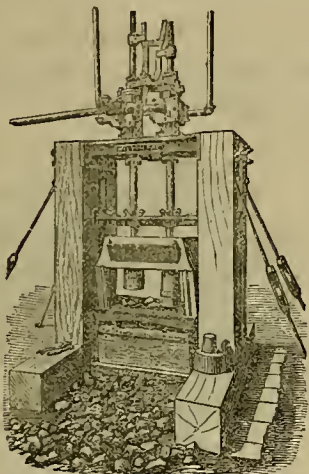
New York City, Saturday, Oct. 23, 1870.

IRON.		
Pig, Scotch, No. 1 (cash), per ton..	\$33 00	@ 33 50
Pig, American, No. 1 (cash).....	33 00	@ 34 00
Pig, American, No. 2.....	29 00	@ 31 00
Swedish, ordinary sizes.....	110 00	@ 125 00
Common.....	75 00	@ 80 00
Refined.....	77 50	@ 95 00
Rods.....	85 00	@ 120 00
Horse-shoe.....	95 00	@ —
Hoop.....	101 00	@ 150 00
Scroll.....	97 50	@ 125 00
Nail-rods, per lb.....	— 7	@ — 7 1/2
Spring.....	— 7 1/2	@ —
Tire.....	— 8 1/2	@ —

STEEL.		
Bars, best cast, warranted, per lb.....	— 17	@ — 18
Sheet, best cast.....	— 18	@ —
Sheet, second quality.....	— 16	@ —
Sheet, third quality.....	— 14	@ —
Saw-plates, circular.....	— 27	@ —
Double-shear, warranted.....	— 24	@ —
Single-shear.....	— 19	@ —
Montague & Co. (cast bars).....	— 18	@ —
Machinery, round.....	— 11	@ —
German, best.....	— 11	@ —
German, good.....	— 10	@ —
German, eagle.....	— 9	@ —
Blister, warranted.....	— 16	@ —
Blister, common.....	— 15	@ —
Jessop & Sons', common.....	— 17	@ —
Double-refined.....	— 26 1/2	@ —
Stone ax shapes.....	— 26 1/2	@ —

Machinery.

THE WILSON
Patent Steam Stamp Mill.



This extraordinary Mill, now so justly popular in the East, is now offered to the miners of the Pacific Coast. Having been in operation now for about two and a half years, the Company feel confident that the

WILSON STEAM STAMP MILL,
For Durability, Efficiency,
AND ECONOMY OF WORKING,
HAS NO EQUAL.

The Wilson Steam Stamp Mill is the only Steam Mill that has had the severe ordeal of practical working, and proved itself eminently successful. It is now in operation in several of the Eastern States and Territories, and gaining an ever increasing popularity. The whole machine is so simple as to be readily understood by the most ordinary minds. In fact, its simplicity is its durability. The expense of crushing rock or cement with this Mill is less than one-half the expense of any other Stamp Mill, and less than one-half the cost. For further particulars inquire of

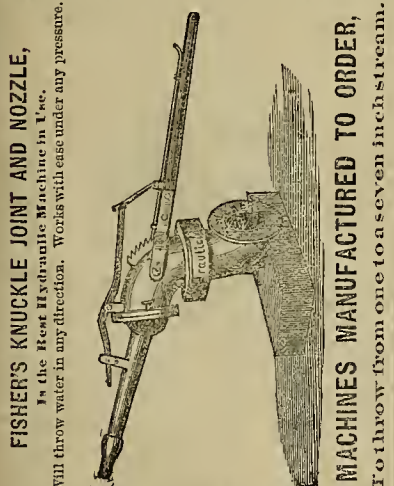
FURMAN R. WILSON,
San Francisco.

Or of THE WILSON STEAM STAMP MILL CO., 326 Walnut street, Philadelphia, Pa.

NOTICE.—All persons are hereby warned not to manufacture or use any Steam Stamp Mills that are an infringement on the Wilson Patents, as they will be prosecuted to the utmost rigor of the law.

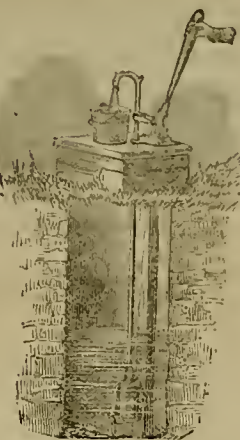
F. R. WILSON,
20v19-4t Supt. W. P. S. S. M. Co., Philadelphia.

HYDRAULIC CHIEF.



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NEVADA CITY.
Still's' Factory, South end of Suspension Bridge.
16v21-1m

THE AMERICAN SUBMERGED PUMP.



Has no leather packing, is composed entirely of metal, rendering it less liable to get out of repair than the ordinary packed pumps. It is admirably adapted for Irrigating purposes and for Watering stock.

As a Safeguard against Fire it has no Equal,

One of the medium size being capable of protecting an ordinary frame dwelling. In short it is an article that

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PRICE LIST.

No 0—Iron, \$15 ; Iron Galvanized, \$17 ; Capacity, 500.....	Gallons per Hour.
" 1.—" 25 ; " " 30 ; " 1,000 to 1,200.....	" " "
" 2.—" 40 ; " " 45 ; " 2,000 to 2,500.....	" " "
" 3.—" 70 ; " " 75 ; " 4,000.....	" " "

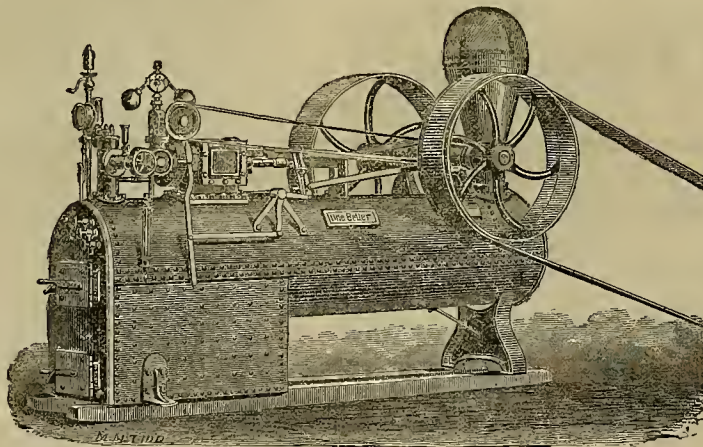
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Be it known that the Hydraulic Chief, manufactured by F. H. Fisher, of Nevada City; Champion Nozzle, made by Thos. Watson of Nevada City, and Dictator, made by Richard Hoskins, of Dutch Flat, 427 are infringements upon our Patents dated Dec. 8th, 1865, Dec. 7th, 1869, Dec. 28th, 1869, and that suits are now pending in the U. S. Courts which involve the working principles of each and all the above named contrivances, and that we will prosecute all responsible parties who make, sell or use, without our consent, any one or either of them.

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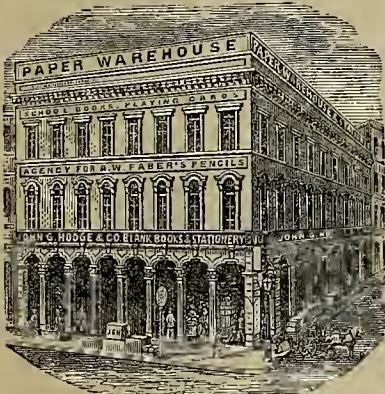
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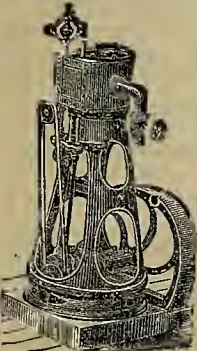
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Which may be applied in reduction of Premiums, or may be accumulated at interest for the benefit of the Assured, or may be received by them in Cash. Paid up Policies are granted after two or more years' Premiums have been paid, thus practically making

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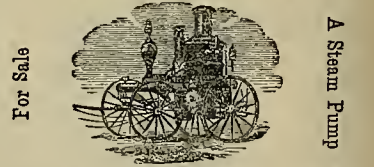
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Who have failed in their efforts to dispose of their rights are invited to consult us, either personally or by mail, free of charge. Many valuable inventions are lying dormant, for want of proper management, that might realize a fortune for their owners, if placed in the hands of competent agents, and brought to the attention of capitalists. We accept only those showing decided merit, as no others can be negotiated. A candid opinion can therefore be relied upon. Commissions dependent upon success. Inclose stamp for full information.

References on application. E. E. ROBERTS & CO., Consulting Engineers, 15 Wall street, New York. 14v213m16p

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Mining, Farming and Mechanic Arts.

BY DEWEY & CO.,
Patent Solicitors.

San Francisco, Saturday, November 19, 1870.

VOLUME XXI.
Number 21

Mining Edition.

The Bessemer Process under Pressure.

A difficulty experienced in treating certain qualities of pig-iron by the Bessemer Process, has been that sufficient heat was not produced in the converting vessel to allow all the steel to remain fluid until poured into molds. To obviate this trouble, Mr. Bessemer some time ago invented a method of conducting his process under pressure. We have spoken of this previously, and having obtained the proper illustrations from the *American Artisan*, propose to recur to the subject which will be more fully understood by the aid of the cuts.

The vessel is constructed very solidly, and the mouth is by preference circular, instead of oval, and also of smaller size than usual. Fig. 1 shows such a vessel. Here *a* is the upper part of the converter; *a'*, the lining of gannister; *b*, the strong riveted iron shell; *c*, an iron hoop riveted on this shell, and to which is secured a flanged iron ring, beveled on the inside. This last holds in place a molded ring, *e*, of fire brick or other suitable material, which forms the mouth of the vessel and which can be easily removed when worn out. To make the joint air-tight, a mixture of fire clay and gannister is smeared over the parts of *e* which come in contact with the holding ring and with *a'*.

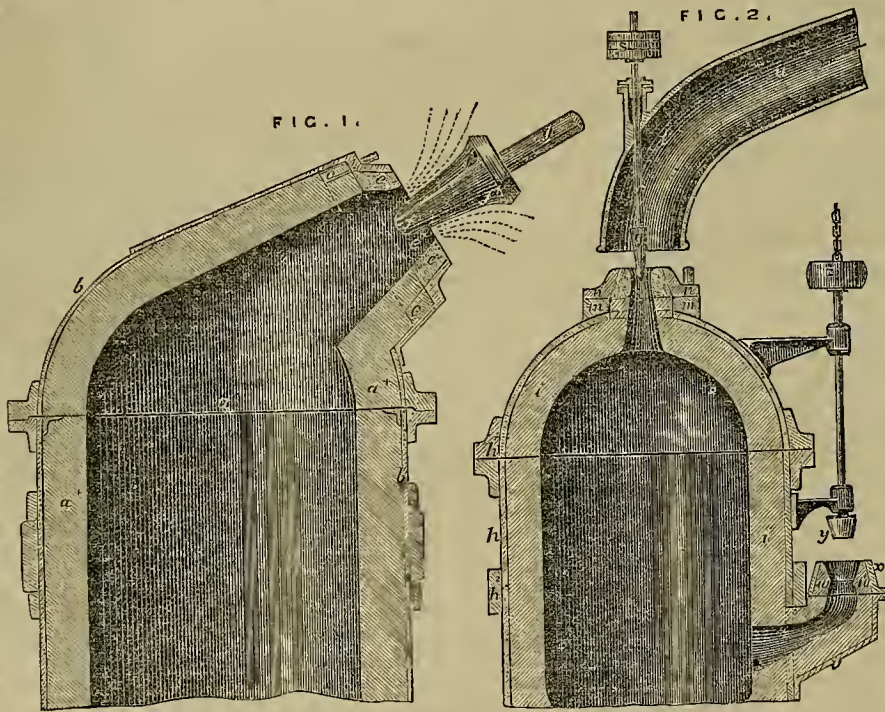
The mouth of the vessel can be thus contracted sufficiently to retain the gaseous products of combustion under very considerable pressure, and thus a more intense heat would be produced and imparted to the metal. The amount of pressure thus obtained should vary with the heat-producing properties of the carburized iron treated and the quantity of scrap or other unfused metal of the charge, so that no precise rule for the necessary amount of pressure can be given. As a guide, Mr. Bessemer states that, for converting purer kinds of Swedish charcoal pig-iron and for mottled or white hematite pig-iron mixed with gray, a back pressure in the vessel of 8 to 15 lbs. on the square inch will give good results. A pressure as low as 3 or 4 lbs. causes but little gain, and below 2 lbs. nothing is claimed. Of course, the pressure of the blast of air forced into the vessel must be increased in proportion to the back pressure caused by penning up the gases by contracting the escape vent.

But the mode of obtaining the required back pressure by simply diminishing the outlet does not offer all the desired facility of regulating this pressure as required, while trouble may ensue from the accumulation of slags in the aperture. The method which Mr. Bessemer prefers is to

use a moveable conical stopper attached to the end of an iron rod, as shown in Fig. 1. Here *f* is a conical piece of fire brick, of the form shown, which protects the rod *g* from the action of the flame. This rod may protrude through the back wall of the converting house, or be supported on an iron frame in connection with the standards which support the vessel, and by means of a screw or lever is made to advance into or recede from the mouth of the converter, increasing or diminishing the area of exit *e'* and regulating the pressure. Or the stopper may be made self-acting by applying a spring or other device to press it forward against the forcibly escaping gases;

runs (and is thus kept always over the center of the aperture) through tubular guides and stuffing box formed at *i*, on the flue, *u*, leading to the chimney and conveying away the escaping gases.

At one side of the vessel is a projection, *v*, on the upper part of which a ring of fire-brick, *w*, is retained in place by a conical flanged ring, *x*. The opening in *w*, serves for the admission of the molten metal into the vessel, after which the cone, *y*, smeared with fire-clay, is lowered into this opening and retained in place by means of the weight, *z*, thus preventing the escape of gases at this point. By means of the chain shown above *z*, the cone can be re-



CONVERTING VESSELS FOR THE BESSEMER PROCESS UNDER PRESSURE.

or various other devices may be employed.

When nitrate of soda or of potash or other oxidizing salts are employed for decarburizing purposes, a large amount of heat is absorbed and rendered latent, thus tending to solidify the metal and rendering it unfit for forming into ingots or castings without being remelted. The arrangement for such a case is shown in Fig. 2. The very strong vessel has an outer shell, *h*, of thick plates of iron or steel securely riveted and calked at all joints and capable of withstanding safely a pressure of from five to ten or more atmospheres. For further strength, one or more hoops, *h'*, are riveted to its exterior. The lining, *i*, is of fire-brick, gannister or other suitable material.

On the upper part of the dome is riveted an iron ring, *m*, to which is fitted a flanged ring, *n*. The inside of this last is conical and holds the conical fire-clay ring, *p*, forming the mouth of the vessel. A cone of fire clay or iron, *g*, for increasing or diminishing the area of the outlet, is attached to a rod, *r*, on the top of which weights, *s*, regulate the pressure. This rod

is moved and suspended when necessary.

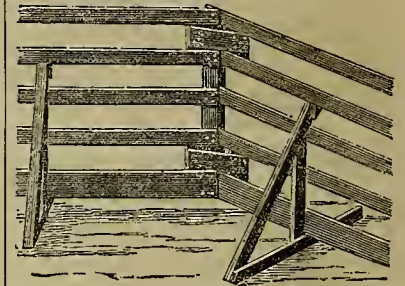
When the metal run in at *w* comes in contact with the nitrate or oxidizing material, large amounts of gases are evolved. These gases accumulate in the converter until the pressure is sufficient to raise the cone, *g*, at the top, when they escape through the small annular opening thus made, the pressure being regulated by weight, *s*. "Hence the combustion of the carbon contained in the molten iron by reason of its union with oxygen, derived from the decomposition of nitrates or other oxygen-yielding materials, will be effected under considerable pressure; and under the ordinary conditions of combustion, will be in a highly condensed state, by which means their temperature will be considerably raised, and the intense heat so generated will be imparted to the metal and cause it to retain its fluidity."

LOCATED. — The Dalles Military Road Company (Oregon) have located 60,000 acres of their land grant in John Day Valley.

Johnson's Patent Portable Fence.

Fences occupy a very important position in the economy of a farm, and when constructed for durability are generally very expensive. It is often found a very great advantage to have a portable fence, which can be changed from one position to another on a farm, or on pleasure or ornamental grounds. One of the best of this class of fences is the one herewith illustrated—a California invention, which was patented through the SCIENTIFIC PRESS PATENT AGENCY about one year since. This fence can be readily taken to pieces or separated into panels, and can be built for less than the cost of an ordinary stationary fence of the same class and height. The braces by which it is supported make it amply firm and strong against either the inroads of cattle or violence of winds.

It will be readily perceived, by reference to the illustration, how the panels are put



together, and how they are held in place. The ties are so constructed that the fence may be placed either in a straight line, or bent to any desirable angle. The act of removing or placing them is but the work of a moment; not even a hammer or any other tool being necessary in setting up or taking down.

The famous showman P. T. Barnum, who recently visited this coast, and who is proverbial for his practicability and sharpness, has adopted the invention upon his fine grounds, and speaks of it as follows:

WALDEMEER, BRIDGEPORT, Ct.
Oct. 28th, 1870.

MR. CHARLES E. JOHNSON, San Francisco, Cal.—Dear Sir,—I find upon trial that your portable fence is by far the most complete and desirable plan I have ever seen for constructing a fence that can be put up and taken down in a few minutes. It is light, cheap and effective. Nothing can surpass it where fences require removing often. Truly Yours

P. T. BARNUM

This fence may be seen at Woodward's Gardens, in this city, where it is in use, and highly recommended by the proprietor of that famous place of resort. It is also in use at other localities, and is everywhere highly recommended. For further information, address C. E. Johnson, P. O. box 995 San Francisco, or care of SCIENTIFIC PRESS.

THE CABLE to connect the Isthmus of Panama with the United States by way of Jamaica was landed at Aspinwall, October 24th, and the steamers *Vestal* and *Dacia* started for Kingston, Jamaica, to lay the cable on their way. But according to the latest despatches, the attempt failed.

Communications.

In this Department we invite the free discussion of all proper subjects—correspondents alone being responsible for the ideas they advance.

Notes of Travel in Sierra County.

[WRITTEN FOR THE SCIENTIFIC PRESS.]

Fur-Top—Morristown—Portwine.

Fur-Top (or Eureka) is about eight miles distant (by trail) from Downieville. The principal mines at this place are owned and worked by Messrs. Beard & McBride. They can work only from April 1st to July 1st; during the winter it is perpetual snow; in the spring when it begins to melt then work begins.

Morristown is four miles from Fur-Top, and is similarly situated as to its mines. Thos. Wheeler is principal owner; during the months of April, May and June, this year, Mr. W. paid out for wages alone \$25,000. One of Fisher's Shoo Fly's, is the hydraulic device in use here.

Portwine, four miles from Morristown, on the 1st day of September last, was almost entirely consumed by fire; the loss was estimated at from \$75,000 to \$100,000 with only \$4,500 insurance on the whole town. Nearly everybody has rebuilt, and although poor, the people expect to out-live it. The Monte-Cristo mining company's works are situated three-fourths of a mile north-east from Portwine. It is a deep channel, blue gravel deposit, and quite rich. Company consists of 40 shares, each personally represented; the Secretary, Treasurer and Foreman constitute a board of three trustees who manage the same. The claim is worked by drifting; they have a fine hoisting works run by steam engine, over an incline shaft down 435 feet, running at an angle of 45 degrees. The main lead is about 700 feet wide, and runs through the ridge to the east, widening out to 1,600 feet on the opposite side. The drifting gravel is from three to four feet deep. The claim is not yet thoroughly opened to show its real value, but prospects well. UNION MINE, adjoining the Monte-Cristo, have 38 shares in their claim, each personally represented; have hoisting works run by a Frederic water wheel, which cost \$4,000; three trustees manage the mine. A. Kleckner is Secretary. Their tunnel is in 5,110 feet; they work day and night, and have taken out \$70,000 since January last. The pay gravel is the same as in the Monte-Cristo.

St. Louis—Poverty Hill.

St. Louis is situated five miles east of Portwine. The SEARS UNION WATER CO. (incorporated) have their office at this place. They are engaged at ditching and mining. The capacity of their ditches is 1,500 inches, the length 20 miles; they take the water from Slate Creek and its tributaries and distribute the same at Howland Flat, Pine Grove, Chandlerville, St. Louis and Scales Diggings. This company is mining successfully ground at Chandlerville that, under the old process of hydraulic, would not pay expenses. After four years of bed rock tunneling at Scales Diggings (some six miles distant) this company have their tunnel in through the rim rock, have a shaft raised out to the surface, also a tail flume in 3,000 feet long, 40 inches wide and three feet deep, paved with blocks; 1,200 feet of 15-inch pipe convey the water to a Craig's Glohe Nozzle, under a pressure of 202 feet. They commenced operations a few days since. They own on the old ancient channel, or river bed, 1,000 feet wide, nearly a mile in length, and averaging 200 feet deep, ground enough to last them for 50 years to come.

Poverty Hill, two miles north of Scales Diggings, is one of the most lively mining camps at present in this county. Among its principal operations there is the GOLD VALLEY MAIN TUNNEL and M. Co., (incorporated) owned by the Smith Bros. and James Lafferty, of Poverty Hill, E. Judson (of the Giant Powder Co.), Doe, and others of San Francisco. The tunnel this company have in course of construction, it is estimated, will cost from \$60,000 to \$75,000, will be 2,000 feet long when completed, and will require from two to two and a half years yet to finish the same. A vast blue gravel deposit, deep channel diggings, claimed by 80 different companies, will be benefited by this enterprise, by paying a small amount for flume privileges. Seven men are kept constantly at work on the tunnel night and day. By hydraulic process this gravel is easily washed, the boulders being small and few. The proprietors of the above mentioned tunnel may adopt (or bring into requisition) the Diamond Pointed Steel Drill; if they do, I prophesy that nine months hence will see their enterprise complete.

Howland Flat.

Howland Flat, situated three miles north-east of St. Louis, is the head quarters (in winter season) for Snow Shoe Racing in Sierra Co. This is more exciting than the turf with its best horses, in any part of the country. Without going into details, let your readers imagine 60 men contending for a prize, in squads of six each, armed with snow shoes from eight to 14 feet long; the ground to be run over three-fourths of a mile down a steep mountain, and the winner to make the time in less than one minute! Then a faint idea may be had of a snow shoe race.

The mines of Howland Flat are the UNION GOLD M. Co. (consisting of 5,000 shares, principal office in San Francisco; R. Dorn, Sec.) situated next the adjoining town. This claim, together with all others, here are deep channel diggings, and worked by drifting; for the last

13 years this claim has been successfully worked, the dividends satisfying its proprietors. From 70 to 75 men have been constantly employed during that time; just now but little is doing in this mine, as the superintendent, Mr. Geo. H. Moyle is making preparations to more successfully work the same by reducing the expenses, which necessarily increase as they get further from the surface. They own ditches, and a sufficient supply of water for hoisting purposes and washing the year round.

The MONUMENTAL CO., situated one half mile above Howland Flat at Potosi, is at present working the most men, have the longest tunnel, and is the best paying in this section. Next adjoining this is the PITTSBURG M. Co. (incorporated) consisting of 96 shares; began tunneling in 1856, struck gravel in 1860, was successfully worked with a force of 40 men up to and including 1868. Since then and up to a very short time, they have worked the same through an incline, owing to swell rock and other obstructions in their tunnel. This mine has a frontage of 800 feet running to the top of the mountain 3,100 feet; attached to the same is 2,500 feet of tailing ravine. Since last May, the company have been working their diggings through the Monumental Co.'s tunnel, the latter named company hauling the Pittsburg Co.'s pay gravel to the mouth of the tunnel with mules at a certain price per ear load. At the present rates of labor this company estimate that by Spring they will have worked out all that will pay them to.

L. P. MC.

All About Montana.

[Written for the Scientific Press.]

Indian Creek.

When at Radersburg, I paid a visit to the mines of Indian Creek, about eight miles distant on the road to Helena. There are quite a number of claims here. The placer mines, according to all I could learn, are not generally doing very well this year, and the water season is now rapidly drawing to an end.

I had here the pleasure of meeting Capt. S. Lewis, of Pittsburg, Pa. Mr. L. came out here to superintend the erection of a fine quartz mill which was shipped to this Territory some years ago, but from some cause or other has not been worked. The mill has 16 stamps, copper plates, etc., which with all the necessary machinery were manufactured at Mr. Rees' machine shop at Pittsburg; and they show superior workmanship. The mill, located at a place called St. Louis, belongs to the Pittsburg and Indian Creek Montana M. Co. Mr. Jas. Rees and Capt. S. Lewis are among the principal stockholders. The mill will be in full blast, it is said, in 30 days from the present date.

The Diamond Ledge, located about half a mile from the mill, has been purchased by the company. The ledge is 16 feet on top and 15 feet at the bottom of the shaft which is 78 feet down. The ore prospects well and will run from \$15 to \$30 per ton, and will be considered first class if it averages \$20, which will pay well here where wood is cheap and plenty.

There is another mill (with five stamps) in this section which will be running in a few days.

[Our correspondent has sent us a letter from Bozeman, which will appear in our agricultural columns. We here commence with a third letter.—Eps. Press.]

Virginia City.

Virginia City (Madison County), the capital of Montana Territory, was located in 1863, on Alder Gulch, about seven miles from its mouth. The gulch is about 17 miles long. The city once had a population of 10,000, in the palmy days when the gulch yielded such fabulous sums; it now has 867 according to the late census returns. It contains two banks, some good hotels, an International and Clatsby House, and a few nice buildings; but the place seems dull and shows signs of decay.

Alder Gulch has produced wonderfully in former days. Exactly what amounts of gold have been taken from it, it is impossible to say, and the estimates vary greatly. I have one account which gives the amount in 1864 alone as \$20,000,000; and another which estimates it as \$30,000,000 from 1863 to 1866. Whatever it was, it was astonishingly large, and as regards yield Alder Gulch is to be placed among the first in the world, without doubt. I find that mining operations are still going on here, much of the ground being worked over and paying. On my way down to Nevada City (a small place about two miles from Virginia) I visited a number of claims. The ground of O. A. Sedman & Co. is said to be paying well. The company own large claims on the Creek and have a very long line of fluming (box). Griffith & Thompson, Fenner, the Cork company (on Bummer Dan's bar) are all doing well, I am told, as are some others. At the head of the gulch the Montana G. and S. M. Co. own some valuable property (quartz) but are doing but little at present. I hardly think, however, that the country has been properly prospected for quartz veins. I shall speak further on of operations below Virginia.

There is a paper, the daily and weekly *Montanian*, published at Virginia. It is edited (and published) by Mr. Jo. Wright. [Some time ago we published an account of the working of the Paul Process (spoken of below) clipped from a "Montana paper." It was sent us by a gentleman of our acquaintance, but the locality of the paper was torn off and consequently we could not credit it properly. The character of the sender was guarantee for the clipping which, we now believe, was from the *Montanian*.—Eps. Press.] When here I was shown about the fine garden of Mr. John Bar-

ruff by the proprietor. Mr. B. showed me, among other things, a cauliflower which was 16 x 18 inches, and very solid, and cabbages, known as "drum-heads," which were 16 inches through. Mr. B. has a model garden and does a profitable business; for gardens are rare up here at an elevation of over 5,000 feet.

Brown's Gulch—Paul's Process.

Leaving the main creek, I visited Brown's Gulch, three miles from Nevada. Here I found the Conner steam quartz mill in full blast. Mr. John How, the well known quartz man, has leased it and started it up with paying results. The mill has 10 stamps and a 40-horse power engine and was built in Hartford, Conn. It is running at present on ore from the Jewel House lode. The quality of the ore being base (the metals are gold and silver, the latter predominating), Mr. Frank Morgan, who ably superintends, concluded to try Paul's Electric Dry Amalgamation Process, but on a small scale at first. The results were eminently satisfactory. The parties tell me that they are fully satisfied and more than satisfied that the process will work well for their ore, which from its character has hitherto caused them much trouble, all of which is obviated by Mr. Paul's system. This is certainly a great card for his process and deserves wide mention, for these are working results on rock which would not pay by previous methods.

There is a large number of mines in this section, as the Brown, Black, Pacific, etc., etc. The Pacific is owned by N. D. and N. Johnson, who have a tunnel 90 feet in on the lode and a shaft down 60 feet. The ledge will average seven feet in width. The ore has been worked in an adit. They worked only a few months last year, while they could get water to run their wheel, and their rock paid \$767.

Granite District, located but a short distance from Nevada City, is a canyon which forms the main gulch of the Alder. There are two mills here.

W. H. M.

TO BE CONTINUED.]

A Trip Among the Mines.

[WRITTEN FOR THE SCIENTIFIC PRESS.]

On the road from Marysville to Camptonville lie two places of considerable importance concerning which nothing appeared in my letter last week. BROWNSVILLE is the first place. The principal mining is quartz and has been carried on with great success, the Jefferson and Pennsylvania mine, being the most prominent; but even these appear now to be the remains of what was once a flourishing mining district. I am informed that the Marysville people invested large amounts of money in this place, and did not get much of it back again. Probably they started in too late. Some portion of the old mills now standing mark the site of former operations.

BANGOR is the second place. It is about five miles off from the stage route, and lies south east from Oroville. The old channel of gravel is about 60 feet below the level of the lowest ravine, and contains a deposit of hard blue cement, 60 feet wide and about six feet deep. It has been worked quite successfully by some companies, and one or two claims are now being worked, which pay a profit. It requires stamp mills to reduce the hard cement.

SCALES DIGGINGS. From Big Oak Flat I came to this place. Here I found Messrs. Pratt, Ally & Co. who gave me some information. This is also an old camp; much work has been done here and large amounts of money have been taken out. The scarcity of water at this season prevents working which is done by hydraulic. I understand that they use 280 feet fall. I was told that a Col. Williams of Oakland, and partner of Mr. Cox of this place, is expending considerable money by putting in an extensive tailing flume. He intends to run a bed rock tunnel through his own claim, and others, so they can all tail into his main flume. This, in some sections of the country is a very profitable business, and I should think it ought to be in this case. I was glad to find one enterprising man from the Bay who thought there was a chance left yet, for profitable investment in California mines; and I am sure there are still many good chances if capitalists were only disposed to seek the opportunity.

COMMERCE HILL on the road to Brandy City, is of the same class of mining, on a rather large scale. I did not have a chance to stop, but was obliged to ride on to BRANDY CITY as fast as possible. This is said to be the principal hydraulic camp of Sierra County; at least it has had that reputation for some years past. At one time they used 3,000 inches of water, in piping claims. There were 12 claims; some using 500 inches. The lead is said to be 200 feet wide, and the supply of gravel still continues good. I had no opportunity of seeing, and can only judge from report of others. Our party were kindly attended to by Mr. Jones at the hotel, and after refreshing ourselves, we started down to Yuba River, on our way back to Camptonville.

Taking the stage from Camptonville I arrived in SAN JUAN NORTH, and found time to visit Manzanita Hill, to see the hydraulic claim of the AMERICAN COMPANY. I found everything working to good advantage, with three large pipes, with two to 2½ inch nozzles, and using about 600 inches of water in all. They are so rigged as to be able to wash a large quantity of dirt, and run day and night. I understand they stopped work when the ditch company put on an extra tariff for water. Their water is \$100 per day. The pipes are of heavy sheet iron; and the hose of three thicknesses of stout canvas. In this manner acres of ground, fre-

quently 100 to 200 feet deep, are washed in a season, and the bed rock left bare. The hills in front of the works are quite high. The gravel is very black in streaks, and some of it so hard that heavy sledges have to be used to break it. The sluices extend from the hill down to the middle Yuba, a distance of about a mile. They have several deep falls, with undercurrents, for breaking and washing the hard cement, and also have pans for grading the sand. They wash up every 20 days. I did not learn the results of the clean up, though they told me in the town that they were quite large. After cleaning the bed rock as well as possible, they sell, or lease it out to Chinamen, for a second washing up, and the Chinamen make good wages. CROOKS.

Bull Run District.

[WRITTEN FOR THE SCIENTIFIC PRESS.]

EDS. PRESS.—Some additional items concerning this district may be of interest to many. The Monument mine, owned by Gov. Chellis and others, has its shaft down 50 feet and has struck some very rich ore. The vein crops out at the surface (from one to ten feet high) for at least 3,000 feet and locations have been made throughout its length. It is about 10 feet wide and the rich streak, alluded to above, is four feet wide and next to the hanging wall.

The Fifteenth Amendment has a tunnel 40 feet in on the ledge and in good ore. A new ledge was started here lately on the east side of the mountain, which is, I think, about the richest thing of the kind that has come under my observation. At the surface it was only two inches wide; 20 feet down it is 12 inches wide, and is continually getting wider. On each side there are about six inches of decomposed quartz, which probably will become a solid ledge lower down. The rock in the vein is of the same general character as in other mines here, but is almost *plotted* with native silver. It is also rich in chlorides and black sulphurets.

The Highland Queen has also some very rich ore on the dump. A tunnel is about to be started 50 feet below this ledge, which will cut it at a depth of 40 feet, and then will be carried in 400 feet further and cut the Sacramento lode at a depth of 350 feet. Both of these mines are owned by the owners of the tunnel which, running right across the main mineral belt of this district, promises to develop other ledges.

Several of the leading mines have been bonded to Col. Fogus at (I understand) a good figure. Among these are the Fifteenth Amendment, the Johnson, Ravine, Hope, Montana, Nevada, Norwich, Morning Star, etc.

There are thousands of tons of rock on the dumps waiting for mills to be erected. The value of the ores here has been fully tested by the many shipments, and if the miners can stick it out until the mills come, many will become rich. The facilities for milling are such that the ore can be reduced at as little expense as at any other point in the State. I do not profess to be an expert, yet I have been in almost all the districts of this State as a miner, from '63 to the present time; and I have never seen a camp with so much good ore in sight as is here.

Mr. H. M. Grant, hanker, of Mountain City, is buying ore and piling it up, thinking that mills will soon be brought here. By his action he helps the poor miner who needs such assistance, and will make a handsome profit himself.

Winter is approaching. We have already had one snow storm. But snow will not delay our underground operations, and, if I mistake not, there will be over 10,000 tons of milling ore ready for reduction next Spring, by the time mills will be able to get started. There are about four months of hard winter weather here, when all operations must be conducted under shelter.

BULL RUN MINER.

Oct. 24, 1870.

Action of Prussic Acid on Iron Solutions.

[WRITTEN FOR THE SCIENTIFIC PRESS.]

The Germans call prussic acid *Blausaure*, because it produces a blue precipitate in certain iron solutions; but the following experiment undoubtedly proves that the prussic acid does not produce the color of that precipitate, since it can be made just as well without it. Prepare a saturated solution of green vitriol in water. Take four-sevenths parts of the above solution and treat it with nitric and sulphuric acids, until it is changed into the sulphate of peroxide of iron. Mix this with the remaining three-sevenths of the first solution, then add very gradually (to avoid its becoming heated) concentrated sulphuric acid, until a precipitate is formed. The result will be a beautiful blue precipitate, equal to Prussian blue. If water is added, the precipitate is dissolved and the color destroyed; but if the precipitate is separated from the acid and rubbed with phosphate of soda, we obtain a beautiful blue phosphate of iron, which will resist the action of water. In all these cases the acids, which possess no color, are by no means the cause of the blue color, but favor only the production of it, by depriving the mixed hydrates of protoxide and peroxide of iron of certain equivalents of water, and likewise by preventing the same from entering into a higher state of oxidation in the atmosphere. E. PIERCE.

Mechanical Progress.

FRISSON'S SOLAR ENGINE.—London *Engineering* for Oct. 14th contains an article by Capt. Frisson upon this subject, with a cut of a small solar engine just completed, intended as a present to the French Academy of Sciences. We quote a few paragraphs from the article: "Plans and descriptions of the mechanism by which the sun's radiant heat is concentrated, and of the steam generator which receives the concentrated heat. I shall be compelled, for some time, to withhold from publication. Experienced professional men will appreciate the motive, that of preventing enterprising persons from procuring patents for modifications. In connexion with the course thus deemed necessary, it will be proper to mention that I have in several instances, notably in the case of the screw propeller and the caloric engine, been prevented from perfecting my invention in consequence of conflicting privileges having in the mean time been granted to others. Regarding the solar engine, I avail myself of this opportunity to say that I shall not apply for any patent rights, and that it is my intention to devote the balance of my professional life almost exclusively to its completion. Hence my anxiety to guard against legal obstructions being interposed before perfection of detail shall have been measurably attained. Within a few years the entire engineering community of both hemispheres will be invited to take the matter in hand. In the mean time let us hope that no exclusive privileges may be granted tending to throw obstacles in the way of an unrestricted manufacture and introduction of the new motor wherever it may be applicable. ** The solar engine is composed of three distinct parts. The engine, the steam generator, and the mechanism by means of which the feeble intensity of the sun's rays is augmented to such a degree that the resulting temperature will exceed that of the lowest pressure of steam admissible in an efficient engine. As to the motor itself, it suffices to say, that it is essentially a modern steam engine utilizing, to the fullest extent, the mechanical energy of the steam generated by the concentric solar rays. Regarding the steam generator, it will only be necessary to state that it is not exposed to the action of fire, clinkers, or soot, and therefore can only suffer from the slow action of ordinary oxidation. We have lastly to consider the efficiency of the mechanism by means of which the solar heat is concentrated and the temperature raised above that of the water in the steam generator. Regarding this mechanism, it will be asked: is it costly? is it heavy and bulky so as to render transportation difficult? and finally, is it liable to derangement and expensive to keep in order? I answer: The cost is moderate. The weight is small. As to the bulk, this apparatus is composed of small parts readily put together. Regarding durability, the fact need only be pointed out that certain metals however thin, if kept dry, may be exposed to the sun's rays during an indefinite length of time without appreciable deterioration. Another question will be asked, whether the solar engine will answer as well on a large as it does on a small scale? The following reply will dispose of this query. It is not intended to enlarge in future, the size of the apparatus by means of which the solar intensity has been successfully concentrated and the temperature sufficiently elevated to generate steam for the engines which have been built. The maximum size adopted has been adequate to utilize the radiant heat of a sunbeam of 35 square feet section. The employment of an increased number of such structures will therefore be resorted to when greater power is wanted, as we increase the number of hands when we desire to perform an additional amount of work."

FOUR PRESS COPIES OF PRINT AT ONCE.—We have alluded to the new printing ink which may be copied together with the filling up in writing ink. The *R. R. Register* says of it: "We have seen specimens of a Road Manifest, partly printed in McIlvaine's Ink, and partly filled up with handwriting in Arnold's, with perfectly clear press copies accompanying. We have seen four press copies taken at once, from a page of matter printed with this ink, all as legible as the original. We have taken a press copy of a card advertisement printed some time ago, and the copy was clear and strong. An edition of such blanks sufficient for six months can be printed, and used day by day until exhausted, and the last one will copy as well as the first. Any color can be given to the new ink."

A NEW BINOCULAR MICROSCOPE.—In a paper read by Mr. Samuel Holmes, before the British Association, the author says that binoculars, as heretofore made, are optical deceptions, the second image being a distorted reflex of the first, and no stereoscopic effect being produced as is required. He describes a new instrument, free from these objections. We quote briefly: "Its construction is simple. For illustration, take a complete achromatic microscope, and imagine a clean vertical section to be made through the center of its optical parts and their supporting brasswork; now considering each half as the radius of a circle whose center is the focus of the object glass, by separating the halves at their upper end to the distance between the eyes we may observe binocularly any object that was in focus when closed as a single body. The binocular vision here provided is strictly natural, and therefore includes correct stereoscopic effect, both eyes being used under exactly the same conditions as when examining an object unassisted at the distance of distinct natural vision, for the two optic axes are directed to the same object, and have the same assistance as to magnifying power and illumination; and the relief, therefore, of an object of solidity must be absolute for quantity and correctness."

IRON MAKING IN ALABAMA.—The special correspondent of the *Scientific American* writes: "All on the railroad lines wherever I talked of iron or iron works, I heard of the Shelby Furnace, which was making 30 tons of iron a day, with 90 bushels of charcoal to the ton. As my readers are aware, this is a yield and a proportion unprecedented in the history of iron manufacture. ** The furnace is at Columbiana—a branch road runs out to it, owned by the Iron Co. The ore is a porous brown hematite, sometimes massive, and changing to what is called by the miners needle ore; frequently occurring in hollows in the masses, filled with a silicious substance resembling pumice stone, or furnace cinder. The furnace was built during the war, burned, and rebuilt two years ago by a New York Co. The ore-bed is inexhaustible. As originally built the furnace was 36 feet high. It is now 53 feet to charging point; has 12 feet hoshes, and tapers three-eighths of an inch to the foot from the hosh to 6 feet of the top. The hosh is 4 feet high; the hearth 6 feet high; 4 feet x 3½ feet at the bottom, and 4 x 4 at top. During the past six months they have made over 3,800 tons of iron with an average of 98½ bushels of charcoal to the ton. They made one day 31 tons of iron with 92 bushels to the ton. Their best week's work was 184½ tons. Their best day's run was: Lime, 10,080 lbs; ore, 113,400; coal, 2,772 bushels; yield, 71,050 pounds. ** In my opinion the great yield is due to the unusual height of the furnace and still more, perhaps, to the peculiar tractability of the ore. Hot blast is used, and the charcoal is made in ovens of capacity of 65 cords, and the yield is about 50 bushels to a cord."

BOOT-SEWING BY MACHINERY.—The New Haven correspondent of the *Iron Age* writes thus of a new and remarkable machine: "This machine is the last link in making boots by machinery, and really caps the shaft. It is well known that machine sewed boots present the grave objection of the absence of a welt, and the consequent impossibility of sewing on another sole when the first is worn out. Other objections, well known to the trade, present themselves. This machine is hardly susceptible of description, but it is sufficient to say that in sixty seconds the insole, welt and upper leather are sewed together. The outer sole is then put on, the operation is repeated, and the bottoming process is done. If the uppers are fitted to the lasts and the lasts ready for adjustment, this machine will finish a boot per minute! The strength of the sewing is such that the leather will tear before the seam will rip. This machine, which will mark an epoch of advancement in the shoe trade, is the invention of Dr. C. C. Crosby, of New Haven."

IMPROVED TREADLE MOTION.—A Vermont has patented a double treadle applicable to sewing machines &c., in which the motion of the feet is alternate, and there is no dead-point common to the two, so that one or the other will always start the machine. One footpiece is fastened to a rock shaft on which the other footpiece moves freely. An arm on the said shaft is at right angles to another arm on the last named footpiece; and each of these arms is connected by a pitman with the crank wrist.

Scientific Progress.

COLOR OF LAKE GENEVA.—Our readers will recollect some remarks upon this in a former number of the Press (April 2d), in which were given the diverse suggestions of two scientists as to the cause of the beautiful blue so often noted. In a late number of *Nature* (Oct. 29), Prof. Tyndall gives another and different explanation of it. He has just examined two bottles of the Lake water sent him by M. Soret. We quote: "The bottles, as they reached me, and with their stoppers unmoved, were placed in succession in the convergent beam of an electric lamp. Water optically homogeneous would have transmitted the beam without revealing its track. In such water the course of the light would be no more seen than in optically pure air. The cone of light, however, which traversed the liquid, was distinctly blue. Something, therefore, existed in the liquid which intercepted and scattered, in excess, the shorter waves of the beam. The longer waves were also scattered, but in proportions too scanty to render the track of the beam white. The action, in fact, was identical with that of the sky. ** Observation in 1857 impressed me with the notion that the blue was mainly that of a turbid medium. Soon afterwards I wrote thus: "This lake is simply an expansion of the river Rhone, which rushes from the end of the Rhone glacier. Numerous other streams join the Rhone right and left during its downward course, and these feeders being almost wholly derived from glaciers, carry with them the fine matter ground by the ice from the rocks over which it has passed. Particles of all sizes must be thus ground off, and I cannot help thinking that the finest of them must remain suspended in the lake throughout its entire length. ** It seems worthy of examination whether such particles do not contribute to that magnificent blue." The surmise of thirteen years ago has become the verity of to-day."

But though in the action of small particles we have a cause sufficient to produce the blueness referred to, it is not the only cause. In the Lake of Geneva we have not only the blue of scattering by small particles, but also the blue arising from true molecular absorption. Indeed, were it not for this, the light transmitted by a column of the water would be yellow, orange, or red, like the light of sunrise or sunset. Not only then is the light mainly blue from the first moment of its reflection from the minute particles, but the less refrangible elements which always accompany the blue are still further abstracted during the transmission of the scattered light. Through the action of both these causes, scattering and absorption, the intense and exceptional blueness both of the Lake of Geneva and the Mediterranean Sea is thus completely accounted for."

SCIENTIFIC ZEAL—ENGLISH AND AMERICAN.—*Nature* for Oct. 13th says: "We have great pleasure in announcing that the American Government have voted 6,000 for the expedition which will be sent to Spain and Sicily to observe the coming eclipse. It will be in the recollection of our readers that our own Government have refused to give either a single ship or a single shilling in aid of our own observations; as we said before, comment is useless."

PRESENT STATE OF THE MOON'S SURFACE.—W. R. Birt, F. R. S., read a paper upon this subject at the late meeting of the British Association. We quote briefly:—"Whatever may have taken place in the crater *Linæ*, from Schröter's time to the present, we have phenomena of a different character, exceedingly difficult of explanation, and constituting an important element in the solution of the question of present activity or quiescence; for unless it be fully proved that all these depend upon changes of visual and illuminating angles, a strong suspicion will exist of their being more immediately connected with the moon itself. To effect proof, however, is a matter of no small difficulty. Madler alludes to the performance of calculations of the most varied kind as necessary for the delineation of lunar forms, and the calculation of several elements for each separate observation is absolutely essential for the purpose of referring the phenomena to changes of illumination and visual ray. Calculations of this kind have not been made to any great extent, and the consequence is, that the entire question remains involved in doubt."

WALLACE ON NATURAL SELECTION.—In our last week's issue, under the head of "Nature in Wallace," we gave some quotations from that journal's notice of Mr. Wallace's book. In reference to Mr. W.'s belief that certain peculiarities of human development cannot be explained except as the result of the direct action of the Creator, —and *Nature's* assertion that such belief "confuses two distinct branches of inquiry," —we ventured a few remarks which, having been incorrectly printed, we here repeat:

"May we not be allowed to suggest, that although we have not seen Mr. Wallace's book, we believe his idea to be really this, viz: that the operation of the law of natural selection is, in man, essentially modified by his consciousness of the existence of a Supreme Creator. This consciousness causes him to be more or less *en rapport* with that Creator; and it is easy to see that (on the supposition that such Creator exists) man is therefore, so far, an exception to the rest of creation. Brain action, of whatever kind it may be, certainly modifies development; and here is an outside inducer of brain action, —an outside thought-provoker, —which no other organism has, because no other organism has reached the stage of development which makes such consciousness possible. In one sense, therefore, it may really be said to be the direct action of the Creator which makes the difference between human and brute development. This does not make the doctrine of natural selection any the less true, even in relation to man. On the contrary, it is, in our belief, quite possible, that the sooner scientists admit the existence of this modifying element, the sooner will the truth of that doctrine become clear to them, and all its seeming inconsistencies disappear."

EXPERIMENTS WITH GASES ON PLANTS.—We gave, a short time since, some experiments with anæsthetic agents upon plants, from the *Edinburgh New Philosophical Journal*. We now give, from the same journal, the summing-up paragraph of an article by J. S. Livingston F. R. S., detailing experiments upon plants with various gases:—"To conclude, then, it will be evident from the preceding experiments that gases divide themselves into two classes as regards their action on plants—viz., narcotic and irritant. This distinction is as real in the case of plants as in that of animals. When subjected to the influence of a narcotic gas, the plants looked as green and succulent at the end of the experiment as at the beginning. Whenever the plant began to droop, though removed to a forcing-bed, and watered, in no instance did it recover, but died down even more speedily than it would have done if left to the continued action of the gas. In one word, narcotic gases destroy the life of the plant. With irritant gases, on the other hand, the action is more of a local character. The tips of the leaves first begin to be altered in color, and the discoloration rapidly spreads over the whole leaf, and, if continued long enough, over the whole plant; but if removed before the stem has been attacked by the gas, the plants always recover—with, however, the loss of their leaves. In a short time they put out a new crop, and seem in no way permanently injured; but if repeatedly subjected to an atmosphere of irritant gas, the plants were destroyed."

TEST FOR STRYCHNIA.—The following is from the "Foreign Notices" in the *American Chemist*: Sonnenschein announces that oxide of cerium is an excellent reagent and test for strychnia. When the last-named substance is well moistened with concentrated sulphuric acid, and there is added to it a mixture of proto-sesquioxide of cerium, a very fine blue coloration ensues, which gradually verges to cherry red, and then remains unchanged, even for several days. The author states that, by this test, even so small a quantity of strychnia as 0.00001 grm. can be detected. Other alkaloids yield, with the same test, quite different reactions, as, for instance—brucine, orange, becoming at last yellow; morphine, olive-brown, finally brown; narcotine, first brownish, cherry-red, remaining at last cherry-red; quinine, pale yellow; cinchonine remains colorless.

Mining Summary.

The following information is gleaned mostly from journals published in the interior, in close proximity to the mines mentioned.

California.

ALPINE COUNTY.

THE PROSPECTS.—*Miner*, Nov. 5th: Alpine has never seen the time before when her mines promised so well. The Leviathan has ore enough in sight to pay the owners back the amount invested, at the price it commands on the dump. The lower tunnel is in far enough to connect by winze with the ore deposit above. The Morning Star has a good body of ore at hand, but the owners don't seem to know what to do with it. The Schenectady will soon have the connecting shaft between upper and lower works finished, and ore sufficient to build a mill for, on the dump. The Monitor and North Western and Silver Glance Companies, owning ground on the Tarshish adjoining the Schenectady, have each large bodies of low grade ore in sight, and are running for the richer deposits indicated by the croppings and bearings from the mine adjoining. Across the creek and upon the continuation of Tarshish lode, the Globe Co. have a low grade ore which is considered of value sufficient to justify a mill. Across the river, in a line southwest from the Leviathan through the other mines, is the Exchequer, which is turning out ore, and for which a mill is now being completed.

One hundred tons ore, which will net over \$5,000, have been hauled in this week from the Leviathan, to be milled at Dayton.

The *Chronicle* hopes the Globe Co. will find enough ore of their own to keep their mill running when completed.

BLUTE COUNTY.

PROSPECTS.—The Oroville *Record* of the 12th thinks there is a good time coming. The success of the Spring Valley Water Co. in bringing water into Cherokee has aroused others. It is said that the Cherokee Co. are contemplating carrying water on to their claims, from a source that will furnish a never-failing supply, and have taken up the Middle Fork of Feather River. To get this to Cherokee, it would have to be carried over the North Fork, in pipe, and under a pressure equal to that of the Spring Valley Co. The effect upon the county will be two-fold. It will add greatly to the gold product, and send thousands of inches of water down Dry Creek to irrigate the valley.

PIPE LAYING.—The laying of the two and a-half miles of iron pipe for the Spring Valley Co. has been completed, and water has been let into the ditch above.

SUTRO TUNNEL NOWHERE.—The Cherokee Company's tunnel from Mesilla Valley to their claim, one and a-half mile, when completed, will drain placer diggings of more value than the whole Comstock lead.

INYO COUNTY.

SWANSEA.—*Independent*, Nov. 7th: The Owen's Lake Silver-Lead Furnace has just completed a run of 1298 bars, having started up on the 20th ult., and shut down on the 3rd inst. The bars average 89 lbs. in weight each, and for a time the works turned out 120 per day.

KEARSARGE.—Parties have been for two or three days cutting away the snow from the trail, it being four feet in depth at the mine, and three at the mill. Ore packing has been resumed and the mill will start up to-day.

LASSEN COUNTY.

BIG VALLEY.—*Yreka Journal*, Nov. 9th: The claim of Haskin, Ehlers & Co., still pays handsomely. A quartz ledge in the vicinity has been prospected, and found to pay rich for half a mile. The settlers think there will be a great rush to that section next spring.

RIVER MINING.—This has proven very successful this season, both in the Klamath and Scott Rivers. Klamath has been paying better than ever before, which is due to more extensive operations.

The Susanville *Sage Brush* says that about forty miners will winter in Big Valley. Two towns have been started, and one of them has a store already. What the other has is not stated.

MARIPOSA COUNTY.

COULTERVILLE.—*Gazette*, 11th: Mr. Douglass is repairing his quartz mill—putting in new battery blocks and making other improvements. The mill will be ready to start up in a few days. Mr. D. is still getting out rich rock from the "Melvina." After a two days run of P. Winant's quartz mill, on rock from the "Eclipse," the clean up showed \$3,000.

NEVADA COUNTY.

EMPIRE MINE.—*Transcript*, Nov. 9th: The pumps will be started to-day, and it will require several weeks to get the water out. The foundation of the new mill has been laid, and works will be in full operation by the first of January.

CLAIMS PURCHASED.—We learn that a Chinese Co. has purchased a set of mining claims on Greenhorn for \$3,000. They intend to put thirty men to work.

FIDELITY.—Same of 10th: The ten stamp mill on the Fidelity mine, above Washington, completed some time ago, has been crushing rock and flatter returns have been received.

GOLD FLAT.—Same of 12th: There are quite a number of new locations in quartz and excellent developments have already been made. The Orleans is looking first rate. The Manhattan is giving evidence of richness, and other ledges show well in gold and sulphurets.

WYOMING.—*Gazette*, 8th: About 200 tons of rock recently taken from the ledge, on Wood's ravine, is to be crushed at the old Sogg's mill. The ore now on hand will yield \$45 a ton. A quantity has yielded \$68 a ton.

STAR.—Same of 14th: We learn that the mill and mines have been leased for two years to a company of practical miners. The latter give twenty per cent. of the gross proceeds of all the rock crushed.

NORTH STAR.—*Grass Valley Union*, 9th: Monday Mr. Hoyt, Supt. shipped to San Francisco \$18,000 worth of gold. This was the proceeds of the mill since the 16th of October.

EMPIRE.—In spite of wind and weather, reconstruction goes on. The hoisting works have the engine and are covered in. Work for the mill building is done under a large shed. Wood is being hauled and in a few days there will be a supply on hand.

HOPE GRAVEL.—Same of 12th: Last week this Co. cleaned up 68 ounces of gold dust. This week, the run will be much increased. The underground of the mine is looking as well as ever.

Same of the 15th says of the Hope Gravel: This Co. cleaned last week, washing 92 ounces of gold, which is worth \$17.25 per ounce, in Grass Valley. This yield was from four picks, working two shifts of ten hours each. This yield is in addition to a large amount of cement delivered on the surface and piled up for milliner. An eight stamp mill is to be put up immediately, to be employed in crushing the rich cement.

PLACER COUNTY.

DUTCH FLAT.—*Stars and Stripes*, Nov. 10th: James Teaff made his start as the owner of an incumbered part interest in the old Franklin claims. These were consolidated with the Wallamaloo claims, and out of the profits and with other funds borrowed, he gradually absorbed the interests of his partners, and acquired adjoining claims, until he is now sole owner of the Little Hope, Railroad and St. Nicholas or Minshrush, Dutch Flat Water Co., Franklin and Wallamaloo, comprising a solid body, running from the cañon to Bear River, in the heart of Dutch Flat, and embracing over forty acres of mining ground. He has, at great expense, tunneled through the bottom of the red gravel and sunk a shaft over 100 feet, through the blue gravel to the bed rock; thereby demonstrating that the blue gravel is the richest of all the strata.

PLUMAS COUNTY.

QUARTZ MILL.—*Quincy National*, Nov. 5th: Messrs. Concklin & Ray have a force of men at Argentine, putting up machinery to crush the quartz from the lode purchased. Their mill will be capable of crushing thirty tons per day.

SAN BERNARDINO COUNTY.

BLACK HAWK DISTRICT.—*Guardian*, Nov. 5th: Dr. Brink made a fire assay of 14 ounces of argentiferous rock. The result was six and three-quarter ounces of base bullion, which assayed \$495 of silver, 10 per cent. of copper, 60 per cent. of lead, with a trace of gold. The rock was 15 feet from the surface out of the Lady Fuller and Ingot ledges. The shaft is on the dividing line. The Black Hawk ledge assays \$39 16 in silver, and 56 per cent. copper per ton.

SIERRA COUNTY.

The Butte *Record* of the 12th says the chunk found at Fir Cip (mentioned in our issue of Nov. 5th) was worth \$3,100.

SISKIYOU COUNTY.

SOLD.—*Yreka Union*, Nov. 9th: Frank Dean and Thos. Keating have sold their claim in the Klamath River below the mouth of Scott. The claim had yielded during the four or five weeks prior, six or seven thousand dollars, and they owned

one-half. The purchasers were Varney and Nesbit.

TRINITY COUNTY.

The *Journal* of Nov. 12th says THE DEEP SHAFT is down 145 feet. During the week the workmen found about one-half gravel and one-half granite. Large pieces of wood are unearthed.

Nevada.

ESMERALDA.

RICH ORE FROM THE DUNDERBERG.—*Gold Hill News*, Nov. 8th: We were shown yesterday about 100 pounds of ore from this famous mine. Such rich ore is seldom seen. It was "lonsy" with flecks and scales of native silver and gold, and of a porous character, easy to work. The ledge is over 60 feet thick between walls, and the rich pay streak six feet.

HUMBOLDT.

RAILROAD DISTRICT.—*Elko Independent*, Nov. 9th: The Railroad Furnace is shipping bullion to San Francisco constantly. The Bullion mine has struck a vein at the bottom of the shaft which is said to be very rich. Franks has struck a three-foot vein. The Elko Smelting works shipped ten tons of bullion East a few days ago. It was from Railroad district and Salt Lake.

REESE RIVER.

BULLION.—*Reveille*, 7th: During the past two days the Manhattan Co. of this city shipped through Wells, Fargo & Co., 17 bars of bullion, weighing 1,572 pounds and valued at \$26,173.

MINERAL HILL.—*Independent*, 12th: Judge Bartlett fur is a flattering description of the mines and prospects. Money is more plentiful, and business improving. The population is increasing every day.

WASHOE.

YELLOW JACKET.—*Gold Hill News*, Nov. 12th: Daily yield 140 tons, from between the 800 and 1,000-foot levels. Some very rich ore from the north winze between the 900 and 1,000-foot levels. This winze is 57 feet deep and in very high grade ore all the way. The face of the drift is now so close to its connection with south winze that the workmen from each side can hear each other.

SAVAGE.—Daily yield 80 tons. The ore breasts of the eighth level hold out well. The body near the Gould & Curry line, in the upper mine, is not yielding so well. The new body south of it is looking well, and is eight feet wide.

CROWN POINT.—Daily yield 60 tons, from the old west workings of the upper mine. The incline is down 118 feet below the 1,100-foot level, and the bottom is in barren quartz. The 600-foot level is being reopened, but the gas is so bad that none of the ore has yet been extracted.

IMPERIAL EMPIRE.—The drifts at the 1,300-foot level show no change. The west is in porphyry, with streaks of quartz, and the east shows all quartz in the face, which gives low assays. The upper levels of the old Imperial are yielding 60 tons of fair ore daily.

HALE & NORCROSS.—Daily yield 175 tons. The drift east from 1,300-foot level is about cutting the vein. The ore breasts between the sixth and seventh levels give the principal yield.

OCCIDENTAL.—The new mill is rented to Sweetapple, who is running it on ore from the lower tunnel. A compromise is about effected with those having claims against the Co., and the prospects are that this mine will soon be brought into shape.

CHOLLAR-POTOSI.—Daily yield 275 tons. On Thursday a dividend of \$4 per share was disbursed, aggregating \$112,000.

OVERMAN.—During the past month 1,765 tons of ore were crushed, yielding \$37,653. No new developments.

SIERRA NEVADA.—The last 15 days' run of the mill cleaned up over \$31,000.

CALEDONIA.—The Pinto and Sapphire mills are running on ore from the mine, the 300-foot level of which yields the best, and shows improvement. October receipts, \$31,000.

SACRAMENTO AND MEREDITH.—Still maintaining the yield from the upper portion, and the mill running with satisfactory results.

GOULD & CURRY.—Daily yield 70 tons. No change to note, and no new developments at the lowest level.

BELCHER.—The raise above the 200-foot level gives a small quantity of pay ore.

ORHUR.—Nothing new except the assessment of \$2 per share.

SEGREGATED BELCHER.—*Enterprise*, Nov. 13th: The east deposit steadily improves in going toward the Belcher line. They are

now retimbering 150 feet of their main shaft. The Eureka mill, on the Carson, will start up about the 1st December on ore from the mine.

DANEY.—The engine shaft is being sunk to a depth of 267 feet. On the 10th inst. a contract was let to continue to the depth of 300 feet, at which point a drift will be started for the vein. With speed the shaft will be completed within 20 days. The machinery and pump are working finely.

SAVAGE.—The main shaft for a new level is down 30 feet below the present. The daily yield 80 tons, mostly from the eighth level.

VIRGINIA CONSOLIDATED.—The drift west is steadily progressing. The face of the tunnel is now in rock so soft that it can easily be worked with a pick.

SUTRO TUNNEL.—The tunnel was in yesterday 1,654 feet. The ground is good and good progress is being made. Water about the same.

Virginia telegram, Nov. 15th.—All the mills along Seven Cañon are in full blast upon ore from Cedar Hill and the Comstock.

Wells, Fargo & Co. ship to-night thirty-three bars of bullion, valued at \$67,741.

WHITE PINE.

The *News* of Nov. 13th says:—During the week another English company bought a large mining interest in Troy District, and we understand that work will be commenced in a short time. South Aurora M. Co. has been incorporated in London, with a capital of £300,000.

ITEMS.—ORIGINAL HIDDEN TREASURE is looking well. A large body of medium ore in sight and a force of men are taking it out. Some high grade ore is in view. The mine is being put in good shape. . . . SILVER WAVE shows good ore in the west drift, near the Montauk ground. There is some good ore in the northeast drift toward the Hidden Treasure. . . . MAMMOTH has three men at work in a tunnel, prospecting the east side of the claim. . . . EBERHARDT is taking out sufficient first class ore to keep the Oasis mill, steadily employed. Part of the force is prospecting. We hear of another rich strike in the bottom of the old Defiance shaft. . . . IN ATLANTA CONSOLIDATED, the English Co., is working a small force, taking out fair ore. In the Earl, two shafts are being sunk. One of them is in good ore. . . . ANCHOR is working day and night with a full force. The mine is yielding first-class ore. . . . WARN BEECHER—reported sold to the English Co., two or three times, is still in the hands of Mr. Roberts. We understand that red tape has been retarding the sale. The mine looks as well as ever. The second class ore, worked last month, averaged \$75 per ton. The first class which has been sacked and stored will go up in the hundreds.

BASE METAL RANGE.—The claims reported last week, are all still at work. The Jennie A. keeps the Hamilton furnaces running; 16 men can take out more ore than the furnaces can reduce. . . . Gov. Matteson's four mines are yielding good ore.

MILLS AND FURNACES.—The International mill has been retarded a little for want of lumber from Elko. The engine and battery beds are now being put in. . . . The Monte Christo has been stopped until it is known what course the Eastern owners intend to pursue. The Stetefeldt furnace gave excellent results. The only trouble is that the crushing capacity of the mill is not large enough for the capacity of the furnace. . . . Matteson's Furnace, No. 3, has been started, and is running finely. The other two after running over 60 days, have been stopped for new linings. The castings and machinery for the separating works are nearly all in place.

ROW IN PROCURE.—The *Ely Record* says:—A dispute between parties for possession of the Banner and Creole mines culminated in a pitched battle on Wednesday (9th) in which W. G. Snell was killed and ten men wounded. The Creole retained possession. The leaders were arrested and bailed.

Arizona.

BRADSHAW DISTRICT.—*Prescott Miner*, Nov. 5th: McCracken, Taylor & Co., returned a few days ago, with 116 ounces of gold, worth \$17 per ounce, which they had just worked out of 20 tons of ore from the Del Pasco lode. They assure us that half the ore crushed, was below second class. Several other persons report rich ledges and good placers.

BIG BUTTE.—The Company's 10-stamp mill is at work, and a large force are taking ore from the mine.

WALKER.—Messrs. Pointer and Shelton came down Thursday. They say the recent rains helped miners. Several were making fair wages.

HASSAYAMPA.—The placer miners in the creek claims are doing well.

WICKENBURG.—Both mills are running, the Vulture company's on ore from the Vulture lode; the other on ore from the Mayflower.

WALNUT GROVE.—Same of Oct. 29th: The Rainbow Lode is worked by Henry, Wainwright, and others. The incline shaft is over 20 feet deep; ledge six feet thick, four of which are of pay rock. The ore has paid as high as \$150 to the ton. Several tons, which will go \$100 are being crushed in arrastras.

Colorado.

ITEMS.—Central City *Register*, Nov. 9:—Three tons ore from the east end of the Conley lode, by Mr. Teats' sons, assayed between six and

seven hundred ounces per ton. The "Devil's Grip" is run at Kimber's mill 16 ounces per ton.

GRAND ISLAND.—Walker & Rollins have discovered a lode in which the crevice at fifteen feet deep is thirteen feet wide, and an average assay of the ore without selection was 32 oz. per ton. Rich ore has been struck in the "Sovereign People." Ewers, Dunnigan & Co., are working the "La Pearle" and have a four foot crevice at a depth of twenty feet. Hinds & Co. are still working the Trojan, upon which the ore is increasing in richness with every foot sunk. Stowe & Co. have developed a rich lode eighty rods north of "La Pearle."

GEORGETOWN.—*Miner*, Nov. 10th: Samples of the ore in the Bason lode, cut by a tunnel last week, run \$440 per ton. We were shown a fine specimen of native silver from the Cashier lode. A new discovery on Leavenworth mountain, by Williams and Walker, called the Simpson lode, carries three to four inches of good mineral. Washington lode shaft is forty feet in depth. The mineral assays 600 to 900 ounces per ton. The last lot of Dives ore treated, ran \$140 per ton. The Junction lode crevice is eight feet wide, and the pay vein eight inches thick. Assays as high as \$7,500 per ton have been obtained, and the whole vein will average 500 ounces per ton. Good pay struck in the Ocean Wave. Eight inches of the vein will run \$500 per ton. The Pine Co. will work the Belmont mine this winter. The last lot gave \$113 per ton. The Stewart works in six weeks turned out \$31,000 from 334 tons ore from 46 different lodes. The average, \$118 per ton, may therefore be taken as an average value of those of our ores which are treated at home. The ore from the Mendota is rich in both silver and lead, the first class running 250 to 300 ounces of silver to the ton, and the second 80 to 100 ounces.

TERRELL.—During the last seven months the Terrell mine has shipped over 70 tons of first class ore and not, as has been reported, 19½ tons in ten months. The mine is now in good shape, and the monthly returns are increasing. The average value of the ore is 500 ounces per ton for first class, and 120 and 60 ounces for second and third.

Idaho.

ITEM 4.—*Avaanche*, Nov. 5th: The Illinois Central is still taking out fine looking ore. The vein is 15 inches—in some places wider. They have stoped out for 30 feet south of the shaft, and have on dump and at the Minear mill 100 tons. A new lode, the "Belgium," in which are interested J. Schmidt, Sam. Benge and others, a short distance east of the Oro Fino, is eight inches in width. One assay of the ore yielded \$892 per ton—\$60 in gold and the remainder silver. Another, pounded in a mortar, yielded \$600. Parties are sinking on the vein. Work on the Red Mountain progresses, and the ore is worked at the Webfoot mill. A three-foot ledge of splendid ore has been struck in the Mahogany mine. The Skookum boys are working their ore at their own anastax, and at the Minear mill. The Oro Fino is clear of water, and will soon be lively. Supt. Hyde, of the Peck & Porter, is having a splendid ore house erected, and the timbers are on the ground for the hoisting works.

MILLS.—Seven steam quartz mills are now at work—the Ida Elmore, Owyee, Cosmos, Webfoot, Shoenbar, Minear, and Black's mill in Flint. There are also two anastax grinding night and day, and the mill at Fairview will soon be ready.

BULLION.—Wells, Fargo & Co. shipped this week 14 bars of bullion, valued at \$28,350 48.

ALTURAS.—*Boise News*, Nov. 5th: The anastax are making handsome clean-ups. The Casco Co. mill and mine are in the hands of Mr. McNally, and running on custom rock. The people are jubilant over the sale of the Atlanta mine. Letters from Dr. Bishop state that the first payment of \$85,000 was made in London on the 15th of Oct.; the whole amount, \$850,000, will be paid by 1st of January. The same parties have negotiated the sale of the Lucy mine.

LEHIGH COUNTY.—Quile a number of people will winter at Loon Creek. Good prospects have been found on the South Fork of Salmon River. The mines at Leesburg are paying better than ever; new discoveries are continually made. The Moose Creek mines promise well for next season.

SNAKE RIVER.—The *Elko Chronicle*, of the 10th says: Capt. Ralph Bledsoe writes Oct. 30, to E. Burner of this place, that they have struck gravel in their claim. It is four feet deep and prospects splendidly: He thinks they took out \$103 the day before, in their sluices.

Montana.

HIGHLAND.—*Montanian*, Nov. 3d: The anastax at Red Mountain City have done exceedingly well this year. The owners of the "Only Chance" have filled their coffers. In Vipond District, several new silver lodes have been discovered. Mr. Puloin has sent five tons of the ore to California, and five to Europe for reduction, as a test.

FLINT CREEK.—Mr. Garher informs us that the miners are keeping their lick up. Colo Saunders is running two silver furnaces.

WASHINGTON.—Cor. of *Helena Herald*, Nov. 10th: Four claims have been laid out until spring. Sloan, Davidson & Co. will return next season to operate in Last Chance and on Stony Bar. The Hardscrabble Flumming Co. have got their claim well opened. A pipe will be put on next season. Stiles, Bingham & Co. are making their two hydraulics scatter the bank, and realizing good pay. Their ground

will last for years. A company from Virginia City have commenced prospecting Meadow Creek proper. The high bedrock, prospects exceedingly well. Parker & Co. have commenced putting in a ditch from Meadow Creek. Parkinson, James & Co., and the S. C. Mining Co. are taking out good money.

QUARTZ CREEK.—*Mission Pioneer*, Nov. 3d: This creek, twelve miles above the Head of Cedar, was discovered two months ago, since which time nine miles has been staked off. John Harrington is working discovery claim in the shallow ground, near the mouth of the creek. Out of this \$10 to the pan has been taken from the crevices of the bed rock. No. 1 below averages \$15 per day to the hand. Several other claims were paying but the future of the camp depends upon the deep diggings above the town. O'Brien, Johnson & Co. have a wheel and pump. The company expect to reach bed-rock in a short time.

CEDAR.—Forest City Cor. of Same: On Nos. 76 to 80, ground considered worthless has been re-located and good pay struck. McDougall, Miller & Co., on No. 68, after working all spring and summer, have at last got the streak; have paid the debts, and are making money. Smalley & Co., who bought 200 feet of ground from Sullivan & Hollering, have paid the last installment of \$3,000. The ground was purchased for \$7,000. Hickey, Lampoy & Co., of No. 60 are working day and night, and are certain to make big money. Palmer, Kelly & Co., have reached bed-rock in a 65-foot shaft, and are laying their lums. The claim prospects 10 cents to \$2 to the pan. Watkins & Co., No. 58, have run 200 feet through pay dirt. A one-third interest in this claim was sold for \$4,000.

Utah.

NEW SMELTING WORKS.—Salt Lake *Herald*, Nov. 11th: Colonel David E. Buel, formerly of Nevada, but now of this city, is having extensive smelting works put up for Bateman & Co. in which he is interested—at the mouth of Little Cottonwood canon, fifteen miles from this city. The works will be ready to run in about five weeks.

NEW DISCOVERIES.—By private sources we learn that rich mineral discoveries are reported forty miles south-west of Stockton.

TINTIC ITEMS.—*Tribune* Nov. 5th:—The Swanson is down 80 ft. with a 5-ft. vein of rich mineral. The Sunbeam ledge is to be let to the Ogden Co. for development. The ledges near Diamond city assay and prospect well. The Jenny Lind and Farmington ledges look well. The old Mammoth still ships ores. Recent assays give \$250, per ton in silver, copper, and lead. It is reported that Worsley & Co. have struck horn silver.

BATTLES OF THE MINE.—During the past week; we regret to say, accounts of two contests between mining-property owners have reached us. The dispute for the possession of the Banner and Creole mines, at Pioche, Nevada, culminated in a fight, on the 9th, in which one man was killed, and twelve wounded. Again, an underground fight was reported as in progress between the men of the Overmen and those of the Caledonia companies at Washoo, on account of disputed territory.

NEW MEXICO COAL.—In addition to the other sources of wealth which give so much promise for the future of our Territory, coal in abundance has been found on the Maxwell Grant. In the Raton mountains, along Red River and on the Vermejo there are large and distinct beds, some of which are ten feet thick or in depth. The coal is bituminous, and of the best quality to be found on the continent.

Also on Póñiel creek large veins crop out all along its mountainous course, whose quality excellent judges pronounce unsurpassable.

Along the Cimarron River there are also well defined evidences of large coal beds but as yet the company have not had time to open them. Indeed, the entire Grant is permeated with beds of coal, which crop out at different places. The blacksmith at Cimarron uses it for all his purposes, and says it answers as well as charcoal. A family residing near Cimarron use it for cooking purposes, and they too say that its quality is excellent, and they prefer it to wood. —*Cimarron News*.

GLACIERS IN THE VALLEY OF THE AMAZON

—The *American Chemist* has the following among its abstracts of papers read at the Troy meeting of the American Association: "Prof. Orton, of Vassar College, read a paper of absorbing interest, on the evidences of a glacial period at the equator. This conclusive paper gives the final stroke to the hasty theory of Agassiz, who inferred rather than proved the existence of a glacier in the Amazon valley. Prof. Orton now exhibits in great quantity marine and brackish-water fossils from that valley, showing its strata to be not a glacial, but an estuary deposit. The specimens were examined with much attention by the paleontologists present, and but one opinion was expressed concerning them."

Mining Stocks.

SAN FRANCISCO, THURSDAY EVE., NOV. 17.

The mining share market has been rather weak of late, and less business has been transacted this week than during the preceding one. Small amounts of Amador have been in the market selling at from 217½ to 215. Belcher has been steady. Chollar-Potosi has varied from 76½ to 81 and Crown Point from 2½ to 3½.

Some 300 shares of Daney have been taken at 3 and 3½ after sales had ceased for some little time. Golden Chariot has varied from 59½ to 64. Hale & Norcross from 114 to 99. The receipts of this latter company are given as \$116,766 for October, a decrease of \$9,203 from September. The Golden Chariot declared a dividend of \$3 per share payable on Monday. A few shares of Ida Elmore have been taken at 13 and 13½.

Quite a number of sales of Mammoth have been effected at 23 to 30c. Meadow Valley has been in fair demand at 25 to 22. Ophir commenced quite strong at 4½, getting weaker afterwards. The largest demand has been for Original Hidden Treasure, Savage and Yellow Jacket, all of which have been quite steady.

The annual meeting of the Confidence mining company was held last Friday, when the old officers were re-elected. Nothing had been done at the mine during the last year.

According to the S. F. Weekly Stock report, twenty-four dividends have been paid by the Union Pacific Salt Company since its organization in April, 1863, amounting to about \$32,000. The amount paid in and accumulated capital reach about \$160,000, and the sales for 1869 were over \$200,000. The stock is held at \$70 per share. The capital of the Company is \$300,000.

It is claimed that the comparison between the working expenses of the Eureka and North Star mines, which we took from the *Bulletin* last week, was unfair, because there was not given in the same connection the dissimilar conditions of the mines. It is said that the ledge at the Eureka is slate formation, nearly perpendicular, with frequent fissures of quartz, and hence can be easily, economically and rapidly worked. The North Star is granite formation and the ledge irregular, sometimes flat and sometimes dipping; hence it is necessarily more difficult to work, and therefore more expensive.

The Meadow Valley mining company report their receipts for October as \$162,642, of which \$60,000 was paid in its dividend declared for that month, and \$47,000 carried over. The yield during the first nine days in this month is given as \$31,700.

Latest Mining Stock Prices.

(S. F. Stock and Exchange Board.)

NAME.	LOC.	AMOUNT.	DATE.	PRICE.	NAME.	LOC.	AMOUNT.	DATE.	PRICE.
Alpha Cons.	Ida	245½	Oct. 24	25	Imperial	Ida	25	Oct. 25	37
Amador	Ida	245½	Oct. 24	25	Imperial	Ida	25	Oct. 25	37
Belcher	Ida	75½	Oct. 24	75	Imperial	Ida	25	Oct. 25	37
Chollar-Potosi	Ida	75½	Oct. 24	75	Imperial	Ida	25	Oct. 25	37
Confidence	Ida	75½	Oct. 24	75	Imperial	Ida	25	Oct. 25	37
Crown Point	Ida	2½	Oct. 24	2½	Imperial	Ida	25	Oct. 25	37
Empire Mill	Ida	1	Oct. 24	1	Imperial	Ida	25	Oct. 25	37
Eureka	Ida	340	Oct. 24	340	Imperial	Ida	25	Oct. 25	37
Golden Chariot	Ida	63	Oct. 24	63	Imperial	Ida	25	Oct. 25	37
Hale & Norcross	Ida	105	Oct. 24	105	Imperial	Ida	25	Oct. 25	37
					Imperial	Ida	25	Oct. 25	37

Mining Shareholders' Directory—Meetings, Assessments and Dividends.

[Compiled weekly from advertisements in the SCIENTIFIC PRESS and other San Francisco journals.]

NAME.	LOC.	AMOUNT.	DATE.	PRICE.	NAME.	LOC.	AMOUNT.	DATE.	PRICE.
Alpha Cons.	Ida	245½	Oct. 24	25	Imperial	Ida	25	Oct. 25	37
Amador	Ida	245½	Oct. 24	25	Imperial	Ida	25	Oct. 25	37
Belcher	Ida	75½	Oct. 24	75	Imperial	Ida	25	Oct. 25	37
Chollar-Potosi	Ida	75½	Oct. 24	75	Imperial	Ida	25	Oct. 25	37
Confidence	Ida	75½	Oct. 24	75	Imperial	Ida	25	Oct. 25	37
Crown Point	Ida	2½	Oct. 24	2½	Imperial	Ida	25	Oct. 25	37
Empire Mill	Ida	1	Oct. 24	1	Imperial	Ida	25	Oct. 25	37
Eureka	Ida	340	Oct. 24	340	Imperial	Ida	25	Oct. 25	37
Golden Chariot	Ida	63	Oct. 24	63	Imperial	Ida	25	Oct. 25	37
Hale & Norcross	Ida	105	Oct. 24	105	Imperial	Ida	25	Oct. 25	37
					Imperial	Ida	25	Oct. 25	37

NAME.	LOC.	AMOUNT.	DATE.	PRICE.	NAME.	LOC.	AMOUNT.	DATE.	PRICE.
Alpha Cons.	Ida	245½	Oct. 24	25	Imperial	Ida	25	Oct. 25	37
Amador	Ida	245½	Oct. 24	25	Imperial	Ida	25	Oct. 25	37
Belcher	Ida	75½	Oct. 24	75	Imperial	Ida	25	Oct. 25	37
Chollar-Potosi	Ida	75½	Oct. 24	75	Imperial	Ida	25	Oct. 25	37
Confidence	Ida	75½	Oct. 24	75	Imperial	Ida	25	Oct. 25	37
Crown Point	Ida	2½	Oct. 24	2½	Imperial	Ida	25	Oct. 25	37
Empire Mill	Ida	1	Oct. 24	1	Imperial	Ida	25	Oct. 25	37
Eureka	Ida	340	Oct. 24	340	Imperial	Ida	25	Oct. 25	37
Golden Chariot	Ida	63	Oct. 24	63	Imperial	Ida	25	Oct. 25	37
Hale & Norcross	Ida	105	Oct. 24	105	Imperial	Ida	25	Oct. 25	37
					Imperial	Ida	25	Oct. 25	37

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SCIENTIFIC PRESS, FROM SAN FRANCISCO This Mining, Farming and Mechanic Arts Journal, after a most singular absence from our table, has again made its appearance and is heartily welcomed. It is the recognized mining organ of the Pacific coast, and rightly so, since it is conducted ably and honestly in all respects. It scours humbug and avoids all merely speculative commendations of sudden discoveries in the treatment of ores. The reliability of the Press in all matters pertaining to mines and mining news, makes it a most desirable paper for our people here. Per annum, \$4—*Colorado Herald*, July 6th.

What it Costs to Commence Farming.

In our last we endeavored to show that a person without either *means* or *experience* might commence farming with only a moderate outlay of time and labor; to day we propose to show what it will cost a person, who *has* means, to commence farming with the least possible delay.

We will suppose that the enquirer has made up his mind to enter upon the business of farming at the earliest possible moment. Although he may have means, it is still proper that he should economize them to the best advantage. If he has means to both buy his land and stock his farm, it would probably be better that he should seek out a piece of partially improved land. Of course the nearer to a market or railroad, or steam navigation, the higher price he will have to pay. If he has only means sufficient to stock his farm, he will either hire a piece of improved property, or look for government land; any quantity of which, and that of a good quality, he can find in almost every direction. In either case the choice of locality will, in a great measure depend upon the kind of farming in which he proposes to embark. If he proposes to undertake diversified farming, (that which is most needed here,) he would probably do well to go north, say into the Russian river valley, where the rain-fall is more uniform and reliable. The railroad in process of construction in that direction, is just now attracting much attention that way. Still there are innumerable other valleys, large and small, all over the State, where he cannot fail to do well, if he is willing to work hard and live prudently.

The cost of commencing a farm of course varies greatly with the nature of the work proposed and the extent of the ground to be occupied; but a scale can be given for any particular class of business, which can be adjusted to any desirable quantity of land. We propose to-day, to make an estimate for a wheat farm, and will locate it somewhere in the San Joaquin valley, where it will cost \$3 per ton to deliver the wheat at a railroad station or steam boat landing. If the land is level and easily worked, one man and a boy can do all the work, except harvesting and threshing, on 225 acres—200 of which might be devoted directly to wheat culture, and 25 to hay and other produce for stock and family, for house, barns, garden, orchard, etc. The wheat land should be divided into three portions, one of which should be alternately left for summer fallow—leaving 133 acres for sowing each year.

The price of such a farm, capable of producing an average of 30 bushels to the acre, ought not to exceed, at the outside, \$25 per acre, or \$6,250 in the aggregate, with a comfortable dwelling house, barn, out-houses and reasonable fence improvements.

In setting off the 25 acres for supporting stock, that part devoted to hay might be selected from the most unpromising portion of the wheat field, that which may become lodged, or otherwise unfitted for the ready action of the header—this year in one or sundry places, next year in other localities. We are not now talking of *careful* farming; but are making the most from a large tract of land, with the least labor and outlay, for two or three years, hoping to introduce a better system of farming at the end of that time. The stock and tools required may be set down about as follows:

Five horses, from \$60 to \$100 each, say.....	\$400 00
One heavy farm wagon, (four horses).....	250 00
One light wagon, (two seats).....	150 00
Two sets of heavy harness, \$25 each.....	125 00
Two sets of light harness, \$30 each.....	120 00
Blankets, etc., for horses.....	20 00
One silkeny plow.....	80 00
One harrow, \$20; Wheelbarrow, \$5; Shovels, \$5.....	30 00
Spade, \$3; pick, \$1.50; axes, \$8.....	12 50
One wood saw, \$2; hoes, \$3; hay forks, \$5; grind-stone, \$5.....	15 00
Crow bar \$2.00; Scythe, \$2.50; small tools for-car-pentry, etc., etc., \$4.00.....	25 00
Two cows (get good ones).....	100 00
One good breeding sow, say.....	60 00
Three geese and a gander, (if water is handy).....	4 50
8 x h m turkeys and a tom.....	12 00
Ten hens (get good ones).....	10 00

\$1,394 00

The poultry department (merely enough

to start with is set down,) if well managed, will prove the most profitable of anything on the farm, as it will do much towards supplying the table, and if near a market, may soon be made to pay a handsome revenue. More than that a good stock of poultry always gladdens and graces either a farm house or cottage. We have set down only two cows, just enough to furnish an abundant supply of milk, butter and cheese for the family. If the family is large, and there is a girl to take some of the care from the lady of the house, the number of cows might be increased and made an important source of revenue, provided care is taken to keep up a supply of green food through most of the summer. A small sum should, perhaps, be added to the above for dairy utensils, although that more properly belongs to the household furniture, which we have not taken into account, and the outlay for which must depend on the taste and means of the family. A very little can be made to answer, if need for economy exists. This outlay, added to that requisite for stocking the farm need not exceed, \$1,600 or \$1,800. An ingenious man may, with a few tools, make many little things which are needed about a farm, and should also be able to do much about repairing his tools, houses, fences, etc., and in keeping them in order.

We have made no allowance for thresher or harvester, as we propose to have the work of such machines done by the job, (although the best way is for several farmers to unite in the purchase of the necessary machinery for that work and assist each other.) We will endeavor next week to show what amount of profit may be derived from such a farm as we have supposed.

Fruit Growing in the Mountains.

How Mining Counties may Again Become Prosperous.

EDS. PRESS.—The weather during the past Summer and Autumn has been unusually hot, and less rain has fallen since the 21st of May than during any other summer since 1849, one shower only (Aug. 16) having condescended to lay the dust, and cool the atmosphere, for more than five months. But on Saturday last the clouds thickened, the wind shifted to the southeast and at 12 o'clock m., a genial shower commenced, and rain descended upon the just (if there are such) and the unjust alike, much to the joy of all. Sufficient rain fell during the afternoon and night, to wash the dust from the foliage and fences, and the vineyards and orchards now wear a more pleasing aspect. The streams are unusually low, water scarce, and mining prosecuted only to a limited extent.

The Pochontas quartz claim, near Mud Springs, I am informed by one of the owners, cleaned up after a run of some 13 days, more than \$10,000. This is probably one of the best mines in the State, and if properly managed, will pay enormous dividends to the owners. The Shepard mine in this city continues to yield rock fit for milling; but the actual product, I am unable to give. A few hydraulic claims are worked with success, in this vicinity, and preparations are being made for mining on an extensive scale, when water can be obtained. The interest the Press is taking in agriculture, induces me to give you some facts and figures, of the production of fruit raised in this vicinity and county.

There has been for the last ninety days 38 four-horse teams, most of them with thorough-braced wagons, (besides several two-horse teams, which are not reckoned in this calculation) engaged in hauling fruit, which is raised within a radius of six miles of this city,—over the mountains to Virginia City and vicinity. Those teams make a trip every nine days, or ten trips each in the last 90 days—a total of 384 loads averaging 4,000 lbs each or 1,520,000 pounds of apples, peaches, pears,

plums, grapes, figs &c., which I am told by one of the raisers and shippers average five and a half cents per pound, or about \$20 per load, and yielding a total of \$83,600.

Most of the farmers have their own teams and do their carrying, purchasing occasionally something of a neighbor, to make an assortment. This sum is for fruit shipped in one direction, from Placerville, Gold Hill and Cold, Diamond and Mud Springs. In addition to the above, L. D. Marks and B. F. Crocker have shipped of their own raising, or that purchased in this vicinity more than seventy-five tons of green fruit to Sacramento and San Francisco. Coloma, Uniontown, Kelsey and Georgetown have, during the same time, shipped three tons per day to Auburn, a portion to go over the mountains, the remainder to Sacramento and San Francisco, by the Central P. R. R., amounting to 540,000 pounds, which averaged two cents per pound at the orchard, or some \$10,800.

C. D. Brooks of Diamond Springs has raised and shipped some 16,000 pounds of fine cling-stone peaches, their equal not being produced at any other place in the State, as experiment has shown; for Mr. B. has been without a successful competitor for the last ten years, always finding a ready sale in your city,—the price being about the same, \$160 per ton. Efforts have failed at other localities in this county to produce a like peach, even from trees transplanted from Mr. B.'s nursery. J. W. Foster & Son, of this city, will work up some 200 tons of grapes, into wine and brandy, more than 20,000 gallons of the former and about 3,000 of the latter. The Fosters raise about 120 tons of grapes, the remainder being purchased. Robert Chalmers, of Coloma, will make about 25,000 gallons of wine and 1,000 gallons of brandy. Mr. C. has about 100,000 bearing vines. About 200 tons of grapes were contracted for, last week, in the townships of White Oak, Mud and Diamond Springs by parties in Sacramento, to be delivered at Shingle Springs, at \$19 per ton.

J. W. B. Dickson, near this city, will produce 75 or 80 tons of grapes, of which several tons are flame colored Tokay and Muscat of Alexandria. In addition to the above, I should mention the dried fruit, which amounts to many tons, and the winter apples and pears which may be reckoned at hundreds of tons, now in the bins, or on the trees of the fruit growers.

Your correspondent has less than four acres of "Mission" grapes, which commenced bearing in 1863 and each year since have produced a fair crop, averaging about 19 tons per annum. The first crop was sold for \$80 per ton in the vineyard, the last for \$20.

The cost per annum since the vines commenced bearing has been about as follows: Pruning in Jan. and Feb., \$60; plowing and cultivating, man and horse, 8 days, \$24; four days weeding and hoeing, \$8; 14 days picking, \$28; total \$ 24, producing at the lowest figure for which they have sold, \$380 profit, over expense of cultivating, \$256; or more than \$64 per acre. No irrigation is used, although the vineyard is situated on a dry hill or knoll.

Do wheat lands in the valley, continually cropped and running out, show a better profit than this? [Scarcely one quarter as much, EDS. PRESS.] The above are facts which cannot be gain said. With land at from \$1.25 to \$5.00 per acre, why has this county dwindled from a population, in 1853 of 43,000 to 10,300 in 1870? To a certain extent the question is easily answered; El Dorado being the locality where gold was first discovered and worked, a rush to the mines followed, the county filled up with a roving set of men, who on the first report of rich discoveries of gold at Gold Lake, Kern River, Cariboo, Fraser River, Washoe, Idaho or Montana, etc., were on the wing, for those far off lands. Such was the condition of things up to 1862. At that date families began to accumulate, and more or less attention was given to agriculture; vineyards, fruit trees and gardens, were planted in homes made pleasant and comfortable by the production of fruit, flowers and vegetables.

The placer mines were beginning to be worked out, the roving miners sought some new locality, while families remained and improved their possessions and have become identified with the interests of the State.

El Dorado has seen its darkest day, wonderful success in fruit has been attained as I have shown by the above figures, and prosperity will continue. Congress is expected to give a subsidy in lands, now of

but little or no value to the Government, to assist the owners of water rights, in constructing canals, and ditches for the transportation of lumber, irrigation, hydraulic power and mining. With a canal sufficient in size to float lumber, those lands would be of value; for the timber on them could be conveyed to market, and when cleared of timber, they could be used for grazing in the summer months, when the valley and plains below are parched and dry. This subsidy is needed and if Congress and the members of that body from this State know and do their duty to the people here, it will at once be attended to. Then new and permanent houses will be built, families locate, farms, orchards, vineyards and gardens multiply; for when it becomes known that a lasting supply of water can be had for fruit trees, gardens and young vines, thousands of emigrants will come and purchase our cheap lands and become permanent, prosperous and happy citizens. Placerville, Oct. 24th 1870. E. N. S.

Animals that Chew the Cud.

Ruminating animals gather their food rapidly, give it a few cuts with the teeth and swallow it. It goes to an interior receptacle, where it is moistened; this is very essential if it be dry hay. When the animal has filled himself, he masticates the food thus stowed away in his stomach, raising it cud by cud. When a portion is completely masticated, it passes to another receptacle, and the progress of digestion goes on. Thus an ox, if left to himself, will raise and masticate all his food thus stowed away in his stomach. If he be pushed and worked hard, and does not have time to masticate, he falls off in flesh, his health is poor, his digestion incomplete.

The horse, on the contrary, however much in a hurry he may be, must masticate each mouthful before he swallows it. A hungry ox, let into a meadow, will fill himself in twenty minutes, while a horse would want at least an hour and twenty minutes to take the same amount of grass. The ox, deer, sheep, goat, chamois and rabbit, being the natural prey of ferocious beasts, are endowed with the extra stomach in which hastily to stow away the food without mastication. This may, perhaps, be regarded as a wise provision of Nature, enabling them to sally forth where the food is plenty, and in a short time fill themselves and retire to a place of safety to ruminate their food at their leisure.

RAM-ROD HAY, is the expressive name applied to hay made from a coarse species of prairie grass which grows upon the Mississippi bottoms in Iowa. It is generally used for thatching purposes, possesses very little nutrition, and when fed to stock is apt to produce indigestion, especially with horses.

San Francisco Market Rates.

Wholesale Prices.		THURSDAY EVENING NOV 17, 1870.	
Flour, Extra, #1 bbl.....	35 50	25 50	17 50
Do, Superfine.....	35 00	25 00	17 00
Do, 100 lbs.....	2 50	2 50	1 75
Wheat, #1 100 lbs.....	85	85	2 10
Do, #2 100 lbs.....	80	80	2 00
Barley, #1 100 lbs.....	1 15	1 15	1 25
Do, #2 100 lbs.....	1 10	1 10	1 20
Potatoes, #1 100 lbs.....	1 00	1 00	1 75
Do, #2 100 lbs.....	1 00	1 00	1 50
Live Oak Wood, #1 cord.....	10 00	10 00	12 10
Do, #2 cord.....	8 00	8 00	10 00
Sheep, on foot, #1 lb.....	2 00	2 00	2 50
Hogs, on foot, #1 lb.....	6	6	6
Do, dressed, #1 lb.....	7 1/2	7 1/2	8
GROCERIES, ETC.			
Sugar, crushed, #1 lb.....	14 1/2	14 1/2	14 1/2
Do, Hawaiian.....	15	15	11 1/2
Coffee, Costa Rica, #1 lb.....	20 1/2	20 1/2	20 1/2
Do, Rio.....	20	20	20
Tea, Japan, #1 lb.....	60	60	1 10
Do, Green.....	60	60	1 25
Javanian Rice, #1 lb.....	7 1/2	7 1/2	8
China Rice, #1 lb.....	7	7	8
Do, #2 lb.....	6 1/2	6 1/2	7 1/2
Candies, #1 lb.....	14	14	1 1/2
Overland Butter.....	30	30	37 1/2
Rich Butter, #1 lb.....	35	35	45
Butter, #2 lb.....	25	25	45
Cheese, California, #1 lb.....	12	12	14
Eggs, #1 dozen.....	60	60	65
Do, #2 dozen.....	55	55	60
Lard, #1 lb.....	11 1/2	11 1/2	14
Hams and Bacon, #1 lb.....	15	15	17
Shoulders, #1 lb.....	9	9	10
Retail Prices.			
Butter, California, fresh, #1 lb.....	50	50	75
Do, pickled, #1 lb.....	30	30	50
Do, Oregon, #1 lb.....	20	20	25
Cheese, #1 lb.....	20	20	25
Honey, #1 lb.....	25	25	30
Eggs, #1 dozen.....	65	65	75
Lard, #1 lb.....	15	15	20
Hams and Bacon, #1 lb.....	15	15	20
Cranberries, #1 gallon.....	75	75	1 00
Potatoes, #1 lb.....	2	2	3
Potatoes, sweet, #1 lb.....	2	2	2
Tomatoes, #1 lb.....	2	2	2
Onions, #1 lb.....	2	2	2
Apples, No. 1, #1 lb.....	4	4	6
Pears, #1 lb.....	4	4	6
Plums, dried, #1 lb.....	10	10	12
Peaches, dried, #1 lb.....	10	10	15
Oranges, #1 dozen.....	10	10	10
Do, #2 dozen.....	10	10	10
Chickens, #1 piece.....	75	75	1 00
Turkeys, #1 lb.....	10	10	15
Soap, #1 lb.....	10	10	15
Soap, Castile, #1 lb.....	13	13	20

THE CITRON CROP, for the present year, is estimated by the department of agriculture at 3,203,800 bales, an increase of about 33 per cent. over the crop of 1868—69.

Household Reading

Interesting Facts.

When a hibernating animal commences his winter's sleep, he goes to his chosen quarters well provided with fat. The only activity kept up during his long sleep, is a very feeble breathing and a slow circulation of blood. This action makes such slight requisition upon his system, and his close quarters so economises the animal heat, that his accumulated fat furnishes all the fuel that is needed. But he comes forth in the spring, lean, hungry and weak.

The camel carries in the hump of fat upon his back, the necessary supply of fuel for a long march across the desert. A fat man will live much longer without food, than a lean one, and any person will live longer without food, in a warm atmosphere than in a cold one; for the animal heat in the absence of food, must be kept up by the consumption of the body—the fat being first appropriated and entirely, then the muscles will furnish heat for a short time longer.

Death from starvation or a lack of proper food generally ensues to a previously healthy subject after the system has been reduced about four-tenths of its weight—a person well provided with fat will sustain a somewhat greater reduction; while a lean subject will succumb to a reduction a little short of that percentage. Moreover an insufficiency of food is just as certain to produce death, if kept up a sufficient length of time, as total abstinence therefrom. And what is quite curious, death comes at the same point of reduction—four-tenths. Thus when a person in a moderate condition of flesh is reduced from 100 pounds weight to 60, death may be expected at any time; if he weighed 150 at the start, 90 lbs. will be about the lowest point of reduction which he can survive.

Our Industrial Population.

It is estimated that of the 40,000,000 population in the United States, 11,000,000 add directly by their labor to the wealth of the country—of which number not less than 6,500,000 are agriculturists. The balance of the number is made up as follows:—Commercial classes 2,000,000; common laborers 1,500,000; mechanics 1,000,000. The large excess of the agricultural element in the above estimate, is both an interesting and notable fact.

WHY IT IS HOTTER INSIDE THAN OUTSIDE OF A HOT-HOUSE.—This is explained on the principle that there are two kinds of heat—luminous and non-luminous. The former will pass through glass, as readily as through air; while the latter is arrested by it, or can only pass by conduction—that is, by working its way out, so to speak, from particle to particle of the glass. If we hold a thermometer near a red-hot cannon ball, with a plate of glass intervening, the mercury will rise as rapidly as though the glass was absent; but if we hold it before a ball heated to less than redness and note the rise of the thermometer, and then interpose a plate of glass, the mercury will fall almost as rapidly as it rose, until it reaches very nearly or quite its original mark.

So the glass roof of the hot-house, allows the luminous heat of the sun to pass through it freely; which heat, once inside, becomes reflected or non-luminous, and as such, is arrested by the glass, so that it cannot escape except as above, by conduction. The sun's luminous rays are thus entrapped as it were, and accumulated, until the heat within the hot-house is much greater than that outside.

HOUSEHOLD WEIGHTS AND MEASURES.—Wheat flour weighs one pound to a quart. Indian meal, one pound two ounces to a quart. Butter, when soft, one pound to a quart. Loaf sugar, broken, one pound to a quart. Wheat sugar, powdered, one pound one ounce to a quart. Eggs, average size, ten to a pound.

Checking Perspiration.

The danger of risking the stoppage of the pores by sudden change of temperature is terribly illustrated every day. A case is related of a leading New York gentleman who having exerted himself on a vessel somewhat unusually, found himself, at the end of an hour and a half, pretty well exhausted, and perspiring freely. He sat down to rest. The cool wind from the sea was delightful, and, engaging in conversation, time passed faster than he was aware of. In attempting to rise, he found he was unable to do so without assistance. He was taken home and put to bed, where he remained for two years; and for a long time afterward could only hobble about with the aid of a crutch.

Less exposures than this have, in constitutions not so vigorous, resulted in inflammation of the lungs, "pneumonia," ending in death in less than a week, or causing tedious rheumatism, to be a source of torture for a life time.

Multitudes of lives would be saved every year, and an incalculable amount of human suffering would be prevented, if parents would begin to explain to their children, at the age of three or four years, the danger which attends cooling off too quickly after exercise, and the importance of not standing still after exercise, or work, or play, or of remaining exposed to a wind, or of sitting at an open window or door, or of pulling off any garment, even the hat or bonnet, while in a heat. It should be remembered by all that a cold never comes without a cause, and that, in four times out of five, it is the result of leaving off exercise too suddenly, or of remaining still in the wind, or in a cooler atmosphere than that in which the exercise has been taken.

ARTIFICIAL BUTTER.—Has the chemist's skill attained to such results as enable him to manufacture the delicious and important food substance known to us as butter? This is an interesting question. Through recent foreign advices we learn that M. Méyé, a Parisian chemist, is actually making good palatable butter out of a variety of animal fats, by a process which is patented in nearly all the countries of Europe. His claim is that by subjecting sweet lard or other animal fat to great pressure, by which the stearine is extracted, an oily material is obtained, the composition of which is identical with butter. After obtaining this "oily material," he subjects it to a variety of chemical processes, which result in securing the flavor and physical characteristics of prime butter. The patent specifications and claims are presented with much detail; and the reader who is interested in butter nearness is carried along through all the steps by which unsophisticated grease becomes sophisticated fat, and ultimately butter, of a character which would pass unchallenged through the hands of a first-class butter inspector. This is certainly very important scientific intelligence, if true; but we are not yet ready to break up or burn up our churns, and send our cows to the butcher. We prefer to wait for further advices. Butter is a delicate animal compound, which, in our view, cannot be fabricated or imitated successfully by any chemical process whatever. Doubtless a substance can be produced which may serve as a fair substitute for butter among certain classes in Europe; but the fastidious taste of large consumers, both in that country and this, can never be satisfied with butter coming from any other sources than the sweet grasses of the hills and meadows, or from the cereal grains, transmuted or changed by the subtle chemistry of the animal organism.—*Jour. Chemistry.*

DOMESTIC ECONOMY is a science—a theory of life which all sensible women ought to study and practice. No young lady is fit to be married until she has been thoroughly educated in the deep and profound mysteries of the kitchen. See to it, all ye who are mothers, that your daughters are accomplished by an experimental knowledge of good housekeeping.

WHEN WE SHOULD NOT TAKE MEDICINE.—If a man can sleep soundly, and has a good appetite, with no unpleasant reminders after meals, the bodily habits being regular every day, he had better let medicine alone, whether he is as high as a hog-head, or as thin and as dry as a fence-rail. Such is the sensible advice of the *Herald of Health*.

RAIN WATER is not so well adapted for cooking purposes as well or spring-water. Rain-water is very nearly pure, and pure water is not adapted to the animal system.

Household Receipts.

ICEB GRAPES.—A nice dessert may be made of grapes in the following manner:—Take small bunches of choice, small grapes, beat the whites of two eggs, and mix them with a quarter of a pint of spring water. Dip each bunch of grapes into the egg and water, drain them two minutes, roll them two or three times in powdered loaf sugar, and lay them on sheets of white paper to dry, when the sugar will become crystallized. Plums, cherries, currants or strawberries, may be iced in the same manner.

CANNING EGGS.—Somebody gives the following:—All know how to can peaches and other fruits, but few are familiar with canning eggs. Place the eggs in the jar, with the large end down; place the jar in boiling water, where let it remain until the inner atmosphere of the jar is about blood heat, when seal and remove into cold water. [We should suppose that if the spaces between the eggs were filled by some dry, undecomposable substance, like dry sand, the process would be more perfect, as the secret consists simply in the partial exhaustion of the air by the heat.—*Ens. Press.*]

HOW TO CLEAN OIL-CLOTHS.—To RUIN them, clean them with hot water or soap-suds and leave them half wiped, and they will look very bright while wet, but very dingy and dirty when dry, and will soon crack and peel off. But if you wish to PRESERVE them, and have them look new and nice, wash them with soft flannel and lukewarm water and wipe perfectly dry. If you want them to look extra nice after they are wiped, drop a few spoonfuls of milk over them, and rub them with a dry cloth.

A DELIGHTFUL DISH FOR BREAKFAST may be prepared as follows:—Remove the cream from some milk just before it turns, then take milk just "lobbered," set it on the stove, warm it just enough to separate the curd and whey, drain off the whey and pour over the curd the thick rich sweet cream. This dish is known as "cream cheese."

FRIED SQUASH.—A delicious dish can be made simply by frying them in butter. Slice them as you would cucumbers, dip in dry flour, fry to a brown and imagine that you are eating fried oysters. Cucumbers cooked in the same way are not bad.

MOTHS may be kept out of furs and woolen clothes by wrapping the fabric in calico. Moths cannot eat through calico.

Mechanical Items.

TO JUDGE THE QUALITY OF IRON OR STEEL. Microscopic examinations of iron and steel show that the more regular and small the crystals are, the better the metal. Moreover, in good metals, the crystals are placed very regular as well as close.

TO DISSOLVE WOOL OR BONES.—Wool can be reduced into a paste resembling glue by submitting it for several hours in a close vessel, to the action of high pressure steam. Bones can also be dissolved in the same manner. Water of an elevated temperature is one of the most powerful solvents.

TO DISSOLVE COPAL, as commonly done, by means of alcohol is a very tedious process; but if a little camphor is previously dissolved in the alcohol, the solution may be effected in half the time.

TO PREPARE FENCE POSTS.—Soak the post that enters the ground 24 hours in a solution of silicate of soda (soluble quartz); then let them dry and in a week soak again, and when dry cover with some cheap mineral paint, and the post will last three times as long as though it had been charred. The silicate of soda can be obtained of any druggist, and is cheap. To prepare it, dissolve the silicate in the least quantity of water which will accomplish the same, and when so dissolved, add three times its bulk of rain or clean river water.

BAMBOO AS A SUBSTITUTE FOR WOOL.—Several Newark, (N. J.) capitalists are about to commence the manufacture of a substitute for coarse woolen goods from prepared bamboo cane.

TO BRONZE GUN BARRELS.—Dilute nitric acid with water, and rub the gun barrels with it; lay them by for a few days, and rub them with oil, and polish them with bees-wax.

A PIECE of calico a mile long has been manufactured in New England.

A SPECTACLE manufactory at New Haven Conn., is said to be the most extensive in the world. The company manufactures annually 300,000.

Life Thoughts.

HOW TO RESIST AN INJURY.—If any one wrongs you he bravely revenged by slighting the injury. He is below himself who is not above an injury.

DON'T INTERFERE another while he is speaking; hear him out and you will better understand him, and be the better able to reply.

HOPE is like the cord in a net; it keeps the soul from sinking in despair.

FEAR is like the lead attached to a net which keeps it from floating in presumption.

OPPORTUNITY is the flower of time; as we pluck the flower from the stock, so should we seize the opportunity presented by the passing moment.

GOOD COMPANY and good conversation are the sinews and life of a happy and virtuous existence.

OUR ACTIONS are like the termination of verses—to be rhymed as we please.

KINDNESS should be stowed away in the heart like bags of lavender in a drawer, and employed to sweeten every object around them.

HOW TO TREAT ANNOYANCES.—Take hold of them stoutly, as you would of a nettle to avoid being stung.

THINK BEFORE YOU ACT.—Pretty much of all the absurd schemes in the world result from a failure to observe this simple rule.

SMALL EVILS are like small debts—worse than great ones. It is much easier to endure misfortune than to bear an inconvenience.

TRUE MODESTY.—Nothing is more amiable than true modesty, and nothing more contemptible than that which is false; the one guards virtue the other betrays it.

AVOID IDLENESS.—The ruin of most men dates from some idle hour. Occupation is an armor to the soul.

A NOBLE SENTIMENT.—When Gen. Lee saw the hopelessness of his cause, and was reduced to the necessity of surrender, he remarked that "honor and virtue should be equal to human calamity."—A sentiment superior to all misfortune.

The mind ought sometimes to be diverted, that it may return the better to thinking.

SIMPLICITY and modesty are among the most engaging qualities of every superior mind.

Benefits of Laughter.

Probably there is not the remotest corner or little inlet of the minute blood vessels of the body that does not feel some wavelet from the great convulsion produced by hearty laughter shaking the central man. The blood moves more lively—probably its chemical, electric, or vital condition is distinctly modified—it conveys a different impression to all the organs of the body, as it visits them on that particular mystic journey, when the man is laughing, from what it does at other times. And thus it is that a good laugh lengthens a man's life by conveying a distinct and additional stimulus to the vital forces. The time may come when physicians, attending more closely than they do now, to the innumerable subtle influences which the soul exerts upon its tenement of clay, shall prescribe to a torpid patient "so many peals of laughter, to be undergone at such and such a time," just as they now do that far more objectionable prescription—a pill, or an electric or galvanic shock; and shall study the best and most effective method of producing the required effect in each patient.

EVEN A SMILE.—Who can tell its value? It costs the giver nothing, while it is beyond price to the erring and relenting, the sad and cheerless, the lost and forsaken. It disarms malice—subdues temper—turns hatred to love—revenge to kindness—and paves the darkest paths with gems of sunlight. A smile on the brow betrays a kind heart, a pleasant friend, an affectionate brother, a dutiful son, a happy husband. It adds a charm to beauty, it decorates the face of the deformed, and makes a lovely woman resemble an angel in Paradise.

MAKE YOUR OPPORTUNITIES.—It was a saying of the first Napoleon that every man should make opportunities—his chance. —But as a general thing, while ten men watch for chances, only one makes chances; while ten men wait for something to turn up, only one turns something up; so while ten men fail, one succeeds, and is called a man of luck, and the favorite of fortune. There is no luck like luck, and fortune most favors those who are most indifferent to fortune.

Scientific Press.

B. EWER.....SENIOR EDITOR.

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Two Editions.—We now issue a mining edition and a farming edition of the Press. The difference consists in changing the reading matter of the 6th and 7th pages [all advertisements appear in both issues, affording an immense circulation.] Subscribers will please notify us if they do not receive the edition they prefer. Both editions furnished to one address for \$7 per annum.

San Francisco:

Saturday Morning, Nov. 19, 1870.

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Gold and Legal Tender Rates.

San Francisco, Thursday, Nov. 17, 1870.—Legal Tenders buying @89; selling @90. Gold in New York to-day 112½.

An Excellent Work.

We have recently received from R. Brough Smyth, F. G. S., Secretary for mines for the Colony of Victoria, a copy of his excellent work on the "Gold Fields and Mineral Districts of Victoria," a book to which we have often alluded. We find in this work a very great amount of most valuable matter,—much that, besides its worth as a description of a particular country, give extensive food for thought for miners, geologists and mineralogists elsewhere. We regard it as a most useful contribution to the scanty library of mining existing in the English language, and as an example to be followed elsewhere. Had we similar works in all the mineral districts of the world, mining and its kindred sciences would be much further advanced than they are now.

We know of the existence of but two other copies of the book on our coast, and these we have been permitted to use from time to time. Although we have spoken strongly at divers previous times in its praise, no bookstore in this city has a copy for sale. We believe that it could be readily sold here at a price which would allow a fair profit to the importer; we have ourselves been applied to by a number of persons who desired it.

We shall hereafter make extracts from the book as we have done to some extent previously. We had prepared an article on the formation of gold nuggets for this issue, but are obliged to defer it until another time.

ANOTHER ELEVATED CITY RAILWAY.—The Chicago Railroad Gazette describes a new plan. Wrought iron gothic arches, at intervals, span the street from curbstone to curbstone. Under these, at a sufficient height above the street to clear the travel, are elliptical iron arches, upon which rest the tracks, supported by an iron truss from the apex of each of the gothic arches, and a similar one at each side. A light locomotive is proposed.

Mechanic Arts College.

The hall of the Mechanics' Institute was crowded last Saturday night, many being unable to obtain seats. A large number of persons (some 360, of whom about 100 are ladies) had enrolled their names as students, and since then many more have joined. It is most gratifying to find such a number evincing a disposition to profit by the opportunity offered them.

Rules.

Mr. Hallidie read the following rules for the government of those attending the lectures:

1. Students must enroll themselves in a register kept for that purpose.
2. Presence at roll-call is essential. Roll-call will be at 7:30 p. m.
3. Absence from three consecutive lectures, or ten lectures in all, will entail erasure of name from register.
4. Students must receive a ticket, which they will show on entering the lecture room.
5. Students entering after their names have been called, or before the completion of roll-call, must report themselves by announcing their names.

Visitors will be admitted to each lecture and will be furnished with an unoccupied seat on application to the Librarian of the Mechanics' Institute.

No visitor must occupy a student's seat.

Any person who desires can enroll his name; and, apparently, those who are not enrolled as students will stand but a poor chance of getting a good seat, the students having the front rows. [Since the above was written, we learn that 500 students are enrolled, filling the list. In this connection, we may note that 32 members joined the Mechanics' Institute between the 1st and the 15th of this month, and that more books were taken from the library on Saturday last than on any one day before, as far as can be learned. These facts show one effect of these lectures on the community.]

Opening Address.

The opening address was delivered by Judge J. W. Dwinelle. The speaker commented on the meaning of the word *University*, and explained the universal scope included in the plan of our State institution. Technical education, that is, education in the sciences applied to professional and industrial pursuits, had not received its proper position in our colleges and universities generally. He referred to the great influence of the London University, which gave the death blow to old superstitions and placed technical education on its true basis. The Judge's enthusiasm, however, led him to make one or two statements here which were a little too strong.

The speaker paid a tribute to the Regents for their efforts, and claimed that the University could not fail to succeed—had succeeded already. He then traced four periods in the history of the mechanic classes. A few hundred years ago there was not a mechanic in England who was not a slave, a part of the soil on which he was born, attached to it and passing with it to its purchaser. This was the period of *slavery*. Then came that of *emancipation*, slowly and silently. The personal service of the serf was turned into rent, and when there was competition in rents the lord of the land accepted the highest bidder, whether horn on the soil or not; and so the period of emancipation was reached. But the mechanic classes were despised and degraded at first. The period of *progress*, however, produced Watt, the perfecter of the steam engine; Arkwright, inventor of the spinning jenny; Stephenson, and a host of others, who gradually caused the proper recognition and betterment of the operative classes. Finally, we have now reached the period of *education*, and on the importance of education the Judge spoke at length. He would not have any one feel that, because he had not had opportunities before, he could not have them hereafter. There was no one present, he said, below the middle age of life, who cannot make him-

self a well educated man, while every step of progress would be one of pleasure. We need not go back to Cato, who learned Greek at 80; we will only point at Stephenson, who learned to read and write after 18; to Arkwright, who learned his grammar after he was 50; to Sanderson, the blind professor of Latin; to Hugh Miller, the stone cutter and geologist. Sir Isaac Newton was a slow, dull man who believed not in genius but in patience and perseverance. Sir Joshua Reynolds, the painter, insisted that success came not of genius, but of labor and economy of time.

The Judge dwelt on the great possibilities of sturdy work and study, and exhorted his audience to care for the minutes, husband them, and put them out at interest. After eloquently speaking on this topic he closed his address, remarking that on this evening a new era was inaugurated here, when the mechanic will be recognized as an educated gentleman, when men will graduate from the University to the forge and workshop, and when generations of Peabodys, Coopers and Stewarts shall prove that California is justified in her children.

Prof. Le Conte then delivered the introductory lecture of the course, on geology and particularly the coal measures. The lecturer was listened to throughout with marked attention, and his remarks were excellent and often eloquent. A report will be found on the twelfth page.

NARROW GAUGE RAILWAYS.—The Duke of Sutherland has returned from his inspection of the Norwegian narrow gauge roads. Upwards of a hundred miles of railway on the 3 feet 6 inches gauge have been carried out in Norway and have been most successful for the light traffic of that country in their economical construction and the convenience of their smaller carriages and wagons. The supporters of this system have no doubt that if the North of Scotland could have had the advantage of such a cheap description of railways, a much greater extent of the country would ere now have been supplied with railway accommodation. The average cost per mile, including plant, is about £4,000, and the works, etc., are said to be all that could be desired for public convenience.—*Inverness Courier*.

WOODEN RAILWAYS.—A railway costing only \$6,000 per mile, including right of way, grading, track and rolling stock complete, is certainly a novelty. That is the cost, according to the *Canadian Monetary Times*, of the Quebec and Gosford Wooden Railway, if the statement of the President is to be accepted. The road is 25 miles long, gauge 4 feet 8½ inches, being the width of most of the American and English railways, speed from twenty to thirty miles an hour, length of rail 14 feet, depth 7 inches, thickness 4 inches. Each rail rests on seven sleepers, to which it is fastened by wedges, so that it can easily be taken up at any time. The locomotive now used on the Quebec and Gosford Railway weighs 21 tons, loaded, without the tender. This road will be completed in October and ready for traffic. It is very satisfactory to know that there is an immediate prospect that wooden railways will be practically tested in Canada; should they prove to be so well adapted, as it is believed they are, to accommodate new districts where the traffic is limited, they will come into large demand to act as feeders to the iron roads.—*U. S. Min. & R. R. Register*.

PICTURESQUE AMERICA.—Appleton's *Journal* commences a series of profusely (and excellently well) illustrated articles with this heading. The proprietors sent an artist, some time ago, on a tour through different parts of our country, to furnish drawings and descriptive illustrations of the scenery and customs of various localities, from Florida to Canada, and we are now enjoying the results of this most praiseworthy action.

Good.—The Massachusetts Grand Lodge of Knights of St. Crispin have adopted two most excellent and intelligent decisions: to put an end to strikes in their association, and to change this into a co-operative organization.

Narrow Gauge R. R. Co.

The following incorporation is of special interest for the Coast and may result in important effects if the matter is properly managed. It is that of the Narrow Gauge R. R. Co., which was filed in the County Clerk's office on the 14th inst. The objects of the corporation will be, to take contracts to construct, equip and operate narrow gauge railways throughout the United States and countries adjacent thereto, and to receive pay therefor in cash, stocks, bonds, lands and properties, or securities of any kind as to this corporation may seem best; Also to own, hold or sell the same, as may be deemed advisable by the Company; As such contractors, to build narrow-gauge railroads in such territories, and equip, operate, and by purchase, to own and operate the same, as the interests of the Company may justify; To generally transact any business in connection with the object sought to be obtained by the creation of this corporation.

The Trustees of the Company are L. L. Robinson, S. F. Butterworth, C. J. Brenham, Isaac Friedlander, Irvin M. Scott, John Foster, F. MacCrellish, F. A. Hihn and Phineas Banning. The capital stock is one million of dollars, divided into ten thousand shares of one hundred dollars each.

We have had the pleasure of a call from Mr. Banning this week, and a conversation with him on the subject of cheap railways. Mr. Banning is enthusiastic in the matter and fully alive to the importance of the system for our Coast. He is fully identified with the interests of the lower part of this state where he has lived for many years, and where he hopes to live many more, and feels that cheap and efficient transportation will further in the highest degree the development of the country's resources. He affirms that roads can be built on the narrow gauge system at the rate of \$10,000 per mile. He has very industriously collected a large amount of important information concerning the construction and successful operation of narrow gauge roads in Europe and our own country.

The Press has strongly urged this matter on our western public at various times, for several years. And over ten years ago one of the editors of this paper, then connected with the old *California Mining Journal* published at Grass Valley, called attention to the subject of narrow gauge and its application to this coast.

State Gold Medals.

The committee of the State Agricultural Society have awarded gold medals for the most meritorious exhibition in the several departments of the late Fair, as follows:

FIRST DEPARTMENT.—For stock. Not yet given.

SECOND DEPARTMENT.—To Wm. Sawden, of Grass Valley, for sewing machine of California invention. A special medal is recommended to Pollard & Corville, for carriages.

THIRD DEPARTMENT.—To Frank Foster, of Sacramento, for book-binding. Special medal recommended to J. S. Finch, of Alameda, for ramie.

FOURTH DEPARTMENT.—To Nichols, Folioy & Co. of Sacramento, for woodenware, etc. Special medal recommended to John Brenner, of Sacramento, for furniture.

FIFTH DEPARTMENT.—To B. N. Bughy, of Folsom, for wines. Special medal recommended to the Sacramento Valley Beet Sugar Co., for beet sugar.

SIXTH DEPARTMENT.—To J. R. Nickerson, of Lincoln, Placer county, for fruit.

SEVENTH DEPARTMENT.—To Jacob Zech, of San Francisco, for pianos. Special medal recommended to S. W. Shaw, of San Francisco, for oil painting.

SUNK.—A New York telegram of the 13th says: Three acres of land near Basket Station of the North Delaware Division of the Erie Railroad, sunk a few days ago to the depth of 4 feet. No water has appeared.

Ericsson's System of Submarine Attack.

Considerable attention has been drawn to this method by a letter from Captain Ericsson, together with a diagram (here given) originally published in *Engineering*, and reproduced in the *Am. Artisan* from which we take it. On account of space we are compelled to extract from Capt. Ericsson's communication only those parts more directly relating to the details of his system, leaving out much relating to the general theoretical considerations which, though important, would not interest a large class of our readers. Those wishing to study out the whole subject, are referred to the above named papers. The following is from the Captain's letter.

The accompanying sketch presents the main features of my new system of submarine attack so distinctly, that it will be superfluous to enter on a general explanation of the nature of the scheme. It may be well to state that the elongated shell is charged with dynamite, and provided with a percussion lock and trigger, to be actuated as described in my former communication relative to the self-acting torpedo.

It is well known that numerous plans have been suggested, during the last few years, for firing under water, for the purpose of piercing the hull of iron-clad vessels below the point protected by the armor. In several instances these plans have been carried into practice, with the inevitable result that the resistance of the water has been found so great, even at very short distances, that an ordinary wooden hull has proved to be impenetrable. The plan now under consideration bears no resemblance to these projects. In the first place, the attack is made at a distance; and secondly, the force of the missile on reaching its destination need only be sufficient to actuate the trigger which causes the ignition of the explosive charge.

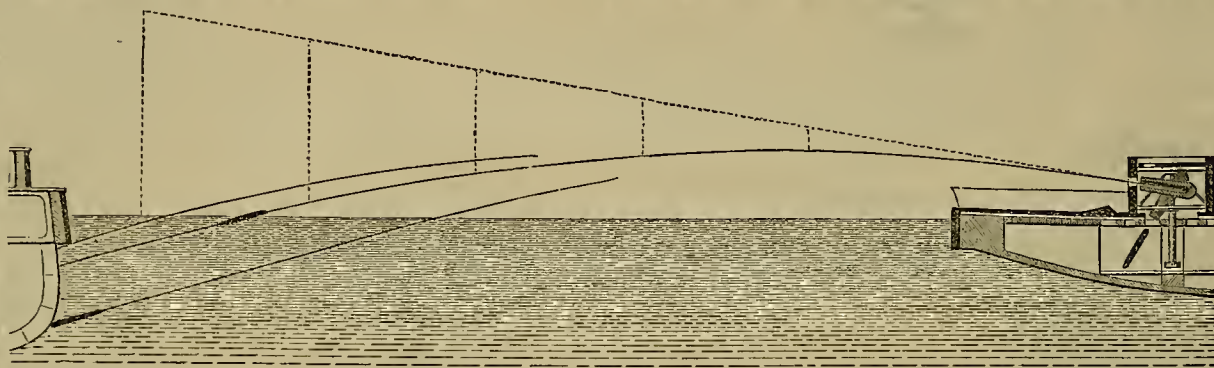
Apart from the theoretical considerations relating to the course of the elongated shell under water, the practical question of motive power to propel the shell presents itself at the first step in the investigation. It is hardly necessary to state that the force relied upon is the *vis viva* possessed by the shell on coming in contact with the water. The *vis viva* of a shell 15 inches in diameter, of such a length that it displaces 500 lbs. of water, may be readily estimated if we suppose the charge of powder in the gun to be so regulated that the shell will enter the water at the required rate of 400 feet per second; thus, $400 \cdot 64 = 2,344 \times 500 = 1,172,000$ foot-pounds. A cylindrical body 15 inches in diameter, with hemi-spherical ends, moving at a rate of 50 feet per second under water, requires a constant motive force of somewhat less than 400 lbs. Assuming, then, that the shell passes through 120 feet of water—the mean distance represented by the accompanying diagram—we have a resistance of $120 \times 400 = 48,000$ foot-pounds to overcome. The motive force, it will thus be seen, is more than four times greater than the resistance; hence no doubt can be raised as to the adequacy of the motive power furnished by the *vis viva* of the shell. It should be observed that the speed of the shell diminishes in a very rapid ratio; but it would be futile to present a formula expressing the ratio of speed and resistance, since the form of the body is the chief element in the calculation. Suffice it to say that, while the resistance against a blunt body is so great that it can hardly be overcome, one provided with a sharp point enters the water with much facility, even at the rate of 400 feet per second. The passage of the shell through the water will, therefore, be sufficiently rapid to reach the desired object in proper time.

With reference to the gun, it should be borne in mind that the very low speed of the shell, and the consequent small charge of powder needed, render heavy metal unnecessary. Besides, slow burning cake-powder contained in cellular cartridges will be employed for the purpose of checking rapid ignition, and in order to sustain a uniform pressure during the discharge. By reference to our sketch it will be seen that the guns are loaded from below, and for

that purpose so arranged as to admit of being suspended by adjustable pendulum links secured under the turret-roof. The recoil is checked by buffers attached to the turret wall in the rear of the breach.

Respecting the safety of the charge in the shell from ignition during the discharge, it will be well to observe that efficient means have been devised to prevent such an accident. With reference to the caliber, it is evident that this system of attack calls for dimensions that will admit a shell of sufficient capacity to contain a charge which, by its explosion, will destroy a first class ship of war built on the cellular plan. Nothing short of 300 lbs. of dynamite will suffice for this purpose; hence nothing less than 15 inches caliber will answer. The American and Swedish 15-inch guns are admirably calculated for the purpose, although they are unnecessarily heavy.

The important question of hitting the intended object will be best answered by a careful examination of the accompanying diagram, which cannot fail to convince naval men that, in moderate weather, the elongated shell may be made to dip at the proper distance from an opponent's vessel. The diagram clearly shows that no great accuracy is called for, and that the shell may dip at various distances from the vessel assailed and yet strike the hull. It should be observed that the vertical scale of the diagram is different from that of the horizontal, in order not to place the vessels too far apart for the limited size of this page, consequently the trajectory shown is distorted.



ERICSSON'S NEW SYSTEM OF SUBMARINE ATTACK.

The turret, it may be briefly noticed, in which the light 15-inch-shell guns are mounted, is composed of flat wrought-iron plates forming a square box, wide enough to accommodate the two pieces, suspended, as already stated, by pendulum links secured under the turret-roof. A massive central shaft of wrought-iron supports the square box, on the plan adopted in the monitor turrets. The vessel designed to carry the rotating square box with its light shell-guns is a mere iron hull crammed with motive power, in order to insure a higher speed than that of existing iron-clad ships of war. The midship section is triangular, and the bow raking as indicated by our sketch. The overhanging sides and deck are heavily armored.

PROGRESS IN ARIZONA.—A letter from Arizona, in the *San Bernardino Guardian*, says: A few years ago there were about five farms on the road [from the Colorado] to Prescott. Now there are fifty. Horses have taken the places of huts, and comfort and plenty have supplanted discomfort and privation. Two years ago the settlement of Salt River was begun. To-day it is occupied for thirty miles in length, and producing marvellously. The men who went there poor at that time are prosperous and rich farmers now. Very rich mines are being worked and others are waiting for water. The population is more than double and the productions more than quadrupled.

WORTHY OF IMITATION.—The authorities of the county of Westmeath, Ireland, (we learn from the *R. R. Gazette*) advertised in the London technical papers for a county surveyor. The advertisement announces that an open competition will be held, and the applicants examined in branches of knowledge mentioned. Such a plan is most excellent, and would, if extended to other offices, ensure a most efficient civil service. Shall we never adopt any such measures in our enlightened country?

YUBA COUNTY.—The real estate and personal property are valued at \$3,975,395, and beside these the county property is valued at \$65,000. The rate of taxation for the county is \$1.68%.

FOR THE FOSSIL SHIP.—Charley Cluker and party started again on this morning (says the *San Bernardino Guardian* of November 5th) to find the mythical ship upon the desert this side of Los Palmas. Charley made the trip three or four weeks ago, but made the wrong "chute," and wired his wagon upon the desert when, according to his calculations, he was within ten or fifteen miles of his destination. He is satisfied from the information that he has received from the Indians, that the ship is no myth, and is determined to probe the matter to the bottom, being well prepared with a good wagon, pack-saddles, planks to cross any mucky ground, etc.; and Charley being an enthusiast in the cause of science, if the ship is there, the world will know it upon his return. We hope it is one of the old Spanish galleons, for his sake.

ENGINEERING DIFFICULTIES.—Natural phenomena, says *Nature*, must be regarded by the engineer in the tropics. Here the boring worm will teach him salutary caution. In the East we have seen a railway train stopped on an incline by locusts. The locusts have a fancy for sitting on the rails, and when the engine wheel touches them they are crushed, leaving the rail so oily that the wheel slips. On one line, in the locust season, sand-boxes are used on the locomotives. Oysters are, however, a newly regarded enemy to the engineer. Some gourmand suggested the harbor of Tuticorin as a suitable place for oyster beds, and the Madras Government, doubtless appreciative of the value of oye-

THE AREY FURNACE.—A gentleman writes us from Georgetown that one of the Arey furnaces is being erected there at present and is expected to be in operation on or about the first of April, 1871. "When in operation and its practical results proven, I will give you the chemical process of the furnace. I see there is a wrong impression out your way in regard to its construction and chemical results and means employed, as well also as the principles upon which it is based, it being a combination of two principles, which combination is not used by any furnace known at the present time except the Arey furnace. But I do not wish to expiate upon the merits of the furnace until I can speak from actual facts."

THE SUBSIDY paid by the Imperial Government and the Australian colonies for the steamship service is £130,000, of which Victoria pays £12,145.10, being about one-half the amount paid by the seven colonies, more than double the amount paid by the older colony of New South Wales, and £5,000 more than is paid by the Imperial Government.

GLUE MANUFACTURE.—Few persons are probably aware of what vast quantities of glue are manufactured and consumed in the United States in the course of a year, and to what great variety of uses it is put. There are some forty or fifty manufacturing of this article in this country, which turn out annually, on an average, over 7,000,000 pounds of all grades and colors, from cheap sizing to the finest bonnet glue. It is used largely in cabinet work of all kinds, piano work, woolen and paper manufactures, oil cloths, etc.—almost every thing that is made requires more or less of this useful

article. The great bulk of glue used in this country is made at home, and we are not dependent upon foreign countries for a supply of the ingredients, though considerable quantities are imported every year. This article is made from the waste of hides and skins used by tanners and consists of the scraps and scavings. Prices range from 10c@25c. per lb. for ordinary qualities, and 40c@45c. per lb. for higher grades of white glues, which is somewhat lower than the ruling prices a year ago.—*Boston Com. Bulletin*.

GENERAL LAND OFFICE.—It has been stated that Commissioner Wilson is to resign. The statement is also contradicted.

We hope it is untrue. Mr. Wilson has held the office so long that he is posted in all the details; has proved himself most obliging and well qualified; and his resignation and removal at the present time would cause much trouble and be a serious misfortune. We find, by the way, the following in a Chicago telegram: Mr. Wilson has just completed his annual report which is a most voluminous and expensive review of the land system of the United States, and among other interesting views contains a chapter on the benefits of the emigration from Europe, and the amount of wealth added to the nation thereby. He has also devoted a very lengthy chapter to California, and dilates considerably upon the system of naturalization in this country in its hearings upon questions growing out of our land policy.

A CALIFORNIA HORTICULTURAL MAGAZINE.—We have received the initial number of *The California Horticulturist and Floral Magazine*, published by F. A. Miller & Co., of this city. It is to be issued, we presume, under the auspices of the "Bay District Horticultural Society." The number before us contains 32 pages of excellent matter well prepared and selected. The appearance of this publication gives evidence that a better interest is beginning to be felt in this important and interesting branch of industry. We hail it as an efficient co-worker in our efforts to spread useful information before the people. Published monthly at \$4 per annum.

MINING is becoming again attractive in this State. Business men who have capital have discovered, or at least are on the eve of discovering, that city real estate, situated in a city which has not well developed country surroundings, does not furnish the only reasonable investment for capital. It is beginning to be seen that our gold mines carefully and skillfully worked, will pay for all the trouble and money which may be expended upon them, nay more—that they will pay more surely and certainly than even wheat crops, in the long run of many years. The effect of this idea is that the mining counties are surely reviving, and that in property which is productive they are gradually, though not, rapidly increasing.—*Grass Valley Union*.

FIRE CLAY.—A gentleman is reported to have found in the vicinity of the Santa Cruz Mountains an extensive ledge of excellent fire clay.

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Thursday Evening.

Owing to the time necessary to mail the present large edition of the SCIENTIFIC PRESS, we are obliged to go to press on Thursday evening—which is the very latest hour we can receive advertisements.

Geology and Coal Measures.

In the Mechanic Arts College, last Saturday, Prof. Joseph Le Conte delivered the introductory lecture of his course on the Coal Measures. The first was naturally general in character. The speaker called nature a divine book; science the interpretation of that book, which the votary of science seeks to read carefully, reverently and without prejudice. Nature is a grand harmony, of which, however, the finite mind can catch but broken strains. Some think the one strain the sweeter, others prefer other strains, and hence we find men devoted to different natural pursuits. The lecturer drew a most interesting and ingenious parallel between two branches of science,

Astronomy and Geology.

The two fundamental conditions of natural existence are space and time. The domain of astronomy is space; that of geology, time; in both cases there is no limit, while other sciences treat only of the finite. Astronomy measures by millions of earth-radii, geology by millions of earth-revolutions. Astronomy takes the diameter of the earth as a base-line for measurements to the sun; geology takes the present epoch as a rod for measuring tertiary time. Further, astronomy takes the diameter of the earth's orbit for measuring the distance of the fixed stars and even the nebulae beyond; geology takes the tertiary period to measure the secondary and even the palaeozoic. When telescopic vision fails, the astronomer still speculates on worlds beyond; when fossils no longer appear, the geologist still peers into older ages, and knows that all that is seen is but a fragment of the abyss of time. Astronomy fills the universe of space with figures; geology, the universe of time with events. Astronomy builds on a ground work of geometry, geology on mechanical times. The former binds objects by the law of gravitation, the latter by the law of causation.

The object of science is to establish the universal reign of law. In its history, in the intellectual progress of the world, there are two grand epochs. The one was when the idea of infinite space was first born in the mind of man, when Galileo, gazing at the stars, grasped the idea of possible worlds beyond the seen; the other when, for the first time on earth, the idea of infinite time flashed through the mind of Buffon, while studying fossils the like of which are not found at present.

The lecturer contrasted several of the important points of astronomy and geology. He contended that the former had as many vague uncertainties as the latter, and that the certainties of the second were of greater import than those of the first. Astronomy tells of the size and distance of other worlds, while geology teaches the more important points, the climate, geography and physical conditions. He also contended that the contrast was to the advantage of geology with reference to the influence on human dignity and to their comparative usefulness.

Recurring to the more immediate subject of the evening, geology, the lecturer stated his object to be to select one world of time, to describe this in a few lectures, to connect it with the present epoch, and to draw some practical conclusions. He had selected

The Coal Age.

On account of the distinctness with which it can be depicted, and with its own climate, animals, plants, etc., and also partly on account of reasons of usefulness.

Geological history can be divided into five eras which, with the corresponding ages, are denoted in the following table:

ERAS	AGES
Recent.....	Man
Kainozoic.....	Mammals
Mesozoic.....	Reptiles
Palaeozoic.....	(Coal) Plants
	Fishes
	Mollusks
Azoic.....	Azoic

The earlier eras have names which mean, respectively, "without life" (azoic) as no fossils were known to exist in this era, when the name was given; "ancient life," the forms of the greater portion of the living tribes being peculiarly ancient; "middle life" (mesozoic) the mediæval era of geological history; and "recent life" (kainozoic) where the types are more like those now existing on the earth. The ages are denominated by the predominance of the highest or ruling classes of animals or plants. Thus, in the present (recent) era, man is the monarch; in the kainozoic, no man existed but mammals were the rulers; and so on.

But geological history does not stop here. These events alluded to are recorded in stratified rocks, which are evidently

composed of the debris of older rocks; and thus we take a step further back; and here again we find suggestions of still earlier ages, and no beginning is discovered. But as in the history of generations on earth, everything grows dimmer as we work backwards, so here our record gets more and more indistinct and uncertain.

Geology is the interpretation of the book of time. The strata are the leaves of this book, and the fossils are the hieroglyphics—the native hand-writing of Deity itself.

Where Coal is Found.

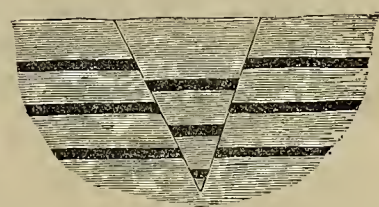
The coal age is divided into three periods:—the sub-carboniferous, the coal measures, and the Permian. The second of these alone will be here treated of, as the highest and most perfect plants are here found, and as the amount of available time for the lecture is limited. In this period is found almost all of the workable coal in the world. Below it not a particle has been discovered; and above it only a little. The recent discoveries on the Western Plains and this coast, and in China and India, have shown coal in later strata; but from 45 to 90 of all workable coal exists in these strata, leaving 1-10 to 1-5 principally for the jurassic and cretaceous and a little, as lignite, in the tertiary. This is an important fact, and the knowledge of it would have saved millions of dollars which have been spent in useless search. The sums uselessly spent in New York and in Great Britain would have sufficed for surveying both of these places most carefully several times over, and, what is more important, a knowledge of the fact would have prevented the tremendous demoralization of true, legitimate industry.

The aggregate thickness of the strata is sometimes very great. In Nova Scotia it is at least 15,000 feet; in Pennsylvania, 8,000 feet, but diminishing as one goes westward, until at the Mississippi river it is about 1,000 feet. All of this is not coal, but there occur alternating layers of sandstones, shales and limestones, with seams of coal and bands of iron ore. There is no apparent order of succession, except that each coal seam has in contact with it above black slate or shale as a roof, and below fire clay. In the former are impressions of leaves, in the latter abundance of roots,—a significant fact.

The continuity of the seams is remarkable. Some extend through whole coal fields, generally like flat cakes, thinner at the margins. Thus one is enabled to tell, in sinking at a distance, if the same seam is struck, often a point of importance, especially if the quality of coal is such as to render it much prized. Thus the Pittsburgh seam has been traced for 14,000 square miles and upwards, perhaps, to a much greater extent.

Irregularities of Strata.

The strata were at first deposited horizontally but now show all positions, having



been tilted, broken and often carried away by erosions. Consequently one finds them in basins, as mountains, etc. The lecturer showed diagrams of coal strata illustrative of this point.

A comparison, in some points, was here instituted between coal veins and metallic deposits. Coal is confined to certain periods, and never found in earlier strata than those mentioned. Veins occur in all ages, and particularly in the older ones. Veins generally break through strata, while coal always occurs between them.

The crushings, foldings and faults in coal seams often cause difficulty in working and trouble in following them. It is, therefore, an important matter to find a rule to guide the miner. One has been found which is of almost universal application in England, and answers in many cases in America. It is this: In case of a slip, the foot wall has generally gone upwards. Hence if one strikes a slip on the foot wall, one must go down for the vein; if on the hanging wall, go up. [The accompanying diagram illustrates this sufficiently well.]

The thickness of coal seams varies from that of a sheet of paper to 50, 60 or 70 feet. But in these often sand, etc., occur. Absolute pure coal probably does not occur over 12 to 15 feet thick. Generally in thicker strata, one or more seams of sand or shale are found. A coal seam below

three or two feet is not profitable to work as a rule.

The number of alternations is also very variable. We have examples of 70 in Nova Scotia, and 100 in Belgium, in one field. Examples of aggregate depth are: of 70 feet near the Mississippi river; 120 feet at Pottsville, Pa.; 100 feet in Belgium.

The best coal is generally found in the middle region, and also thicker here than above or below, which is significant with regard to its method of formation.

The San Juan Mission.

[WRITTEN FOR THE SCIENTIFIC PRESS.]

The Old Missions.

Nothing strikes a traveler in California with a keener feeling of interest and curiosity, than the old Missions one occasionally meets with in his journeyings. The grand snow-crowned mountains, the primeval forests of gigantic trees, the deep cañons and dizzy cataracts, the immense stretch of inland valleys and the bold sea shores, are all eloquent with new teachings of wonderful and beautiful and astonishing fascination. But while the one fills us with sublime emotions, the other awakens a strange awe, a mysterious reverence and a desire to know the story of all this crumbling clay and mortar; to know under what conditions they were erected, and by what manner of people surrounded and unprotected.

Built mostly of adobe, with plastered walls that of late years have been sadly neglected, they have an ancient appearance which is not warranted by a record of time. One could as easily imagine a thousand of gloomy years had left their impression of decay, as only a hundred.

The San Juan Mission.

Arriving in San Juan on a smoky, dry, autumn day, when all nature seemed somnambulant, and the quaint old half-Mexican town stood harmoniously in keeping with its sleepy surroundings, almost our first enquiry, was about the queer old Mission that occupies the summit of the isolated mound upon which the village is built, overlooking the beautiful and fertile valley. We were referred to Father Cypr. Rubio, the parish priest, a Castilian by birth, who has resided in this State fifteen years, and has been in this parish five and a half years. We found him a most agreeable gentleman, and most kind and obliging.

From him we learned that the English name of this Mission is St. John the Baptist; also that the Mission was founded by the Franciscan Missionaries of the College of San Fernando, Mexico, on the 24th of June 1797, where the church now stands, in a place called by the natives Popeloutchom, and by the Spaniards San Benito; or in English St. Benedict. Father Fermín Francisco de Lasuen, President of the Missions of California, presided at the ceremony; Father Joseph Manuel de Martiarena and Father Pedro Adriano Martinez being the appointed first ministers of the new Mission.

Establishing Missions—Treatment of the Natives.

The way Missions were established was by erecting a cross, and celebrating mass at its foot, with due solemnity. It was then declared and proclaimed as founded. Ministers were appointed or commenced serving; but were built for priests, soldiers and servants. The soldiers, or guard, did not exceed six men in number, while the servants were generally civilized Indians, and were attached to all such establishments, as aids and assistants in reconciling and christianizing the natives.

At that time the country around was quite thickly inhabited by wild Indians who lived in numerous small villages or lodges. Before much progress could be made towards christianizing and civilizing them, it was necessary to subdue the fears, enmities and prejudices found existing among them. This work the fathers undertook with tender kindness, healing the sick, sympathizing with the afflicted, and teach-

ing the advantage of providing for future want, as well as the use of labor, the benefits of civilization and the blessings of faith in divine teachings. When we take into account the nature of these savages, and observe the work of their hands, in the buildings now standing, built under the directions of the Fathers, we can but admire the influence and controlling power obtained over them. Besides the church, the mission, as built up, originally consisted of a large square, surrounded by substantial adobe buildings with massive arched piazzas and entrances, supported by brick pillars or columns, and with burnt tile roofs, the whole comprising numerous abodes, workshops, etc.; while in case of attack from outside barbarous tribes, the stock could be securely corralled within the court.

The Large Church

In this mission is a rather dilapidated looking affair, 160 feet long by 60 feet broad, with three aisles running lengthways of the building. The central aisle only is in use; this is 28 feet wide, and the plastered ceiling, supported by brick arches, is about 25 feet from the floor, which is paved with brick. The church was first covered with tiles, but it has now a wooden roof. The interior is quite elaborately designed, and decorated with statuary, images, with paintings, etc., in accordance with the superstitions and rites of the Roman Catholic faith and worship. An immense bell that frequently reminds the indolent, of their prayers hangs close to the doorway.

On the 23d of June, 1812, just fifteen years after the establishment of this mission, the church was finished and dedicated. Father Felipe Arroyo de la Cuesta and Father Roman Fernandez were the ministers on the occasion. Up to this date there had been 1,962 baptisms, 485 marriages and 1,153 burials recorded in the book, as administered according to the faith. The tribes of Indians which were thus brought within the ministrations of the church were *Mutesuns*, who spoke the Mutesun language. It is claimed that this tongue prevailed over quite a large extent of country. Father Felipe Arroyo de la Cuesta wrote a full vocabulary and grammar of the Mutesun language, which has been published by the Smithsonian Institute. The vocabulary comprised some 2,884 words.

Father Rubio showed us the old burying ground, adjoining the church and scarcely larger in area than the ground which the church covers. He informed us that between 4,000 and 5,000 persons had been buried in that small enclosure. That number of bodies piled within the space would lay four deep with no room to spare between them! This custom of using the same ground over and over again was common throughout the Mexican Missions. The bones dug out were returned again before the earth was filled in. There is now belonging to the church here a commodious, and beautifully situated cemetery adjoining the Protestant grounds.

WHAT IS THE CAUSE OF SO MUCH LOSS OF LIFE?—What is the deeper cause of this wide spread and lamentable destruction of human life; and, if remediable, how is it to be remedied? Obviously, the cause is want of the mental capacity of self-protection, and the sole remedy is to supply that want, which is the true work of education. We hear of the instinct of self-preservation, but the idea is erroneous; there is an instinct of love of life, but self-preservation is an affair of the reason and of knowledge. Again, there is much said about the injurious consequences of breaking the physical laws, but this is a mistaken notion; it is not the physical laws that are broken in these cases, but the laws of reason; while the great mass of accidents, from which people suffer, are simply the penal consequences of loose thinking.—*Ex.*

CURIOSITIES OF VISION.—In making up the forms last week, the small cut in the article with this heading was reversed, so that our readers may have some considerable difficulty in performing the experiment. As the cut now is, they must substitute "left" for "right" eye and *vice versa* in the directions, or, if they prefer, stand on their heads and view the cross.

SALE OF FARMS.—Two farms of 160 acres each, near Knight's Landing were sold a few days since—one for \$22 per acre, and the other for \$24.50 per acre. This, considering the manner of sale, must be considered very fair prices.

NEVADA AND CALIFORNIA PROCESSES of silver and gold extraction; for general use, and especially for the mining public of California and Nevada, by Guido Kustel, containing 350 quarto pages, and illustrated with accurate lithographic engravings, 1868. Sold by Dewey & Co., Publishers Scientific Press, San Francisco. Price \$5 (coin).

PHOTOGRAPHY.—For Cabinet Photographs, or Enamelled Cards, of the very best quality, you must go to the NEW YORK GALLERY, Nos 25 and 27 Third Street, San Francisco. Every picture warranted to give satisfaction.

BOILER FUELING saves twenty-five per cent. of fuel. BERRY & PLACE'S MACHINERY DEPOT, No. 114 California Street. nov12-3m

BROK TIE AND SOLDER WIRE, broom wire, piano covering wire, etc., manufactured by Joshua Gray, 437 Brannan Street. nov19-3m

THOMAS O'NEIL, Ornamental Glass Cutter, No. 10 Stevenson Street, up stairs. Stained, Ground and Ornamental Cut Glass to order on reasonable terms. nov20

HAVING had numerous applications to purchase the right to manufacture CHAMPAGNE MEAN (the great temperance drink), we will state that we are now prepared to sell State and County Rights on reasonable terms. KENTON, GASS & CO. nov21-3m

WHAT IS QUILLAYA SAPONARIA?—It is a tree, the bark of a Chilian tree, which, when macerated, a fragrant vegetable soap with cleaning and antiputrescent properties, used by any other vegetable production. This bark is a prominent constituent of the celebrated Saponato, the most popular dental preparation ever introduced in America.

"SPALDINO'S GLUE," stickiest thing out.

FROM A READER.—Duncan's Mill, Shwoma Co., Oct. 10, 1870.—Messrs Dewey & Co: Don't stop my paper. Your Journal is very valuable. No better investment for \$1. Rept. B. C. B.

CONTINENTAL LIFE Insurance Co., 302 Montgomery Street, corner of Pine.

CO-OPERATIVE UNION STORE.—This is becoming one of the most useful institutions in the city, and the Mercantile and Laboring Man fully appreciate it. They are now enabled to buy their Groceries and Provisions 20 per cent. cheaper than ever before, and the very best articles in the market. The store is located at 115 Sutter Street, Lick House Block.

MARAVILLA COCOA. For Breakfast.—The Globe says: "Various importers and manufacturers have attempted to attain a reputation for their prepared Cocoas, but we doubt whether any thorough success has been attained until Messrs Taylor Brothers discovered the extraordinary qualities of 'Maravilla' Cocoa. Adapting their perfect system of preparation to this finest of all species of the Theobroma they have produced an article which surpasses every other Cocoa in the market. Entire solubility, a delicate aroma, and a rare concentration of the purest elements of nutrition, distinguish the Maravilla Cocoa above all others. For housewives and invalids we could not recommend a more agreeable or valuable beverage." Sold in packets only by all Grocers, of whom also may be had Taylor Brothers Original Homoeopathic Cocoa and Soluble Chocolate. Stearns Mills Brick Lane, London. 5v20-1y

Mining and Company Advt's.

Every Advertisement in this journal is published throughout its entire Mining, Agricultural, Monthly and Quarterly Editions.

I. X. L. Gold & Silver Mining Company, Location of Mine Silver Mountain District, Alpine County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the eighteenth day of October 1870, an assessment of one dollar (\$1.00) per share was levied upon the capital stock, of said Company, payable immediately in United States gold and silver coin, to the Secretary at his office, Pioneer Hall, 808 Montgomery Street, San Francisco, California. Any stock upon which said assessment shall remain unpaid on the nineteenth day of November 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Wednesday the seventh day of December 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

Office, Pioneer Hall (up stairs) Montgomery Street, San Francisco, California. oc 29.

Kincaid Fiat Mining Company, Tuolumne County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 20th day of October 1870, an assessment of \$2.50 per share was levied upon the capital stock of said Company, payable immediately in United States gold and silver coin, to the Secretary San Francisco.

Any stock upon which assessment shall remain unpaid on the 21st day of November 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Saturday the 3rd day of December, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees. D. H. CROWE, Secretary. oc22 Office 270 Clay Street, San Francisco.

Mahogany G. & S. M. Company.—Location of Works, Silver City, Owyhee County, Idaho Territory.

Notice is hereby given, that at a meeting of the Trustees of said Company, held on the second day of Nov. 1870, an assessment (\$2.00) of \$2.00 per share in United States Gold coin, was levied, payable immediately to the Secretary at the office of the company, Room No. 2, Express Building, San Francisco, California. Any stock upon which said assessment shall remain unpaid on Monday Dec. 5, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, on Dec. 10, 1870, and unless payment shall be made before, will be sold on Tuesday December 27, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of the sale. G. M. RICHARDSON, Secy. Office No. 2, Express Building, San Francisco, Cal. Nov. 5

Land Purchasers' Association—Office, No. 30 Montgomery Street San Francisco.

Notice.—There are delinquent upon the shares of the following named persons on account of Assessment levied on the first day of October, 1870, the several amounts set against the names of the respective shareholders as follows:

Names.	No. Certificates.	No. Install.	Amount.
Thomas R. Hayes.....	1,2,3,4,5	3	\$20.00
Alfred H. Brown.....	9	3	30.00
J. W. Cherry.....	10	6	60.00
John Bays.....	28	8	80.00
Thomas H. Day.....	32,33	2	40.00
Gustave Scott.....	4	4	40.00
James E. Agner.....	55,56	1	20.00
E. F. Reid.....	57	1	10.00
Phil D and.....	114	1	20.00
H. H. Mayhew.....	91	7	70.00
Martin L. Hass.....	57,98	7	140.00
C. M. Kline.....	100,101	6	120.00
John C. Koch.....	108	1	10.00
A. Whitney.....	108	7	70.00
S. S. Spangue.....	114,119	6	120.00
Mrs. J. A. McElroy.....	114	4	40.00
W. Grein.....	117	1	10.00
Henry Keller.....	127,128,129,130	3	300.00
	131,132,133,134		
	135,136		

Dr. D. C. Cone.....167 2 20.00
G. C. Burnett.....160 2 20.00
Charles Frey.....174 3 30.00
Otis J. Galt.....173,174 3 60.00
E. D. Haver.....20 3 30.00
L. Kilgort.....21,22 8 160.00
J. A. Collier.....21 1 10.00

And in accordance with law, and an order of the Board of Trustees, made on the first day of October, 1870, many shares of said stock as may be necessary, will be sold at the office of the Secretary, No. 304 Montgomery Street, San Francisco, on Saturday the twenty-sixth day of November 1870, at the hour of 12 o'clock M., of said day, to pay said delinquent Assessment thereon together with costs of Advertising and expenses of sale.

J. F. CROSETT, Secretary. Office 304 Montgomery Street, San Francisco. nov6

Mountain City Mining Company.—Location of Works: Copie District, Elko County, State of Nevada.

Notice.—There are delinquent upon the following described stock on account of assessment levied on the 20th day of Sept. 1870, the several amounts set opposite the names of the respective shareholders, as follows:—

Names.	No. Certificates.	No Shares.	Amount.
Best, John T.....	61	400	\$200.00
Greck, H. J.....	42	100	50.00
Read, Francis.....	62	400	200.00
Rogers, F. A.....	12	500	250.00
Rogers, F. A.....	12	200	100.00
Rogers, F. A.....	13	100	50.00
Rogers, F. A.....	14	100	50.00
Rogers, F. A.....	15	50	25.00
Rogers, F. A.....	16	50	25.00
Rogers, F. A.....	17	50	25.00
Rogers, F. A.....	18	50	25.00
Rogers, F. A.....	19	10	5.00
Rogers, F. A.....	20	10	5.00
Strong, Harvey.....	28	125	62.50
Sharp, Wm H.....	31	900	450.00

And in accordance with law, and an order of the Board of Trustees, made on the 29th day of Sept. 1870, so many shares of each parcel of said stock as may be necessary, will be sold at public auction at the sales room of the Dore & Co., No. 327 Montgomery Street, S. F., on the 25th day of November 1870 at the hour of 11 o'clock A. M., of said day, to pay said delinquent Assessment thereon, together with costs of advertising and expenses of sale.

T. B. WINGARD, Secretary. Office, No. 206, Front Street, San Francisco. nov12-2w

Nevada Land and Mining Company.—Location of Works: Steptoe, Johnson & Latham, Antelope and Clifton Districts, Elko County, State of Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the sixteenth day of November, 1870, an assessment of four (4) cents per share was levied upon the capital stock of said Company, payable immediately in United States gold coin, to the Secretary at his office, Room 5, 202 Montgomery Street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on the seventeenth day of December, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Saturday, the seventh day of January, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

WM. H. WATSON, Secretary. Office, Room 5, No. 302 Montgomery Street, San Francisco, California. nov19-4t

Providence Gold and Silver Mining Company.—Nevada County, California.

Notice is hereby given that at a meeting of the Board of Trustees of said Company, held on the 12th day of November 1870, an assessment of one dollar per share was levied upon the capital stock of said Company, payable immediately in United States gold and silver coin to the Secretary.

Any stock upon which said assessment shall remain unpaid on the 21st day of December 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before will be sold on Thursday the 5th day of Jan. 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

J. M. BUFFINGTON, Secretary. Office, No. 37 New Merchants Exchange, San Francisco. nov19, 3

Silver Sprout Mining Company.—Location of Works and Mines, Kearsage District, Inyo County California.

Notice.—There are delinquent upon the following described stock, on account of assessment levied on the twenty ninth day of Aug. 1870, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. of Certif.	No. Shares.	Amount.
Brown, B. L.....	11	10	2.50
Cleveland, H. H.....	24	10	2.50
Devlin, J. D.....	12	10	2.50
Davis, James H.....	20	40	10.00
Hearst, Geo.....	(unissued)	200	50.00
McLaughlin, J. W. (unissued)		1000	250.00
Mott, E. B.....	29	50	12.50
Stewart, Chas E.....	23	100	25.00
Spaulding, Geo.....	25	40	10.00
Wade, Wm N.....	(unissued)	220	55.00

And in accordance with law and an order of the Board of Trustees, made on the twenty ninth day of Aug. 1870, so many shares of each parcel of said stock as may be necessary, will be sold at public auction at the sales room of Maurice Dore & Co., No. 327 Montgomery St., San Francisco, on the first day of December 1870, at the hour of 11 o'clock A. M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

T. B. WINGARD, Secretary. Office, 206, Front Street, San Francisco, California. Advertising charges \$2.00 each certificate. Oct. 29-2w

New Advertisements.

Devoted Exclusively to American Interests.

THE AMERICAN CHEMIST

EDITED BY

CHAS. F. CHANDLER, Ph. D., and W. H. CHANDLER.

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Kieselguhr Mining Iron with Copper and Brass. By W. H. Walsby.

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Some circumstances in which favor the spontaneous Precipitation of Alumina and Magnesia by Ammonia. By Laurence F. J. Whittle.

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On the Precipitation of Metals of the Magnesium Group in the Form of Oxalates. By W. Gould Nelson.

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Determination of Iron in Cast-iron. By C. Muncie.

New Method of Heating Stone-ware Vessels. By J. A. Coffey.

Chemical Notices.

From Foreign Sources, comprising 24 compact pages of Critical Notes on upward of 350 chemical papers which have been published in the last two months.

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Brevities.

Books Received.

Answers to Correspondents.

Questions from Correspondents.

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Southeast cor. Tenth & K Streets, Sacramento City Cal. Agents.—Chas. F. Bacon, 117 California St., San Francisco; KEEL & BARGEN, Stockholm. 21v21-1f

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A NEW BOOK FOR MINERS.

(Issued July 1870.)

ROASTING OF GOLD AND SILVER ORES AND THE EXTRACTION OF THEIR RESPECTIVE METALS WITHOUT QUICKSILVER.

BY G. KUSTEL,

MINING ENGINEER AND METALLURGIST, Author of "Nevada and California Processes of Silver and Gold Extraction," and "Lampification of all kinds of Ores."

CONTENTS:

I. INTRODUCTION.

Classification of Ores; Important Silver Ores; Difference between Real Silver Ores and Argentiferous Ores; Important Combinations; Means of Desulphurization; Means of Reduction; Desulphurization of Ores Not Efficient; What a Chloride is and How Chlorination is Effected; Means of Separating the Metals from Chlorine.

II. ROASTING OF ORES.

A. Chloridizing Roasting; Necessary Amounts of Sulphurets; Amount of Salt Used; Permanent Stirring Not Essential; Signs of a Good Chloridizing Roasting; Means of Destroying Base Metal Chlorides; Steam decomposes Base Metal Chlorides; Application of Steam in Roasting; Lead has a Bad Influence; Difference in Roasting Processes; In what condition the Metals are after Roasting; Charges in Roasting.

B. Oxidizing Roasting; Chemical Changes in Roasting; What Process requires Oxidizing Roasting; Roasting Furnaces; Furnaces managed by Handwork; Reverbatory Furnaces; Simple Roasting Furnace; Double Roasting Furnace; Long Roasting Furnace; Muffle Furnace; Furnaces with Mechanical Apparatus; Revolving Hearth Furnace; Ernst's Rotary Furnace; Parker's Furnace; Buckner's Furnace; O'Hara's Chain Furnace; Stetefeldt's Furnace; Chimneys and Flues.

III. EXTRACTION OF SILVER BY LIxivATION.

C. Solving Process; Extraction of Silver; Precipitation of the Silver; Treatment of the Precipitated Silver; Precipitation of Copper; Quality of Ores fit for the Solving Process; Sulphide of Calcium; Hyposulphite of Lime; Pathe Process; Kiss Process; Pathe and Roszner Process; Kustel and Hoffmann Process; Angustin Process; Zervogel Process; The Leaching Process.

IV. EXTRACTION OF GOLD.

D. The Chlorination Process (Plattner's); Chlorination of Sulphurets and Arseniurets.

This new book on the treatment of gold and silver ores without quicksilver, is liberally illustrated and crammed full of facts. It gives short and concise descriptions of the various processes and apparatus employed in this country and in Europe, and explains the why and wherefore.

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CHLORINATION PROCESS

FOR GOLD-BEARING SULPHURETS, ARSENIURETS, AND GOLD AND SILVER ORES GENERALLY.

By GUIDO KUSTEL,

MINING ENGINEER AND METALLURGIST,

Author of "Nevada and California Process of Silver and Gold Extraction."

With 120 Lithographic Diagrams.

Published and sold by DEWEY & CO., Publishers Scientific Press, San Francisco, 1868.

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I. INTRODUCTION.—The Dressing; The Separation; Cleansing and sizing Contrivances; Rotary Sizers, etc.

II. REDUCTION.—Reduction of Ores; Description of Batteries; Details of a Battery; Speed, Curve and Order of Lifts; The Discharge of Batteries; The Feeding of Batteries; Reduction by Rolling Mills; Grinding; Pans with Plane Mullers; Pans with Conical Mullers; Pans with Tractory-Conical Mullers; Pans with Perpendicular Mullers.

III. CONCENTRATION.—Concentration of Reduced Ore; Concentration of Ore Grains, (Jigging Shuf); Movable Jiggers; Stationary Jiggers; Conical Jiggers; Rotary Machines; Concentration of Ore Sands; Assorting of Sands; Feeding of Concentrator; Stationary Concentrators; Percussion Table; Oscillating and Shaking Tables; Steady Moving Concentrators.

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V. CHLORINATION.—Extraction of Gold from Sulphurets by chlorination; Assay ditto; Loss of Gold in Roasting; Roasting Furnaces and Operation; Roasting with Salt; Dampening of Roasted ores; Sifting; Production of Chloride Gas; Lixivation; Precipitating Vat; Precipitation cost of Process; Roasting

San Francisco Metal Market.

PRICES FOR INVOICES

Jobbing prices rule from ten to fifteen per cent. higher than the following quotations.

TUESDAY, Nov. 17, 1870.	
Iron.—Duty: Pig \$9 per ton; Railroad, 60c @ 100 lbs.; Bar, 1 1/4c @ 10; Sheet, polished, 3c @ 10; common, 1 1/2c @ 10; Plate, 1 1/2c @ 10; Pipe, 1 1/2c @ 10; Galvanized, 2 1/2c @ 10.	
Scotch and Eng. Pig Iron, @ ton.....	00 @ \$32 50
White Pig, @ ton.....	30 @ 31 00
Rehmed Bar, had assortment, @ lb.....	03 @ —
Rehmed Bar, good assortment, @ lb.....	04 @ —
Boiler, No. 1 to 4.....	04 1/2 @ —
Plate, No. 5 to 9.....	04 1/2 @ —
Sheet, No. 10 to 13.....	04 1/2 @ —
Sheet, No. 14 to 20.....	05 @ —
Sheet, No. 24 to 27.....	05 @ —
Copper.—Duty: Sheathing, 3 1/2c @ 10; Pig and Bar, 2 1/2c @ 10.	
Sheathing, @ lb.....	20 @ —
Sheathing, Yellow.....	20 @ —
Sheathing, Old Yellow.....	10 @ —
Composition Nails.....	21 @ —
Composition Bolts.....	21 @ —
Tr. Plates.—Duty: 25 cent. ad valorem.	
Plates, Charcoal, 1X, @ box.....	12 00 @ —
Plates, 1 1/2 Charcoal.....	10 00 @ 10 50
Riveting Plates.....	10 00 @ 10 50
Burca Tin, Slabs, @ lb.....	10 @ —
STEEL.—English Cast Steel, @ lb.....	15 @ —
QUICKSILVER.—@ lb.....	7 @ —
LEAD.—Pig, @ lb.....	6 @ —
Sheet.....	9 @ —
Pipe.....	8 @ —
Bar.....	8 @ —
ZINC.—Sheets, @ lb.....	10 1/2 @ —
BURAL.....	35 @ —

Machinists and Foundries.

FULTON
Foundry and Iron Works.

HINCKLEY & CO.,

MANUFACTURERS OF

STEAM ENGINES,

Quartz, Flour and Saw Mills,
Hayes' Improved Steam Pump, Brodie's Improved Crusher, Mining Pumps, Amalgamators, and all kinds of Machinery.

N. E. corner of Tehama and Fremont streets, above Howard street, San Francisco. 3-47

THE RISDON
Iron and Locomotive Works.

INCORPORATED.....APRIL 30, 1868.
CAPITAL.....\$1,000,000.

Corner of Beale and Howard Streets,
SAN FRANCISCO.

Steam Engine Builders, Boiler Makers, Machinists, Foundrymen, and Manufacturers of Car Wheels equal to the best imported, and guaranteed equal to Eastern Wheels.

Directors: S. F. Butterworth, Lloyd Tevis, Wm. Alvord, Wm. Norris, Joseph Moore, Chas. E. McLane, John N. Risdon, John A. Risdon.
JOHN N. RISDON.....President.
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UNION IRON WORKS,
Sacramento.WILLIAMS, ROOT & NEILSON,
MANUFACTURERS OFSTEAM ENGINES, BOILERS,
CROSS' PATENT BOILER, FREDER and SEDIMENT
COLLECTOR.

WILCOX'S PATENT WATER LIFTERS,

Danbar's Patent Self-Adjusting Steam Piston
PACKING, for new and old Cylinders.
And all kinds of Mining Machinery.

Front Street, between N and O streets,
SACRAMENTO CITY.

ESTABLISHED 1851.

PACIFIC IRON WORKS,

First and Fremont streets,

SAN FRANCISCO

IRA P. RANKIN, A. P. BRAYTON,
GEO. W. FOGG, Superintendent.

Steam Engines and Boilers,

MARINE AND STATIONARY,

IRON AND BRASS CASTINGS

Mining Machinery of Every Description,

And all other classes of work generally done at first-class establishments, manufactured by us at the lowest prices, and of the highest quality.

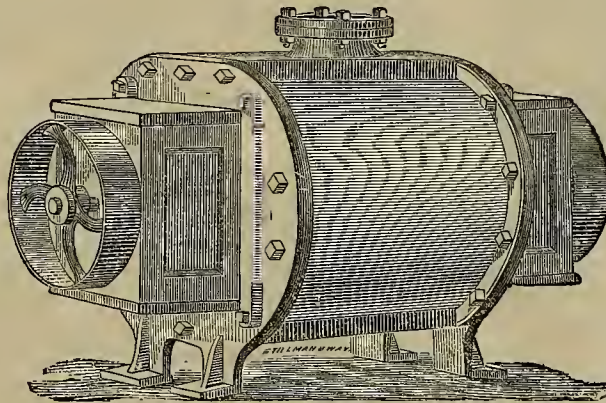
Particular attention paid to Jobbing Work and Repairs.
N. B.—Sole Agencies for sale of HUNTOON'S CELEBRATED PATENT GOVERNOR,
1870-20-3m
GODDARD & CO

ROOT'S PATENT FORCE BLAST ROTARY BLOWER.

MANUFACTURED BY KEEP & BARGION,

At the Globe Iron Works, Stockton, California.

Awarded the First Premium at
the Paris Exposition.



Patented Nov. 1st, 1864; July 24, 1866; and Oct. 9, 1866.

ADAPTED

FOR

Smelting.

Foundry,

Mining

and

Steamships.

REQUIRES

Fifty Per Cent.

LESS POWER

Than any Blower

Now in use.

One of these Blowers may be seen on exhibition at W. T. Varratt's Brass Foundry, corner of Mission and Fremont street. They are also in use at the Almaden Quicksilver Mine; Gridley's Foundry, Gold Hill, Nevada; Alton Iron Works, San Francisco, and many other places.

CAUTION.—Purchasers will find it to their advantage to apply direct to the Stockton Agency, as certain parties, not authorized to manufacture the Blower, have put in the market machines of inferior construction, which do not answer all the requirements of the genuine article.

Quartz, Saw and Grist Mill Irons, Steam Engines, Horse Powers, High and Low Pressure Steam Engines, Steamboats and Propellers, made at short notice.

For circulars and further information address

KEEP & BARGION,

Globe Iron Works, Stockton, Cal.

4v16 3m

CAMERON'S
STEAM PUMPS.
PICKERING'S
Engine Regulators.
GIFFARD'S
INJECTORS.
BARTOL'S
STEAM TRAP.
SURFACE
CONDENSERS.
DAVID STODDART,
114 BEALE STREET.

NOVELTY MILL AND GRAIN SEPEARATOR.

The undersigned having purchased of the Patented, WILTS & SWIFT, of Hudson, Michigan, their right to this mill, Patented June 22d, 1869, for California, Oregon, Washington Territory, Montana, Utah, New Mexico and Arizona, wishes to call the attention of FARMERS, MILLERS AND GRAIN DEALERS to one of THE GREATEST IMPROVEMENTS OF THE AGE for cleaning and separating grain. While it combines all the essential qualities of a first-class FANNING MILL, it also far exceeds anything that has ever been invented for the separation of grain. It has been thoroughly tested on all the different kinds of mixed grain, separating all the different seeds in almost a magical manner, placing them in their different compartments in the mill arranged for their reception, at the same time taking out all the Mustard, Grass Seed, Barley and Oats, and making two distinct qualities of wheat if desired, thereby selecting superior, large plump and perfect kernels for SEEN WHEAT, and all the small and cut kernels, such as unmerchantable wheat, is deposited in another compartment. By the use of this fan, as the cut or shrunken kernels will never germinate.

The above mentioned Novelty Mill is the only mill known to possess all these superior qualifications, and was exhibited and tested at the last Michigan State Fair held at Jackson, Michigan, September 21, 22, and 23, 1869, and bore away the palm over some thirty other different mills from all parts of the United States, including the famous DICKY Mill of Racine, Wisconsin. All who have witnessed here the operations of the NOVELTY MILL, declare it perfect in all, and the most beneficial invention to the Farmers, Millers, and Grain Dealers ever introduced on the Pacific Coast. The Farmers in Santa Clara County, are loud in its praise, and also in other parts of the State where it is being introduced. No. 1 Mill, complete, is capable of cleaning 25 tons of grain per day; No. 2 Mill, 15 tons; No. 3 Mill, 8 tons. A large number of recommendations and certificates of the practical working of the mill will be furnished. Circulars containing references sent free by mail. N. B. Town, County, or State Rights for sale on favorable terms. For further particulars apply to

E. STONE, 423 Battery Street, San Francisco.

GEO. T. PRAOY'S
MACHINE WORKS,

109 and 111 MISSION STREET,
SAN FRANCISCO.

MANUFACTURER OF

PRAOY'S IMPROVED
PATENT STEAM ENGINE

GOVERNOR.



These Governors are the most sensitive built, running at a high velocity and maintaining a uniform speed.

SOLE AGENT FOR

L. W. POND'S CELEBRATED TOOLS,

—SUCH AS—

Lathes, Planers, Drills, Boring Mills, Milling Machines, Etc.,

Which I will offer at very low rates. Also,
MORSE'S TWIST DRILLS,
AND CHUCKS OF ALL KINDS.

MANUFACTURER OF

Steam Engines, and Mill Work Generally,

Sole Agent for TAYLOR'S PATENT SHEARS AND PUNCHES. 3v21

MACHINERY

—AT—

GREATLY REDUCED RATES.

Miners' Foundry & Machine Works,

235 TO 245 FIRST STREET,
SAN FRANCISCO.

This Establishment is now working upon the
CO-OPERATIVE PLAN,
And are thereby enabled to manufacture

MACHINERY, CASTINGS & BOILERS
AT FAVORABLE PRICES.

And better adapted to the wants of the Pacific States
Ascertain our prices before purchasing. 8v20

CALIFORNIA BRASS FOUNDRY,

No. 125 First street, opposite Minna,

SAN FRANCISCO.

ALL KINDS OF Brass, Composition, Zinc, and Rabbit Metal Castings, Brass Ship Work of all kinds, Spikes, Sheathing Nails, Rudder Braces, Rings, Ship and Steamboat Belts and Gongs of superlative. All kinds of Tacks and Valves, Hydraulic Pipes and Nozzles, and Hose Couplings and Connections of all sizes and patterns, finished with dispatch.
PRICES MODERATE. 4v2

J. H. WEDD,

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California File Manuf'g Co.

437 BRANNAN STREET, bet. Third and Fourth.

W. WOSTHOFF, L. KRAMER, M. HARRIS, J. BURKE.

REAPER and MOWER SECTIONS, BARS
AND KNIVES COMPLETE.

At a saving of 50 per cent. New Files of every description on hand and made to order. Old Files re-cut, and warranted equal to new. Orders from the country promptly attended to. 4v19-47

McAFEE, SPIERS & CO.,
BOILER MAKERS

AND GENERAL MACHINISTS,

Howard st, between Fremont and Beale, San Francisco.

Flue or Tubular Boilers, with plain circular or spiral courses. Upright Flue or Tubular Boilers, Locomotive and Marine Boilers, and Wrought Iron Tanks of every description.

Hydraulic Pipe supplied at reasonable rates. In order to give the quantity of water to be supplied, height of the fall, and total length of pipe, so as to enable the firm to determine the diameter of the pipe and thickness of iron to be used.

Repairs.—Boilers, Smoke Stacks, Pipes, etc., put in repair with promptness.

To Boiler Makers and Machinists in the Interior.—The firm is prepared to furnish estimates of Boilers, on plain new Heads, drilled and punched, and attend to the selection and forwarding of Iron for Boilers, Pipes and other purposes.

Plans, Drawings and Specifications.—The firm is prepared to make out Plans and Specifications, receive estimates, and superintend the Erection of any Machinery that may be entrusted to their care.

To Inventors.—The firm is prepared to assist in developing the plans of those who have the ideas but not the practical experience necessary to put the same in form, by making Drawings of their Inventions, giving them the benefit of their practical knowledge in the construction of Machinery, and attending to the manufacture and introduction of their Inventions. 4v16f

NELSON & DOBLE,

AGENTS FOR

Thomas Firth & Sons' Cast Steel.



MANUFACTURERS OF

Sledges, Hammers, Stone Cutters' Blacksmiths' and Horse-Shoers' Tools,
13 and 15 Fremont street, near Market, San Francisco. 4v14or

[ESTABLISHED 1820.]

WILLIAM J. YOUNG & SONS,

Mathematical Instrument Makers,

No. 43, North Seventh St. Philadelphia Pa.

Having increased their facilities, expect in future to keep on hand a full supply of Transits, Levels, Compasses, Solar Compasses &c. Manufacturers of Young's celebrated Shifting Tripod for Transits. Original manufacturers of Burt's Solar Compass. 4v21-2m

New York Metal Market.

[CONNECTED WEEKLY FROM THE AMERICAN ARTISAN.]

NEW YORK CITY, Saturday, Nov. 5, 1870.
IRON.

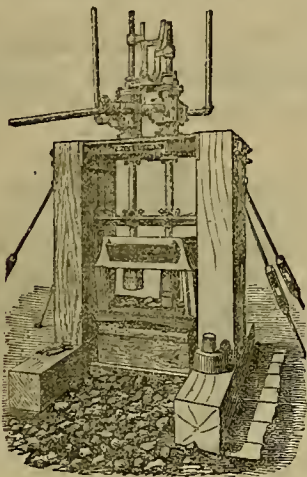
Pig, Scotch, No. 1 (cash), per ton.....	\$31 00	@	\$36 00
Pig, American, No. 1 (cash).....	29 00	@	31 00
Pig, American, No. 2.....	29 00	@	31 00
Swedish, ordinary sizes.....	110 00	@	125 00
Common.....	75 00	@	80 00
Refined.....	77 50	@	95 00
Rods.....	85 00	@	120 00
Horse-shoe.....	95 00	@	—
Hoop.....	105 00	@	150 00
Scroll.....	97 50	@	125 00
Nail rods, per lb.....	7 00	@	7 1/2
Spring.....	—	@	—
Tire.....	8 1/2	@	—

STEEL.

Bars, best cast, warranted, per lb.....	17	@	18
Sheet, best cast.....	18	@	—
Sheet, second quality.....	16	@	—
Sheet, third quality.....	14	@	—
Saw-plate, circular.....	27	@	—
Double-shear, warranted.....	23	@	—
Single-shear.....	19	@	—
Montague & Co. (cast bars).....	18	@	—
Machinery, round.....	11	@	—
German, best.....	11	@	—
German, goat.....	10	@	—
German, eagle.....	9	@	—
Blister, warranted.....	16	@	—
Blister, common.....	15	@	—
Jessop & Sons', common.....	17	@	—
Double-refined.....	26 1/2	@	—
Stone ax shapes.....	29 1/2	@	—

Machinery.

THE WILSON
Patent Steam Stamp Mill.



This extraordinary Mill, now so justly popular in the East, is now offered to the miners of the Pacific Coast. Having been in operation now for about two and a half years, the Company feel confident that the

WILSON STEAM STAMP MILL,
For Durability, Efficiency,
AND ECONOMY OF WORKING,
HAS NO EQUAL.

The Wilson Steam Stamp Mill is the only Steam Mill that has had the severe ordeal of practical working, and proved itself eminently successful. It is now in operation in several of the Eastern States and Territories, and gaining an envious popularity. The whole machine is so simple as to be readily understood by the most ordinary minds. In fact, its simplicity is its durability. The expense of crushing rock or cement with this Mill is less than one-half the expense of any other Stamp Mill, and less than one-half the cost. For further particulars inquire of

FURMAN R. WILSON,
San Francisco.

Or of THE WILSON STEAM STAMP MILL CO., 326 Walnut street, Philadelphia, Pa.

Notice.—All persons are hereby warned not to manufacture or use any Steam Stamp Mills that are an infringement on the Wilson Patents, as they will be prosecuted to the utmost rigor of the law.

F. R. WILSON,

20v19-1f Supt. W. P. S. M. Co., Philadelphia.

THE
ASPHALTUM PRESSURE PIPE
COMPANY,

HAVING ERECTED A MANUFACTORY of sufficient capacity to supply their Asphaltum Pipe in large quantities,

Are now Prepared to Take Orders
AND MAKE CONTRACTS.

This Company will manufacture Pipe and guarantee it to stand any pressure required; its lighter than iron pipe and more durable, it is not affected by chemical action, cannot corrode, and being glazed imparts no disagreeable taste to water. To miners and farmers it is invaluable; any body can put it down; it is twenty per cent cheaper than iron pipe and ten times more durable. For further particulars, apply at the office of the Company, Room No. 2, 645 Market street.
Circulars sent on application. 16v21-1f

Gold Saving Amalgamated Plates.

Miners, Quartz Millmen—Attention.

Best quality of Silver Plated Amalgamated Plates for saving fine particles of gold, furnished at the

San Francisco Plating Works.

655 Mission Street, between New Montgomery and Third Streets, San Francisco.

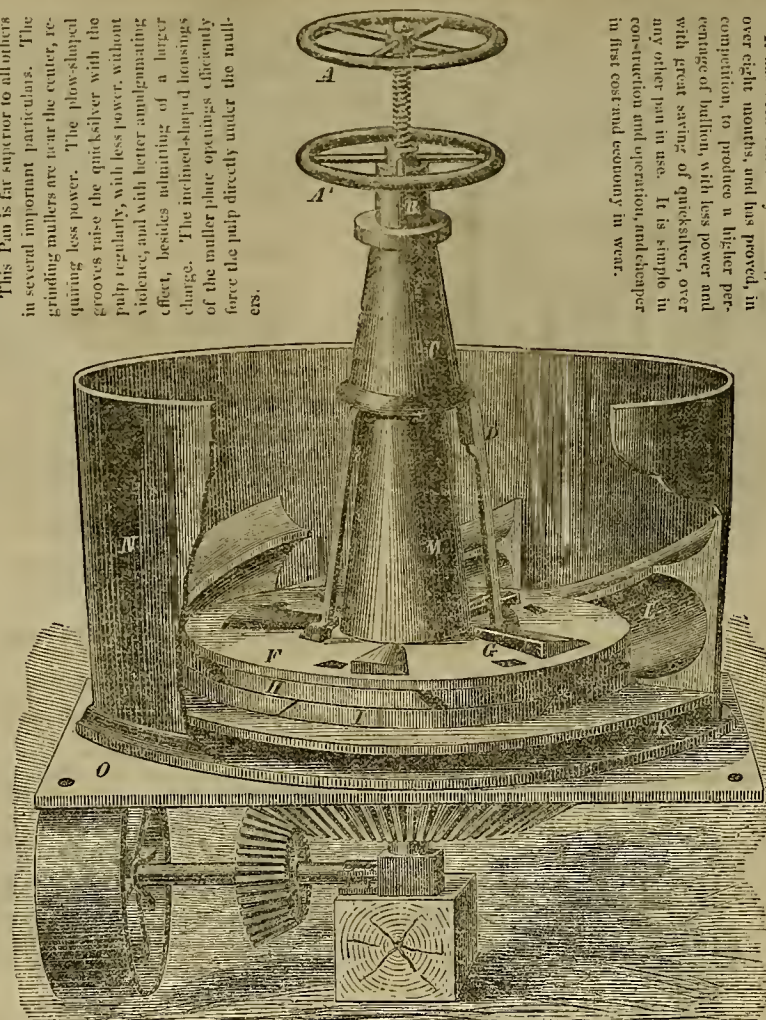
E. G. DEANSTON, Proprietor.

HAVLAND, HOOPER & CO., Agents, No. 335 Pine St.

Best means yet discovered for saving fine particles of Gold. 20v21-1f

STEVENSON'S PATENT MOULD BOARD AMALGAMATING PAN.

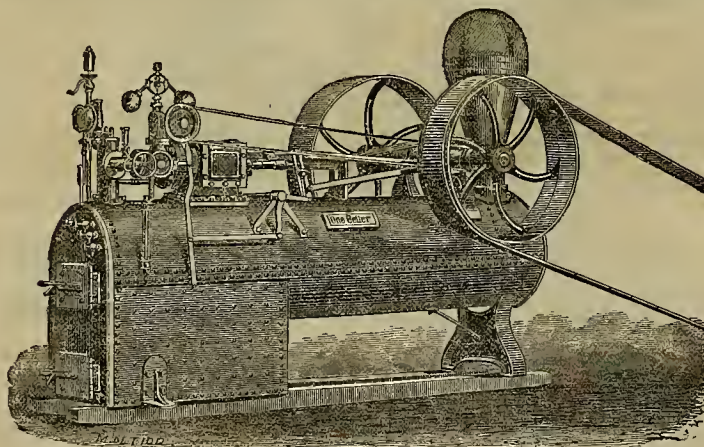
This Pan is far superior to all others in several important particulars. The grinding millers are near the center, requiring less power. The plow-shaped grooves raise the quicksilver with the pulp regularly, with less power, without violence, and with better amalgamating effect, besides admitting of a larger change. The inclined-shaped housings of the miller plate openings efficiently force the pulp directly under the millers.



It has been consistently running for over eight months, and has proved, in competition, to produce a higher percentage of bullion, with less power and with great saving of quicksilver, over any other pan in use. It is simple in construction and operation, and cheaper in first cost and economy in wear.

Manufactured at the Golden State Iron Works (co operative), 19 First street, S. F., Where it can be examined and further particulars be learned; or persons may apply to the inventor and patentee, Mr. C. C. STEVENSON, at the Douglas Mine, GOLD HILL, STATE OF NEVADA, where the Pans have long been in constant operation. 16v21-1f

HOADLEY'S PORTABLE ENGINES!



3 to 20 Horse Power on Carriages and Beds.

These Engines are in use all over the United States, and are regarded as the best in use. They are self-contained Engines, without the running gear and appurtenances, for driving

Saw Mills, Grist Mills, Tanneries, Machine Shops, Planing Mills, Factories &c., and for all other purposes under seventy-five horse-power, to which Stationary Engines are applied. For Agricultural uses they are unsurpassed. For Circulars or pamphlets, describing dimensions and price address

TREADWELL & CO., Sole Agents,

15v21-3m

SAN FRANCISCO.

Blako's Patent. THE BEST PUMP for Boiler Feeders, Engines, Steam Boilers, Tanneries, Mining and Fire purposes, etc., is Blako's Patent Steam PUMP. It is simple, compact and powerful, needs no expert to run it, and will start at any point. It is warranted positive under all circumstances. Send for a circular. Agents, 112 & 113 California St.

The Stetefeldt Furnace.

For information of any description respecting this process,

APPLY TO

STETEFELDT FURNACE COMPANY.

Austin, Nevada.

14v21-1v

SEVERANCE HOLT & CO.,
MANUFACTURERS OF
Diamond-Pointed Drills
AND DRILLING MACHINERY.

For Mining, Quarrying, Shafting, Tunneling, Prospecting, Draining, Grading and Submarine Blasting. Special attention given to Deep Boring for testing the value of Mines. Also to Boring Artesian Wells. Office, 318 CALIFORNIA STREET, San Francisco. 25v21-3m

CRAIG'S PATENT



NOZZLE.

Caution to Everybody.

Be it known that the Hydraulic Chief, manufactured by F. H. Fisher, of Nevada City, Champion Nozzle, made by Phos. Watson of Nevada City, and Dictator, made by Richard Hoskin, of Litch Flat, are infringements upon our Patents dated Dec. 8th, 1865, Dec. 7th, 1869, Dec. 28th, 1869, and that suits are now pending in the U. S. Courts which involve the working principles of each of all the above named contrivances, and that we will prosecute all responsible parties who make, sell or use, without our consent, any one or either of them.

R. R. & J. CRAIG, PROPRIETORS,

Nevada City, California.

PRESCOTT & SCHIEDEL, Sole manufacturers, Marysville Foundry.

11v21-3m

Varney's Patent Amalgamator.

These Machines Stand Unrivaled.

For rapidity pulverizing and amalgamating ores, they have no equal. No effort has been, or will be spared, to have them constructed in the most perfect manner, and of the great number now in operation, not one has ever required repairs. The constant and increasing demand for them is sufficient evidence of their merits. They are constructed so as to apply steam directly into the pulp, or with steam bottoms, as desired.

This Amalgamator Operates as Follows.

The pan being filled, the motion of the miller forces the pulp to the center, where it is drawn down through the aperture and between the grinding surfaces. Thence it is thrown to the periphery into the quicksilver. The curved plates again draw it to the center, where it passes down, and to the circumference as before. Thus it is constantly passing a regular flow between the grinding surfaces and into the quicksilver, until the ore is reduced to an impalpable powder, and the metal amalgamated.

Settles made on the same principle excel all others. They bring the pulp so constantly and perfectly in contact with quicksilver, that the particles are rapidly and completely absorbed.

Mill-men are invited to examine these pans and settlers for themselves, at the office, 229 Fremont Street, San Francisco.

A Valuable Improvement

—ON—

Combination Locks,

And Fastenings for Vaults and Safe doors. Invented and Patented by Kirtledge & Leavitt of this city. The improvement of which consists in the applying of a "Detachable Knob" or Wrench to the Arbors or Cylinders, passing through the door, so as to operate the Lock and Fastenings on the inside—leaving the outer end sunk or even with the surface of the door. It is made of hardened steel so as to resist the operations of the Burglar, rendering the Lock perfectly secure and safe.

All parties are hereby cautioned not to infringe on this patent, as the owners will prosecute to the full extent of the law. None genuine unless marked K & L's Patent. Manufactured and sold by

KIRTLEDGE & LEAVITT, Patentees, 19v21-1m No. 225 & 227 Deale St.

H. G. Bloomer,

SIGN PAINTER,

522 Market Street,]

20v21-1m

THE LOCHER STEAM PLOW according to the Butte Record, was to have been put in operation last week near Oroville. The rotary principle of the plow has not been changed in the recent improvements; but the carriage portion of the machine has been materially modified by attaching to it additional wheels, the surface of which has been much enlarged. The Lochers have struggled manfully and perseveringly in their efforts to perfect this plow, and we shall take much pleasure in recording their success.

THE SCIENTIFIC PRESS has the largest circulation of any weekly journal published West of the Rocky Mountains, independent of a daily issue. Its readers are prominent among the most intelligent, industrious and thrifty classes throughout the Pacific States and Territories.



Patents Obtained Promptly.
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ILLUSTRATED CIRCULARS FREE.

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Publishers and Patent Agents, No. 414 Clay street below Sansome, San Francisco.

The Scientific Press.
[Established 1860.]
A large Illustrated, Practical Scientific Pacific States Journal, devoted to Mining, Farming, Mechanic Arts And Industrial Progress.
Now in its 21st volume, it is printed on superior paper, containing sixteen pages, equal in size to the first-class journals of the Atlantic States and Europe; giving more VALUABLE READING MATTER than any other weekly journal west of the Rocky Mountains. It is the best printed and only finely-illustrated paper on the Coast.

It is ably edited, and contains, in concise and desirable form, all the most important discoveries, inventions, improvements and developments in the various branches of Science, Mechanic Arts and Industrial Pursuits, interesting to all intelligent readers on this coast. We make a live paper for the times, using plain, comprehensive language, giving information which cannot be had from books, or so readily and cheaply obtained from any other source. Each number often furnishes profitable hints to the reader worth many times its annual subscription price. Please examine sample copies and subscribe at once, and you will not regret it.

Terms, for six months, \$2.50; one year, \$4—payable in advance. Sample copies post paid 10 cts. Illustrated PATENT circulars sent free on receipt of postage stamp.

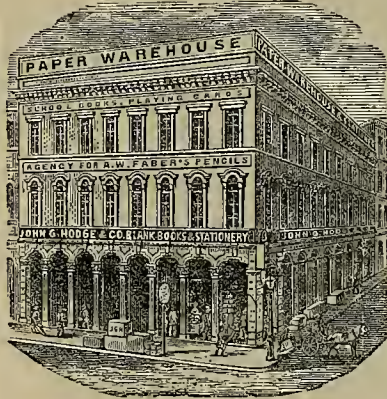
DEWEY & CO.,
Publishers and Patent Agents, No. 414 Clay street, San Francisco.

WITH OTHERS we called upon the publishers of the SCIENTIFIC PRESS, a 16 page weekly paper, devoted to the interests of the Mechanic Arts, Mining and Farming, Dewey & Co., in view how to make a paper of this class and are deserving of the success with which they are meeting.—[Editor Prairie Farmer, Chicago.

John G. Hodge & Co.,

IMPORTERS AND WHOLESALE

STATIONERS,



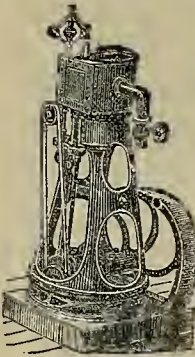
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Blank Books, Stationery, Wrapping and Cartridge Papers, &c., &c

Blank Books made to order from Carey Ex. Fine Ledger Paper.

Mining Companies, and Counting Houses, supplied. Agents for A. W. Teters genuine Lead Pencils.

327, 329 & 331 Sansome St. San Francisco. 19v21eomly



RIDER'S
Automatic Cut-off
Vertical Engines
Manufactured by the
Albany St. Iron Works,
NEW YORK.

These Engines are simple, compact and durable, and in point of economy of fuel and space are excelled by none, and are cheaper than any other first-class cut-off Engines in the market. Descriptive pamphlets and price lists mailed free on application to the proprietors, **HANDREN & RIPLEY,** Corner Albany and Washington Sts., New York. 26v20-ly16p

C. J. KING, T. B. KIMBALL, P. D. CODE.

P. D. CODE & CO.,

MANUFACTURERS OF

JELLIES, JAMS, PRESERVES, PICKLES, KETCHUP, SAUCES,

Canned Fruits and Vegetables of superior quality.

621 and 623 Front Street,

Between Jackson and Pacific, San Francisco. 19v21

Pacific Insurance Company
No. 422 California St.,
San Francisco
Cash Assets \$1,750,000.
Fire and Marine Insurance.

J. HUNT, President. A. J. RALSTON, Secretary.
WM. ALVORD, Vice-President. A. BAIRD, Marine Secretary.

PACIFIC

Rolling Mill Company,
SAN FRANCISCO, CAL.

Established for the Manufacture of
RAILROAD AND OTHER IRON
—AND—
Every Variety of Shafting.

Embracing ALL SIZES of
Steamboat Shafts, Cranks, Piston and Connecting Rods, Car and Locomotive Axles and Frames

HAMMERED IRON

Of every description and size

Orders addressed to **PACIFIC ROLLING MILL COMPANY** Post Office, San Francisco, Cal., will receive prompt attention.

The highest price paid for Scrap Iron 9v14sm9p

Giant Powder.

Proof of its Superiority for Blasting purposes.

GOLDEN CHARIOT MINING COMPANY, }
SILVER CITY, IDAHO TER., Oct. 18, 1870. }

Messrs. Bandmann, Nelson & Co., Agents
Giant Powder Co., San Francisco, Cal.

DEAR SIR: In reply to your late favor, I give you the following result of my working here—the cost of drifting, which cost under the old system of mining here, \$10 per foot, with the single hand system of working and Giant Powder I have reduced to a cost of \$22 per foot, and when under the old system but one foot per day was driven, my men are easily making one and a half feet.

Under the old system wining (5 feet square) cost \$35 per foot, same is now costing me \$24 75 per foot with the same difference in time as shown in drifting.
Under the old system, our mine could never be made to yield exceeding 400 tons per month; with Giant Powder and single hand drilling, I am now furnishing monthly 1,000 tons at a reduced cost of at least 33 1/2 per cent, less per ton than under the old system.

In conclusion, will state that the neighboring mines Ida Elmore and Oro Fino, influenced by results in the Golden Chariot Mine, have adopted single hand drilling and Giant Powder to the utter exclusion of double hand work, large drills and common blasting powder. In corroboration of results in Golden Chariot Mine, I refer you to the President and Board of Trustees, resident in your city. Yours, respectfully,

JOHN F. CASSELS,
Superintendent G. C. M. CO.

THE MASONIC MIRROR
Is the only Masonic Publication on the Pacific Coast. The Second Volume is published weekly, in the popular and beautiful form of a

QUARTO-MEDIUM SIXTEEN PAGE PAPER

AND IS A FIRST CLASS

Literary and Family Newspaper,

AS WELL AS THE

Organ of the Masonic Fraternity on the Pacific Coast.

ENDORSEMENT OF THE GRAND LODGE.

The following resolution was unanimously adopted by the M. W. Grand Lodge, F. A. M., of the State of California, at its Annual Communication, October, 1870. Whereas, In the opinion of this Grand Lodge, a well conducted Masonic Journal is of great benefit to the craft, in disseminating Masonic information among the fraternity, as well as furnishing a medium for general Masonic intelligence. Therefore,

Resolved, That this Grand Lodge, recognizing in the MASONIC MIRROR, edited by Brothers Anasua W. Bishop and Edwin A. Sherman, and published by the Masonic Publishing Company of San Francisco, a Masonic Journal of the character above set forth, do hereby recommend the said MASONIC MIRROR to the craft generally, as worthy of their most favorable consideration and support.

ENDORSEMENT OF THE GRAND CONSISTORY.

At the communication of the M. P. Grand Consistory, Ancient and Accepted Scottish Rite of Freemasonry in and for the State of California, held October, 1870 at San Francisco, the following resolution was unanimously adopted. Resolved, That the MASONIC MIRROR, published in this city be the official organ of this Grand Consistory.

TO ADVERTISERS.

The MIRROR presents the best Advertising medium on the Pacific Coast, as it circulates in every town and hamlet, and among a class of citizens that it will be of advantage to advertisers to reach.

Rates of Advertising.

One Square of ten lines, or less, 1 time.....	\$ 1.00
One Square per Month.....	2.00
Quarter Column, ".....	5.00
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References on application. E. E. ROBERTS & CO.,
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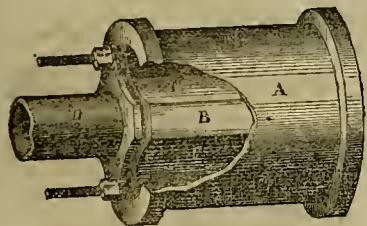
San Francisco, Saturday, November 26, 1870.

VOLUME XXI.
Number 22.

Mining Edition.

Trunnion for Steam Engines and Calenders.

With the ordinary trunnions used for steam engines and drying calenders, the expense of considerable time and trouble is necessarily involved in the removal of these when worn out. To lessen the expense and time in such cases, Mr. Thomas Hill has invented a novel construction which we here illustrate.



The trunnion in question is made of two parts. The inner part, through which the steam passes, is made with four or more projections, B, with corresponding spaces or depressions, C, between them, so that a cross section represents a sort of cross or star with blunt points. These points or projections, B, are turned off in a lathe, and a sleeve, A, is fitted to slide on over them. This sleeve is made fast to the arms, and is turned smooth on the outside, to form a journal which turns in suitable bearings.

A hole is made through this trunnion for the passage of steam, which is brought to it through the pipe, D. This pipe enters the hole in the trunnion, and is packed so as to be steam-tight.

Whenever the sleeve, A, becomes worn, it can be removed and a new one substituted, with but little delay to the engine, the cylinders of which would have to come out with the ordinary trunnions. The spaces formed by the depressions, C, in the inner part, allow a free circulation of air about the trunnion, either naturally or by blast, so that the journal is kept cool and will work better.

A trunnion thus constructed can be introduced advantageously for oscillating engines, steam-drying calenders, or in any place where it is necessary to have a joint through a movable bearing or journal. A patent for this device has been obtained through the SCIENTIFIC PRESS Patent Agency for Thomas Hill, now of Portland, Oregon.

Messrs. Haynes and Lawton claim to have the largest establishment for the sale of crockery, china-ware, plated-ware, etc., in the United States. They have recently moved into magnificent stores under the Grand Hotel, where any one can call and see for himself how well they substantiate their claims.

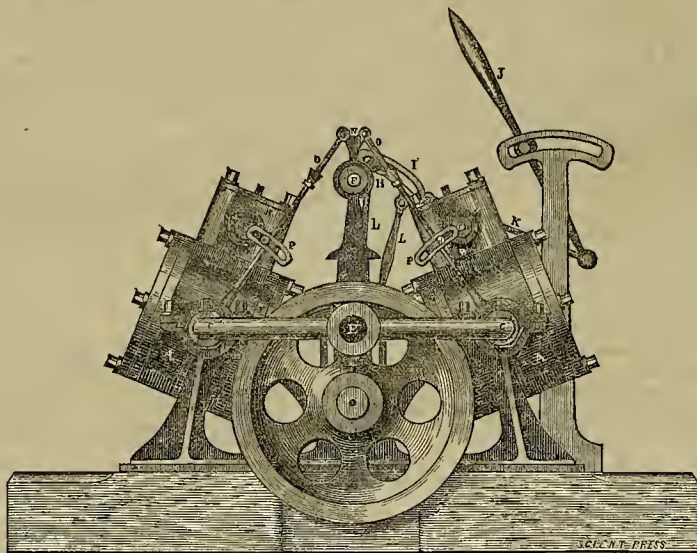
The mining claims of Yuba county are assessed at \$203,055.

Valve Gear for Steam Engines.

The accompanying illustration shows a late California invention of which we have before made brief mention. As a simplification of the steam engine, as a device which enables one to dispense with a portion of the mechanism which has hitherto been found indispensable, it is certainly worthy the attention of mechanics and others interested in machinery. The invention has been more especially developed to apply to double oscillating marine engines, and by its use only one link and two eccentrics are necessary, in order to reverse both engines and run them in either direction, while, by a slight modification, only one eccentric will be needed. But it can be applied to other forms besides marine engines, and especially to locomotives.

thus actuated. The valve is a slide-valve, made proportionately rather large, and with rounded ends. The steam ports have a similar curve, and this gives the opportunity to make larger ports with a given steam chest. The exhaust port has sides curved from one another, thus allowing the steam to escape freely. In order to communicate motion from the valve-spindle, a short arm is keyed to it and projects downward into an opening in the top of the valve, so as to have a sort of rolling motion, resembling that of the ball-and-socket joint.

The operation of the engine is as follows: The link being moved or set by the reverse lever, so as to bring the pin of the rocker-arm, H, under the influence of either of the eccentrics on the main shaft, the rock-shaft, F, will be turned a little way, so



HILLS PATENT IMPROVED VALVE GEAR FOR STEAM ENGINES.

In the drawing, AA denote the two cylinders of an oscillating engine, to which the invention, in the present case, is applied. BB are the steam-chests and valve-chambers. The cylinders oscillate upon trunnions whose positions are denoted by CC. Supported on the frame, G, is a rockershaft, F, extending across, between and above the cylinders. At one end of this shaft is fastened a rocker-arm, H, a pin in its outer end entering the slot in the link, I, and upon this the link travels when the engine is reversed, this being effected by the reverse-lever, J, and connecting rod, K, pinned to the end of the link. Two eccentric-rods, LL, are pinned to lugs on the inside of the link, which is actuated through these by eccentrics on the main shaft.

At the opposite end of the shaft, F, from the link, is another rocker-arm, N, so formed as to have two points of attachment for the connecting rods, OO, which actuate the valves of the two engines. At the lower end of each of these rods is secured a link, P, at right angles to the rod and having a slot with a reverse curve, in which slot enters the pin, d, of a short crank or arm keyed to each valve stem, e, which is

that the valves will, through their connections, receive a different set from that given by the other eccentric, and the motion of the engine will be reversed.

A further simplification is possible, necessitating the employment of only one eccentric. In this the upper end of the eccentric-rod has a short vertical slot, so that as the pin connecting it with the link, I, is thrown from one side to the other of the link, it can travel up and down this slot. This is rendered necessary from the fact that the link, in this case, is keyed to the shaft, F, and thus communicates motion to it.

A still further simplification is possible, doing away with all links and eccentrics. In this case, the valve-stems are connected with one another by a series of levers, pinned to the frame, in such a way that the simple oscillations of the engine operate the valves.

Letters patent, dated October 11, 1870, were obtained through the SCIENTIFIC PRESS Patent Agency for Mr. Thomas Hill, of Vallejo, for these ingenious devices. Mr. Hill's present address is Portland, Oregon.

"Genuine Murillos."

Adorning and ennobling a couple of unpretending rooms on Jackson street in this city, are three wonderful pictures, whose aggregate value is counted by the hundreds of thousands of dollars. Two of these are by the celebrated Spanish painter, Bartolomé Esteban Murillo; the third is the production of a master of Murillo, Juan del Castillo.

In asserting that we have in our city two "genuine Murillos," we are making a statement which will be received with incredulity by many, as such paintings are so rare and costly and so many imitations are passed off as genuine. And as we are no professional artists, we hasten to give our authority. Premising that the pictures themselves seem most wonderful to our eyes, we make our statements on the authority of Dr. August Le Plongeon, the owner, a gentleman of high scientific attainments, who is well known in San Francisco. We cannot at present give this gentleman's proofs, and desire here merely to call attention to the existence of these pictures.

One of them is a "Purissima," of which we know of no copies or photographs. We feel unable to attempt a description of it. The beauty and expression of the female face and figure, the details of coloring and perspective, the wonderful faces of the cherubs,—all demand the pen of one who can both write and paint. Contrasted with this is the figure (almost grander than the last, in our opinion) of "San Antonio de Padua," visited in a trance by the infant Jesus. There are said to be two paintings of this subject, this one and one now in the Cathedral at Seville, Spain. As they are esteemed among the "very finest" of Murillo's productions, we may be excused from attempting any condensed rhapsodies or description in the space to which we are limited.

The third painting is a portrait of San Augustin, and is the work of Castillo, a master and a relation of Murillo, and himself of no small reputation. Castillo was born in Seville in 1584 and died at Cadiz in 1640. Murillo was baptized on January 1st, 1618, and died from the effects of a fall on April 3, 1682.

Our brief reference to the above may draw attention to these pictures. As no private individual of moderate means can afford to keep such costly gems, Dr. Le Plongeon intends taking them to Europe to sell them there, unless he can effect a sale in this country, which would seem doubtful. It would be most glorious if some public institution in the United States could purchase them and keep them on public exhibition. We hope that, at least, some one better qualified than ourselves, may inspect the paintings, and see if they are what is represented, and if they cannot be retained in America.

PATENT OFFICE.—General Duncan is to act as Commissioner of Patents, until the next session of Congress, in the place of Col. S. S. Fisher, resigned.

Communications.

IN THIS DEPARTMENT we invite the FREE DISCUSSION of all proper subjects—correspondents alone being responsible for the ideas they advance.

All About Montana.

[CONCLUDED FROM PAGE 346.]

Summit District.

Summit is a small place about eight miles south of Virginia, up the creek. Three quartz mills have been erected here, where there are many ledges,—as the Oro Cache, U. S. Grant, Nelson, Keystone, J. How, etc. I had time enough to visit only a few of these however.

The well-known Oro Cache mine is situated about a mile below the city. The formation is granite. The ledge will average from three to three and a half feet in width. The former workings show signs of bad management as I have roughly indicated on the accompanying diagram which shows a ground plan of the mine. The old tunnel was 200 feet long and ran in somewhat in the manner shown in the drawing.



After working on this they struck the ledge and stopped it 25 feet each side. The month of the old tunnel is at A. The shaft was sunk 125 feet on the ledge. The new tunnel was started at O, and run in on the ledge 80 feet, leaving 40 feet of rock now between the end of the tunnel and the old workings. Mr. J. How has leased the lode and, by his good management, is making the thing pay. He has men at work running the tunnel and stopping, and works the ore in the McClure mill. I am told that the ore averages \$20; that upwards of 200 tons formerly taken out yielded from \$100 to \$120 per ton.

The McClure mill has a 40-horse engine (made by Morgan Orr & Co., Philadelphia) and four pair of Chili mills. These mills are about six feet in diameter and the wheels are hollow, filled inside with litharge, and weigh about 4,000 pounds. There are also 12 Frickberg harrels, but they use only a part of these which are said to have worked well. The former management here would appear to have been poor, and the mill has been closed for some time but has lately started up again. The present superintendent is Mr. P. H. Teats. I was shown here a gold brick weighing 100 ounces.

The Excelsior mill is working on ore from the Midas lode with satisfactory results. It has 15 stamps, copper plates, etc. The Postlewaite mill has been closed for the past few months but will start up in a few weeks. This has also 15 stamps.

One can't help remarking (internally, at least) on the difference between the mills here and those now turned out by our California foundries. In comparing them, these seem very old fashioned, and imperfect, although it may not be financially possible to effect great changes in them at present. But as California foundrymen make it a business to keep adding improvements and to study the matter carefully in all its details, of course they effect great and important changes which economically are vast advances, and they lead the world in the mills turned out.

Mr. John How's name has occurred several times in this letter. This gentleman is largely interested in mines and mills here (as the McClure, Excelsior and Conner) and is doing very much to develop the resources of the country. He is enterprising, energetic and able, and is taking hold and benefiting greatly the section, which has evidently suffered formerly for want of knowledge and from bad management. Mr. How is just the right sort of a man to have in such a place, and in his success the whole of the country here is most intimately interested.

Alder Gulch—Fluming.

Returning to Virginia, I passed down the creek visiting various claims worked by fluming companies. The first was that of A. C. Hall, who is working on a large scale and doing well. Then comes the Pine Grove Flume Co., and next the Highland Discovery claim owned by Messrs. Martindale, Reed, Hathaway & Co. Their flume is 1,400 feet long and 2x2½ feet in section. At this claim it is 12 feet down to the bed-rock, which is granite, and the boys seem very busy. The Summit Co. have 1,500 boxes, 18 in. x 2 feet. The bank is here from 30 to 40 feet high.

The Williams and Parker Fluming Company (Messrs. D. W. Williams, N. Parker, R. Pearce and T. T. Jones) have their location two miles from the city. They have 2,500 feet of fluming two feet square in section. They have been putting in new blocks, six inches thick, and changing the fall to 3½ inches in 12 feet, so as to get sufficient force. They have been very

successful this year, netting \$1,000 to \$2,000 (I am told) per hundred feet, old ground. Note-ware & Co. at Virginia have a gang of Chinamen at work, and many celestials are washing on their own account in the lower part of the gulch, having hought out the miners.

Alder Gulch gold varies from 846 to 850 fine. The water lasts generally from April 1st to November 1st.

We pass a quartz mining district known as Stirling, where three quartz mills (one said to have cost over \$100,000) have been put up, but are not running now. The country here is full of white quartz ledges whose croppings are plainly visible on the hills, and which promise that here a good camp will spring up at no distant day.

Notes of Travel in Sierra and Plumas Counties.

[WRITTEN FOR THE SCIENTIFIC PRESS.]

Newark.

Hepserdam, adjoining Whisky Diggings, (or Newark) is some five miles from Howland Flat. At this place a number of companies are making it lively just now. The NORTH AMERICAN Co., owned by 15 members, all personally represented, Robt. Scott, foreman, at present work 40 men; this claim (which is the representative of all in this district as to the character of the pay) is a deep channel washed quartz gravel claim, having no regular defined bed, often paying richest on the most elevated bed rock. The company have two tunnels, one running into the mountain above the other; the new one (which is the upper) is now in 1,700 feet, six feet high by four wide in the clear. With 40 men at work, this company remove 175 car loads per day, weighing one and a fourth tons per car, and averaging \$3 per car in gold. Their lower tunnel is in 2,500 feet. Both are protected for some 200 or 300 yards from the mouth by snow sheds. I understand this claim has recently been offered for sale in London. It has a frontage of 1,600 feet and extends one and a half miles in length to the center of Bunker Hill mountain.

THE READING claim, consisting of eight shares all personally represented, and superintended by Jas. P. De Noon, is next adjoining (below). They work 15 men in winter and some 25 from spring on. The claim is similar in every respect to the North American, and averages \$10 or \$12 per day to the man. The NE PLUS ULTRA claim own 1,800 feet front running back 6,000 feet. L. C. Porter is superintendent. They work four hands at present, but will soon work 12. Their tunnel is in 1,100 feet, pay all the way, which is found laying on a strata of lava cement. Several other prominent companies here and near Gibsonville are deserving of mention, but the managers refused to be interviewed upon the subject, probably for fear the internal revenue man might assess them a few dollars more (?); or else they may be about worked out, I don't know which. Near Gibsonville exists a ledge known as the SLEUPHET CLAIM where, from three different assays, three different kinds of metal have been found, viz: Gold, from \$50 to \$1,700, per ton, from one assayer; from a second, a small globule of silver; from a third, a trace of copper. I have no doubt of their all being right, the samples having been taken from different parts of the ledge. My opinion is the main body of it is copper.

Laporte and Vicinity.

Laporte is situated in the most south-westerly portion of Plumas Co., formerly belonged to Sierra, but by Act of Legislature was lately added to Plumas. It is about the same distance from Marysville as Downville; and is reached by stage from Marysville, and from Oroville, the two lines connecting at Columbus House. The same line extends on to Howland Flat, also to Quincy. The whole is owned and superintended by Dr. S. T. Brewster, one of the most enterprising men in the County. He has about 100 head of horses in daily use on this line, and polite and careful driver hold the reins, whose only failing is, (like their employer) they will tell funny stories. One exception exists, P. P. Parker, on the Quincy route, entertains his passengers by trading horses with every lady or gentleman he meets; but if he should trade four times in one trip, he would always arrive at the Station on time.

THE SECRET DIGGINGS M. Co.'s claims, 1¼ miles S. W. of Laporte, are owned by the Eberle Bro.'s and B. F. Baker. This mine is a very extensive deep channel, worked by hydraulic process. It pays very well yet, but years past it paid fabulously. They work from 15 to 25 men during water season (just now coming on) which extends until about June. They have a head-rock tunnel, 1,200 ft. long, flumed the entire length, and for 300 ft. below.

ALTURAS M. Co. work the bed of Slate creek, 1½ miles from Laporte, towards Port Wine. J. E. & D. E. Stover, C. W. Hendle and Wm. S. Packer are the proprietors. This claim is very peculiarly worked. They have a large dam running at right angles with the creek, high enough to detain all fresh arrival of tailings until such time as they want them. The dam is so constructed with gateways, as to allow them perfect control of the water, running it down the center or on either side at will. They have cut a tunnel some 200 ft. long, at the foot of their claim, through the point of a mountain at a short turn in the creek, which is 20 ft. wide by 12 ft. high. The object obtained is 8 ft. more grade, which now gives them splendid fall. They work about 50 men from April to Nov., and from 8 to 10 men the balance of the year. The pay is quite coarse, and the yield satisfactory.

A. Harris, of Laporte, is the inventor of an HYDRAULIC NOZZLE that is receiving considerable attention just now, the particulars of which, together with an illustration, were published some time since in this paper; the object of which was to provide a nozzle to throw streams of various sizes, with greater or less force, as occasion required it. The object, in my opinion, has been obtained by this invention.

Quincy and Vicinity.

Quincy, the County Seat of the Co. is about 33 miles N. E. of Laporte, and is situated, in one of the most picturesque, and beautiful valleys in the State. Four miles from Quincy, in the upper end of the valley, is situated the farm of J. W. Thompson Esq., not the largest, but probably the best cultivated in the County. His Residence and out-buildings are all that money could make them; and his farm is stocked with the best breeds of horses and cattle.

BADGER HILL MINE is situated on the north side of Spanish Creek, five miles west of Quincy. E. B. Jacks & Morris Smith & Bro. are the proprietors. This claim contains about 40 acres; the pay is found in washed gravel and boulders, from 40 to 130 feet deep, and at an elevation of 250 feet above the level of the creek. They work by hydraulic process, and have a 24-inch flume leading through a bed-rock tunnel to the claim. This is looked upon as one of the most lasting, as well as best paying placer claims of this county; it averaged \$10 per day to the hand last year. The insufficient supply of water, except during the rainy season, is the only drawback. There are near by many other hill claims, and several ravine diggings, that are worthy of note; but not having any particulars at hand I shall give them mention in a future article.

CRESCENT MILLS, in Indian Valley, 17 miles from Quincy, are superintended by M. B. Bransford, and owned by M. Marcuse of Marysville; the mill has 32 stamps, run by a 120-horse power engine. The mine consists of a ledge from ¼ to ½ a mile long and 10 ft. thick, the average pay of which is \$10 per ton. The main shaft is down 320 feet; 50 men are regularly employed; this rock is easily crushed, and big dividends are the result.

Taylorville and Vicinity.

Taylorville, an agricultural town five miles from Crescent Mills, in the north end of Indian Valley, looks as though it had been quite a place; but I imagine the height of the mountains surrounding it, and the elevation of the valley itself has chilled it and stunted its growth.

GREENVILLE, situated 5 miles S. E. from Crescent Mills, for a town of not over 50 inhabitants, is the most stirring place I have met. Several good mines are situated close by, which probably accounts for it.

KITTLE MINE, in Round Valley, about two miles from Crescent Mills, is owned by Judkins & Kellogg. They have steam hoisting works with all the new and improved machinery; their shaft is down 160 ft. The ledge is from two to 12 ft. thick. They haul their rock a mile to mill. The mill has 16 stamps, and has a capacity to crush from 24 to 30 tons per day, working about 25 men regularly. They lately struck a very rich vein, from which they are taking out good rock.

BAKER LENG, situated at Cherokee Round Valley, is owned by J. D. Compton, and superintended by H. Gregg. The length of the mine is 1000 ft. with a ledge averaging 3 ft. in thickness. This rock is crushed by the Caledonia mill (of 15 stamps) close by, run by 30-horse power engine; 25 men are regularly employed; the rock averages \$20 per ton. This mine is not for sale, therefore I volunteer an opinion that it will prove to be as rich as any in the state within one year.

QUINCY AND RENO STAGE.—Edwin Bates is the proprietor of a fine line of coaches running from here to the Summit, connecting with stages there for Reno, and the States East. Fare to the Summit, \$6; to Reno, \$10. The route is via Argentine (or Spring Garden Ranch), 12 miles from Quincy; Mohawk, 13 miles further; Gimison City (or Enreka Mills), Beckworth Valley, (13 miles), to the Summit (17 miles); or 55 miles from Quincy to the Summit, and about 30 miles farther to Reno. Forbestown, Oroville, and Cherokee, Butte Co., in my next. L. R. MC.

Mechanic Arts College.

Prof. Le Conte, in his second lecture before the Mechanic Arts College, last Saturday, treated of the distribution and origin of coal, with particular reference to the United States, a country more blessed than any other in the quantity and quality of coal, both of the coal measures and of other periods.

Coal Basins at the East.

A diagram of the coal beds in the eastern states was shown. As the beds of the Pacific coast have not been investigated sufficiently to know their extent and limits, no diagram of them can be made at present.

The Appalachian coal field is probably the most extensive and the richest in the world. It covers a large part of Pennsylvania and eastern Ohio, extending through Maryland, Virginia, Kentucky, Tennessee and a corner of Georgia and ending in Alabama. It includes all the different varieties of coal and has an area of from 60,000 to 70,000 square miles.

The Great Central basin covers large parts of Illinois and Indiana and passes to Kentucky, having an area of at least 30,000 to 40,000 square miles.

The Great Western, in Iowa, Minnesota,

Missouri, Kansas, Arkansas and Texas, has an area of at least 30,000 to 40,000 square miles.

The Michigan basin, in Michigan, has an area of about 5,000 square miles.

The Rhode Island, in Rhode Island and Massachusetts, has an area of 1,000 square miles. The coal here is rather poor and broken.

All of these belong to the period of the coal measures, and their areas amount to at least 125,000 to 150,000 square miles. But there are other beds belonging to different periods.

In Virginia there are two basins, the Richmond and the Piedmont, belonging to the jurassic. In North Carolina there are two basins, the Big River and the Dan River, also jurassic. The coal of both is excellent. The area of these basins is about 1,500 square miles.

Coal Basins at the West.

In the great western plains there are immense areas of coal. The so-called lignite beds of the upper Missouri and Yellowstone, of unknown extent and of incalculable value especially with regard to the great railroads. East of the Black Hills, between the Union Pacific and the 35th Parallel Roads, there is an area of at least 5,000 square miles. In this come the beds around Denver. Here we have seams of pure coal 12 to 13 feet thick and alternating in an aggregate depth of not less than 50 feet. In the region of the 35th Parallel R. R., through Colorado and New Mexico, is an area of not less than 5,000 square miles. At the Laramie Plains and Wahsatch Mountains, on the Union Pacific, the coal area is not less than 5,000 square miles, and probably much larger. Some of the beds are not less than 40 feet thick and are absolutely solid coal. These four last basins cover an area of at least 20,000 square miles, and belong mostly to the tertiary period.

The tertiary coal is generally called lignite or brown coal, by which is to be understood an imperfectly bituminized coal, brownish, light, holding considerable water and often sulphur, and generally with a woody structure. Now the coal just spoken of is not properly lignite, for it is thoroughly bituminized, is compact, even semi-anthracite. These beds are practically inexhaustible.

Coming to this coast we find a few beds belonging to the later periods. Not a particle of coal here or in the Rocky Mountains belongs to the true carboniferous age as far as is known. The only workable beds in this State are at Mt. Diablo and Corral Hollow. Here are several seams three to five feet thick. The Mt. Diablo beds are easily worked; the Corral Hollow coal is more broken, and worked with more difficulty. Both belong to the cretaceous period.

In Oregon we have tertiary coal at Coos Bay. In Washington Territory we find the Bellingham Bay beds, and at Vancouver's Island the Naimo coal beds. These are cretaceous or tertiary and the coal is thoroughly bituminized.

Comparative Areas and Production.

It is interesting to compare the areas of coal fields in different countries. We have seen that the extent of the coal measures in the United States is at least 125,000 to 150,000 square miles. If now we reckon the 20,000 square miles of coal beds in the Rocky Mountains, we shall be surely within bounds if we put down the whole area in the United States at 150,000 square miles. We have the following extents of coal beds.

	Sq. Miles.
United States.....	150,000
Great Britain.....	12,000
British America.....	18,000
Spain.....	3,400
France.....	1,700
Belgium.....	1,500
All Europe.....	100,000

The whole of Europe has then less than two-thirds the area contained in the United States. The production of coal for the years 1845 and 1864 in several countries was as follows:

	1845	1864
Great Britain.....	31,500,000 tons.	86,000,000 "
United States.....	4,500,000	22,000,000 "
Belgium.....	4,900,000	10,000,000 "
France.....	4,100,000	10,000,000 "

Great Britain's production in 1866 was at the rate of 100,000,000 tons. The immense amounts raised have alarmed some of the political economists, who have calculated that with the natural increase of consumption, the coal beds would be worked out, for all economically possible depths, in about 200 years. Here in the United States, there will be no necessity of economizing our coal for thousands of years.

Coal is the very alimant of manufactures and mechanical industry; coal and iron are the foundations of the industrial organization of society, and hence the basis of material or industrial civilization. If we could say that the amount of coal consumed is the index of this civilization, we should have to place Great Britain in the first place in the world. If we consider the amount of coal hidden in the earth as the measure of its possible extent, we should look to the United States as the first in the future. But we must not forget that there are other forms of civilization, and higher. This stands in somewhat the same relation to the highest forms of moral culture as the body does to the mind. A healthy state of the body is conducive to the highest mental condition. And, moreover, we should not neglect to develop our industrial civilization as a means of obtaining the highest forms, as we should cultivate a robust frame as a help to acquiring the highest mental and moral power and culture.

It is a remarkable fact that the known coal fields are nearly all in the North Temperate Zone. Although a few beds have been found in South America, Australia and even Africa, and up at Melville Island, yet nearly all are in

[CONTINUED ON PAGE 372.]

Mechanical Progress.

THE SHERMAN PROCESS OF STEEL MAKING.—London *Engineering* of Oct. 28th announces the arrival from the United States of Mr. J. Edwin Sherman, at invitation of the English Government to introduce his "process." The journal aforesaid says: "In applying his process to the purification of iron in the puddling furnace, Mr. Sherman melts his pigs in the ordinary way, and then, just at the moment that the 'boil' is commencing, he throws into the liquid metal a small packet containing certain chemicals, of which he at present keeps the composition to himself. The effect of this addition is stated to be an increased fluidity and boiling up of the metal, and a rapid throwing off of impurities, thus enabling the iron to be more rapidly 'brought to nature' and materially shortening the time occupied in the operation of puddling. The dose of chemicals is so small, and apparently so utterly inadequate to the results claimed to be produced, that it is not to be wondered at that the whole process has been regarded in many quarters with considerable incredulity. * * Mr. Sherman asserts that by his method of treatment he can produce from the common brands, without admixture of higher class pig, iron equal to the 'best' Staffordshire; and from low grades of pig, he can produce good merchantable iron of uniform quality. * * These are apparently bold statements; but the results already obtained warrant our regarding them with attention. Mr. Sherman's first trials were made at the works of Vickers, Sons, and Co., of Sheffield. The results were satisfactory, the samples showing a tensile strength of 36 tons per square inch of original section with an elongation of from 1½ in. to 1.13 in. in a length of 6 in. The breaking strain was over 60 tons per square inch. Many other trials are detailed, but the journal named prefers to leave the subject for the present without comment.

SILICATE PAINT AND "STONE ZINC."—A French establishment has recently introduced into the trade two substances called *silicate paint* and *stone zinc*. The silicate paint is a combination of soluble glass with zinc white. This can be applied to wood, gypsum, cement, stone, tiles, and almost any of the metals except iron. It is superior to oil paint, in drying more quickly and becoming extremely hard. It does not peel off nor crack, and is without smell. It is as well suited for use in the interior of buildings as externally. The stone zinc is used to give the peculiar grain-like appearance of stone to wood and other surfaces. This is extremely durable when exposed to heat, cold and moisture. It has been used in coating the roofs of houses—and, being a bad conductor of heat, is useful in reducing the temperature of the subjacent rooms. In preparing the stone zinc, about equal parts of soluble glass and of the zinc powder are employed. —R. R. Register.

MACHINE FOR MICROSCOPIC WRITING.—A correspondent of the London *Times* writes: "The most extraordinary machine in the exhibition is the one for microscopic writing. This enables a person to write in the usual way, and to duplicate his writing so small that it is invisible to the naked eye, yet with a powerful microscope every line and dot can be seen. The inventor claims that with his instrument he can copy this entire Bible twenty-two times in this space of an inch. With one of these machines, a private mark can be put on bills, that the forger can neither perceive nor imitate, but that the bank clerk knowing where to look, can at once detect."

A NEW PLAN FOR DRIVING SEWING MACHINES.—A patent has been taken out for an arrangement which is "mainly designed to be used as a means of driving sewing machines, and consists in mechanism in which the weight of the operator as thrown upon a rising and falling seat is made to set in motion a train of gearing that drives the machine, and on the operator removing his weight from said seat the latter rises, and the mechanism adjusts itself for a repetition of the driving action by the falling of this seat through the weight of the operator as brought to rest again thereon."

SLIDING DOORS.—A new thing is the furnishing the top rail with spiral springs, so that it accommodates itself not only to the expansion and contraction of the door, but also to slight obstructions upon the bottom rail.

WHERE AND WHEN THE SOLAR ENGINE WILL BE USED.—In the article by Capt. Ericsson, to which we alluded last week, he says:—"It is not proposed to apply solar engines in places where is not steady sunshine. * * * Let us merely estimate the mechanical forces that would result from utilizing the solar heat on a strip of land, a single mile in width, along the rainless western coast of America, the southern coast of the Mediterranean, both sides of the siluvial plain of the Nile in Upper Egypt, both sides of the Euphrates and Tigris for a distance of 400 miles above the Persian Gulf, and finally, a strip one mile wide along the rainless portions of the shores of the Red Sea. The aggregate length of these strips of land, selected on account of being accessible by water communication, exceeds 8,000 miles. Adopting this length and a width of one mile as a basis for computation, it will be seen that the assumed narrow belt of the suburnt continents covers 223,000 millions of square feet. Dividing this by the area necessary to produce one horse-power, we learn that 22,300,000 solar engines, each of 100 horse-power, could be kept in constant operation, during nine hours a day, by utilizing only that heat which is now wasted on a very small fraction of the land extending along some of the water-fronts of the suburnt regions of the earth.

It will be said that these extravagant figures are devoid of practical significance. Due consideration, however, cannot fail to convince us that the gradual exhaustion of the coal-fields will inevitably cause great changes in regard to international relations, in favor of those countries which are in possession of continuous sun-power. Upper Egypt, for instance, will, in the course of time, derive signal advantage, and attain a high political position, on account of her perpetual sunshine and the consequent command of unlimited motive force. The time will come when Europe must stop her mills for want of coal. Upper Egypt, then, with her never-ceasing sun-power, will invite the European manufacturer to remove his machinery and erect his mills on the firm ground along the sides of the alluvial plain of the Nile, where sufficient power can be obtained to enable him to run more spindles than a hundred Manchester."

RUBBER TIRES FOR CAR WHEELS.—Mr Robert Fawcett, of London, has applied for a patent. "He forms the rim and tire of a railway engine or carriage wheel of considerable breadth to receive an india-rubber ring or tire, which must be of sufficient section to sustain the weight brought to bear on it. The metal tire the inventor forms with a small additional flange on the outer edge to keep the india-rubber tire on the wheel, the ordinary flange being provided at the inner edge to keep the wheel on the track. He makes the flange of considerably greater depth than usual."

ANOTHER STEAM BRAKE.—J. Sterling, of Kilmarnock, Scotland, has applied for a patent for a device which is thus described:—"Steam from the locomotive boiler is conveyed by piping under the carriage into cylinders. Each cylinder is fixed to the framing in a vertical position, and its piston rod is connected to the brake levers, the brakes being applied by admitting the steam under the piston to lift it. An escape valve is fitted into the bottom of each cylinder, and is loaded by a spring or otherwise to a pressure which, taking the area of the piston into account, is considered the maximum to which the brakes should be subjected."

STEAM GUNS.—Mr Bessemer has invented a plan for discharging one thousand bullets per minute through a single barrel by means of steam. *Engineering* says: "The trials so far made have been carried out with a gun having a barrel of 13-16 in. bore and but twenty-one inches long, firing bullets weighing 2 oz., and supplied with steam at 50 lb pressure by an ordinary Cornish boiler. With this apparatus, imperfect although it is in some of its details, bullets have been fired through a 2 in. deal board at a distance of 50 ft., and when fired at an iron plate at the same distance they have been completely flattened, and have been found to have lost by the particles of lead driven off in minute flakes one-eighth of their weight."

IRON RAILWAY TIES.—A Michigan man has invented a cast-iron substitute for wooden ties. It costs three dollars, and will last a life-time. The wooden one costs seventy cents, and will last only three or four years. The rail rests upon a rubber cushion, four by five inches in size.

Scientific Progress.

GLACIATION OF BRAZIL.—We find in *Nature* for Oct. 27th a notice of Prof. Ch. Fred. Hartt's book on Brazil. The Professor has made two visits to that country; the first with the Thayer Expedition, the second during a vacation of some months. As we have occasionally referred to the conclusions of Prof. Agassiz,—also to what has been said in opposition to these conclusions,—in reference to the glaciation of that country, we quote here on that subject. "The most interesting feature in Brazilian geology is a layer of clay or loam, varying in thickness from a few feet to one hundred, and wrapping in its folds hill and valley, over vast tracts of country, including the steep slopes and summits of some of the highest mountains. All Rio de Janeiro, and all the coast provinces visited by our author, were thus covered. It has been described in Minas Geraes and San Paulo, and Prof. Agassiz has observed it in all the northern provinces as far as the Amazon valley. It covers alike the gneiss and the tertiary formations. This clay is of a red color, and is evidently formed of the materials of the adjacent and underlying rocks, but ground up and thoroughly mixed. There is never the least sign of stratification throughout its mass, although it very frequently rests on a thin layer of quartz pebbles. It contains, scattered through it, rounded and angular boulders of quartz, gneiss, and other rocks, and the surfaces upon which it rests are always more or less smooth and rounded. Our author always speaks of this formation as 'drift,' and he agrees with Prof. Agassiz that its peculiarities are such as unmistakably to indicate its glacial origin. This is truly a startling conclusion, and one which has hitherto been received in this country with some incredulity. Prof. Agassiz was thought to be glacial-mad; but if we separate his theories from his facts, and if we carefully consider the additional facts and arguments adduced by Mr. Hartt in this volume, we shall be bound to conclude that, however startling, the theory of the glaciation of Brazil is supported by a mass of evidence which no unprejudiced man of science will ignore merely because it runs counter to all his preconceived opinions. * * It must be stated that Mr. Hartt does not accept Prof. Agassiz's extraordinary hypothesis (which rests on a very slender basis of fact) of a great Amazonian glacier. He believes that the widespread beds of clays and sandstones, which Prof. Agassiz classifies as glacial, are marine, and states that they agree perfectly with the tertiary beds in other parts of Brazil. The patches of drift, with erratics in the Amazon valley, may well have been produced by detached masses from the glaciers of the Andean and Brazilian highlands, which melted and deposited their load of drift in the warm waters of the ancient Amazon."

RATE OF ASCENT OF FLUID IN PLANTS.—Dr. W. R. M'Nab writes *Nature*: "When conducting a series of physiological experiments on the transpiration of fluid by leaves, it became a matter of importance to determine the rapidity of ascent of fluid. My colleague, Prof. Church, had suggested for another series of experiments the use of lithium citrate, a salt easily taken up by plants, and one which can be detected with the greatest readiness by means of the spectroscope. Preference was given to this citrate, because of its containing an organic acid, and on this account not likely to meet with any obstruction to its passage from the tissues. This method I have used with great success. In one experiment the fluid had risen nine inches in thirty minutes, in another five and a half inches in ten minutes. This method is greatly superior to the use of coloring matters, which seem to experience considerable resistance in their passage through the vessels."

THE COMING ECLIPSE.—Prof. Peirce, Supt. of the U. S. Coast Survey, will have charge of the arrangements for observation. The expedition has been divided into two parties of twelve persons each. One, under direction of Prof. Peirce, will observe in Sicily; the other, under direction of Prof. Winlock, Director of the Observatory of Harvard University, will observe in Spain. Prof. Peirce has invited J. Norman Lockyer, F. R. S., and other eminent English physicists, to accompany either party. Mr. Lockyer says that science is of no country, and that English observers "may well be proud to join such a distinguished corps."

PROF. WURTZ ON SILICA.—This following is from Prof. Wurtz's *Chemical Repertory*: "The importance of the function of soluble and hydrated forms of silica in mineral fertilizers, like green sand, has been underrated. Though some vegetable spongiolles may be able to cause quartz to pass into solution in the sap, yet it is of course the soluble forms that are thus chiefly taken up, constituting the vegetable skeleton, as phosphate of lime the animal. Silicic acid, though so minute an ingredient in actual animal nutrition is indirectly as essential to animal life as even carbonic acid. The author has presented to the Lyceum and to the American Association, peculiar views of the relations of oxygen and carbon to life, arrived at by the *a posteriori* method of studying the chemical changes now going on, and tracing them backwards through their anterior stages. By the application of the same process to the past history of silicic acid, equally curious generalizations regarding the relations of this material (which next to oxygen is the most abundant of all) to zoic history in the past and the present, are pointed to with greater or less probability. This study is, however, as yet far more difficult and uncertain than in the case of carbonic acid, for the reason that the facts as yet established by chemical research regarding the habitudes and migrations of silicic acid, and the parts which it sustains in the grand drama of Life, are comparatively few. The pervading idea has been that this acid was pre-eminently the mineral acid, and that its study belonged therefore to mineralogy, a science in itself so great and complex that it has as yet scarcely advanced beyond the first stage, namely that of provisional classification. Prof. Wurtz believes, however, that his studies have unmistakably tended towards the conclusion, which will be startling to many, that silicic acid, as such, that is in isolated forms, *appertains in origin at least, altogether to the vegetable kingdom*, and that the tendency of chemical investigation and discovery is to confirm this conclusion."

ELASTICITY A MODE OF MOTION.—Prof. Walling read a paper upon this subject at the meeting of the American Association. We quote from an abstract in the *American Chemist*:—"This was an attempt to show that elasticity, like most of the other so-called primary properties of matter, is merely a manifestation of atomic motion, and that this is true not only in regard to gases, as is now already recognized in the dynamic theory of gases, but also in regard to liquids and rigid bodies; that in fact the rigidity of solids is a consequence of the peculiar arrangement of the atomic orbits in rings in different planes of motion, the connected orbits being made up of lines of atoms in close proximity, connected at the molecular poles in such a way as to form in each plane a sort of *lattice truss*, giving rigidity of form to the entire structure, whether a crystal or an amorphous aggregation of minute crystals. In liquids and solids, each physical molecule is supposed to be made up of at least three closed orbits or rings of atoms revolving in different planes, and forming at their intersection, six crystalline poles."

PROBABLE ORIGIN OF THE SOUTH CAROLINA PHOSPHATES.—Prof. W. C. Kerr, at the late meeting of the American Association, said in reference to these beds:—"I have seen no suggestion which is at all adequate to account for the origin of the materials which compose them,—the elimination and accumulation of such enormous quantities of phosphate of lime in so peculiar a situation. The recent discovery of the singular Brachiopod, *Lingula pyramidalis*, in the shoals along the sounds of North and South Carolina furnishes a solution of the mystery. This shell, it will be remembered, consists of phosphate instead of carbonate of lime. Its habitat is at the precise level of the Ashley River phosphates, and the shell being very fragile and left within the play of the tides in the shifting sands of the shoals, rapidly loses its form and furnishes only its solid material, to be agglomerated by some concretionary or other chemical or chemico-mechanical force into the nodular masses which are so peculiar to this formation."

TURKEY RED.—V. Wartha announces that the brilliant red color known by this name is brought about by a union of alizarine with a fatty acid, and that this compound is soluble in a mixture of ligroine, (light petroleum oil,) and ether, by which it can readily be removed from its cloth. On evaporation, a scarlet colored fatty substance remains behind, which does not show the characteristic reactions for alizarine until after fusion with caustic potassa. —*Amer. Chemist.*

Mining Summary.

THE following information is gleaned mostly from journals published in the interior, in close proximity to the mines mentioned.

California.

ALPINE COUNTY.

GLOBE.—*Miner*, Nov. 12th: Work on the mill is pushed with energy, and it is hoped the frame will be up and enclosed before the stormy season sets in. The machinery is expected by the teams now outward bound with Leviathan ore.

AMADOR COUNTY.

CONY MINE.—*Ledger*, Nov. 19th: The contract for sinking 100 feet deeper has been completed, and the owners have decided to sink another 100. They have 700 tons of rock on dump, and if the vein continues to improve as it has for the past two months, the permanency of this mine will be fully established.

HOISTING WORKS.—The new works at the Kennedy are going up like magic. The building is enclosed, and the workmen are putting in the machinery. By the end of this month they will be in operation.

KEARSING'S MILL.—This has commenced running on rock from the Cony. We learn that the capacity for crushing will be doubled without delay.

CALAVERAS COUNTY.

ITEMS.—*Chronicle*, Nov. 19th: Paul & Co., near the Junction, get good gravel. They are working a large number of hands. ... Shwv, and Brackett & Co., in Chili Gulch, are as industrious as ever. ... The tunnel and hydraulic claims in Tunnel Ridge are worked with fair results. ... The Union Shaft mine, in Corral Flat, continues to remunerate. ... Megaw & Co., on the west of Stockton Ridge, have not yet reached the channel. Their tunnel is over half a mile in length.

RICH GULCH.—All the stamps at the Palomo mill, thirty-six in number, are in motion, and the mine is paying well. The main shaft is 360 feet, at which point the lead shows fifteen feet in width. The vein is a solid body of quartz, and the entire ledge will pay handsomely. There is rock enough in sight for years. Alexander & Co., whose mine adjoins, are making it pay.

RED HILL.—The parties who contemplate taking water on are negotiating for the iron pipe. The water will have to be conducted 2,400 feet, and that amount of 7-inch pipe is bargained for. A fall of 150 feet can be obtained which will prove sufficient for sluicing and hydraulic purposes, as the gravel is easily washed.

CONDITIONAL SALE.—Lewis & Bro., of the Wet Gulch mine, near Railroad Flat, have negotiated a conditional sale of the ledge adjoining to a company of capitalists. The terms, as we learn by rumor, are as follows: The capitalists furnish \$2,000 with which to prospect the vein. When the money is expended, the capitalists are to have the privilege of purchasing if they wish. If they conclude not to buy, the lead, with the improvements, will remain the property of the present owners. The price named is \$35,000.

EL DORADO COUNTY.

ITEMS.—*Placerville Democrat*, Nov. 19th: The Centreville mines are almost idle for want of water. ... The Pochontas quartz mine, at Logtown, continues to yield immensely. ... The New York and El Dorado Co., one mile south-east of the Pochontas, have discovered a ledge four feet wide. ... A ditch on the divide on which are Georgetown, Greenwood and Centreville, would pay capitalists well. ... At Greenwood, there is not more than one-tenth of the water needed—few can get it at all. ... At Spanish Dry Diggings, the lack of water makes the camp dull, but there are plenty of rich claims there yet.

NYO COUNTY.

CERRO GORDO.—*Independent*, Nov. 14th: A month more of work will tell a big story of the mines. All the silver mines on the "Belmont side" are being further opened by deep tunnels—the Crowning Glory, Belmont, Oceola and the Wittekind among the number. Another, the Sunburst, is being prospected by an incline and drift.

FISH SPRING MINES.—McMurray's arastras are constantly in motion, netting a fair profit. For some time they have been running on tailings, but commenced last week, again, on rock from the El Dorado mine. For the past twelve months there has been shipped from these arastras gold bullion worth \$9,000. Work is prosecuted on both the El Dorado and Macedonia mines.

HOT SPRINGS AND WHITE MOUNTAIN.—We learn from the Supt. of the Owens Lake Silver-Lead Co., who returned last week from a trip to Hot Springs, that the ship-

ment of ore to Swansea for working will shortly be commenced. About ten tons from Witheril's mine in the White mountains, near the line, passed through Aurora last week for reduction in the Stetefeldt furnace at Reno. About the same quantity from McBride's, recently worked at Reno, assayed \$535 per ton, and he received 85 per cent. of the assay, which made the rock net him, after deducting expense of hauling over 200 miles and working, over \$300 per ton.

NEVADA COUNTY.

GOOD.—*Gazette*, 19th: The North Bloomfield Co. are down 250 feet with their shaft, and still in blue gravel that is yielding excellent prospects. Before they commenced, a hench of one hundred feet had been washed off, so that the gravel where they are sinking must have been originally 350 feet deep at least.

PREPARATIONS.—The Kilham at Blue Tent, are putting in their claims 500 feet of 22 inch iron pipe, and immediately below they will connect 600 feet of 16 inch. This Co. expect to use 800 inches of water. Their big blast of 1000 kegs of powder will take place on Thursday.

ROUGH AND READY.—*Transcript*, 16th: The miners in the vicinity of Randolph Flat have excellent prospects. Webster & Co., having thoroughly tested the extent and richness of the gravel, propose to put up a steam engine. The Picayune Co., adjoining, has found first rate prospects. By drifting through a solid bed of gravel and following the bed rock this Co. has ascertained that a tunnel from their cut will drain the ground. A tunnel has been run into the hill 500 feet, and the existence of the channel demonstrated. On the other side of the ridge Topsy & Co. have run in from Squirrel creek, and are drifting and washing. They have been at work on their tunnel for three years, and will commence hydraulic through it as soon as water is plenty.

SAN JUAN HILL.—Same of 19th: Davis & Bowen, owning valuable claims which have not been worked for some months will commence in a day or two. Other companies below San Juan are also about starting.

KURKA.—*Grass Valley Union* 17th: This mine for the two weeks ending Saturday, yielded \$27,500. The underground indications are that the mine will make a better run the current year than it did last. The last two weeks, yield does not include any gold from sulphurets.

WEBSTER CLAIMS.—Same of 19th: A shaft is being sunk and preparations made to place machinery on the ground at the earliest possible moment. On the Grant and Coombs claims a tunnel is being run for draining, and the prospect for both is good.

PLACER COUNTY.

GRAVES-PUNNAM MINE.—*Herald*, 19th: Work is vigorously pushed, large quantities of good quartz taken out, and every few days pockets struck, the ore from which comes from the mine nearly pure gold.

LINCOLN.—Cor. of same: There has been no mining excitement here. Still, they have struck a bed of red gravel near Dancetown, commencing on the Baker ranch, and extending two miles down towards the plains, which prospects well. It underlies the old surface diggings that have been worked off years ago. After working to the pipe clay, and in some places cement, the miners thought it worked out; but on sinking deeper they have struck this bed of gravel, which, if it continues as it now prospects, will give employment to hundreds of men for years.

SIERRA COUNTY.

SIERRA VALLEY.—Cor. of *Messenger*, Nov. 19th: The mining excitement at Antelope Neck, seems to be the most prominent subject just now. A town has been laid out, and parties are getting out rock for test at Reno.

SISKIYOU COUNTY.

QUARTZ ON PROVIDENCE HILL.—*Yreka Union*, 16th: We learn from J. Watson just from a visit to the mines in the Pit River country, that preparations are made for extensive prospecting. Work on his ledge has been continued with satisfactory results. The ledge is eight feet in thickness and shows gold throughout. From its position with reference to the rich placer mine of Ehlers & Co., and the character of the gold, there can be little doubt that it has been supplied from this ledge.

TRINITY COUNTY.

CANYON CITY.—Cor. of *Journal*, Nov. 19th: D. McElduff is drifting on Hyke's Hill and making \$8 to \$20 per day. Chas. Wilson, above, makes good wages. Hugh McIntyre has struck it again and is making \$17 per day. There will be eight hydraulics running on Red Flat the coming Win-

ter; each from 145 to 200 feet pressure. Among the good claims I will mention those of Morse & Co., C. Dannenbrink, Mr. Berger and S. Obermeyer. H. C. Wilt has nearly completed 900 feet of iron pipe and will soon be ready for water. Soldier Mitchell is drifting and makes \$3 per day, on the lower end of Red Flat. Hard Scrabble Bar, just below McGillivray's dam, is turning out rich. John Franklin has struck a good thing opposite the Scrabble hoys. Justice Flowers & Co. have put their ditch in thorough repair for the winter.

DOUGLAS CITY.—S. I. Thayer says the miners are well fixed for work the coming winter and only await the rains.

Nevada.

COPE DISTRICT.

ITEMS.—*Elko Chronicle*, Nov. 20th: We learn that the Norton mill is making a very successful run on Excelsior ore. Vance's mill was to start yesterday. This is on the principle of the Chili mill, with improvements.

The *Independent* of 16th says that Mountain City is not in a very flourishing condition just now. The larger portion of its population have left for the winter.

ESMERALDA.

PINK GROVE.—*Enterprise*, 16th: A gentleman just in informs us that all the mills are in full blast, and the mining companies doing well. About a week ago the Wheeler Co. struck an exceedingly rich deposit of ore in their lower tunnel. Since then they have been raising a shaft in the new body and find it wonderfully rich as far as they have gone. Their bullion is worth \$11 per ounce.

HUMBOLDT.

NORTH STAR.—*Silver State*, 19th: This mine, formerly owned by a New York Co., got in debt, was sold by the Sheriff, and bought by John C. Fall. For six months a few miners have been at work, and the mine is now sufficiently developed to warrant the belief that it is the rival of the Arizona.

STARTED UP.—The "Big Mill" which has been idle for a month, pending the consolidation of the interests of John C. Fall and the Eberhard Company, has again started up, full handed.

MINING.—All the mills in this vicinity are running up to their full capacity, some of them having ore enough to last until April. The prospects are most flattering.

BULLION.—During the current week Wells, Fargo & Co. shipped from their Unionville office 517 pounds of bullion, valued at \$5,524.

REESE RIVER.

BULLION.—*Reveille*, 18th: Last evening the Manhattan Co. shipped the last of 20 bars of silver bullion, weighing 1,799 pounds, of the value of \$29,635.

WASHOE.

YELLOW JACKET.—*Gold Hill News*, 19th: Daily yield 125 tons excellent ore, that from the north winze below the 900 foot level being of very high grade. It is worked to the depth of 54 feet, and three sets of timbers in width.

SAVAGE.—Daily yield 65 tons, nearly all from the eighth level, a few tons coming from the old north Potosi section of the upper mine. The opening of the lowest level is vigorously prosecuted.

CROWN POINT.—Daily yield 40 tons, from the upper workings of the old west ledge. The incline is down 123 feet below the 1-100-foot level, and shows lively looking quartz at the bottom.

OCCIDENTAL.—This mine is still in the grasp of the law. Meanwhile the new mill is run by Sweetapple, on ore from the Savage.

IMPERIAL-EMPIRE.—The old Alta or upper Imperial holds out, yielding 60 tons of fair ore daily, with enough in sight to last a year.

SACRAMENTO AND MEREDETH.—The usual quantity of good ore is taken daily from the upper workings, keeping the new mill running.

OVERMAN.—Daily yield 85 tons. The only item is the quarrel between this and the Caledonia about 60 feet of ground. They hold armed possession of the disputed territory.

HALE & NORCROSS.—Daily yield 140 tons. The drift east at the new lowest level has reached the vicinity of where the pay streak should be. Operations suspended for repairs.

GOULD & CURRY.—Daily yield 50 tons, from the old ore sections, which show no improvement. All work is suspended at the lowest level, and attention concentrated upon prospecting in the upper workings.

CHOLLAR-POTOSI.—Daily yield 300 tons. The old Blue Wing and Belvidere sections hold out splendidly, and a drift west at the

B street level has developed excellent ore. DANEY.—The contractors sinking the main shaft have nearly completed it to the 300-foot station, whence they will drift to the ledge.

OPINR.—Vigorous prospecting going on at the lowest level.

CALEDONIA.—The 300-foot level holds out well and the daily yield of the mine is 60 tons.

KENTUCK.—Mine still closed and lying idle.

BELCHER.—Good prospecting is being done above the 420-foot level, with increase of ore.

SIERRA NEVADA.—Running along smoothly and yielding well.

WAR.—*Enterprise*, 16th: The Overman Co. say that the Caledonians have worked over upon their ground 80 feet, at a point between their 100 and 200-foot levels. They have known of this for some time, and have been drifting to get at them. On Monday they cut through and drove them out. Yesterday the Caledonians made an effort to retake the place, but were repulsed. At the last accounts the Overland folks held the "works."

VIVIAN.—Same of 18th: The Vivian Mill, on Carson river, yesterday commenced crushing ore from the Gould & Curry mine. Five car loads were sent down yesterday.

WHITE PINE.

The *News* of Nov. 19th says that most of the mines are making extensive preparations for winter, building ore houses, sheds over shafts, etc.; that there is not one of them working which has not fair ore in sight; and not one that does not yield a profit.

ITEMS.—South Aurora keeps up the steady yield of good ore, as is evidenced by the bullion shipments. These is also a large amount of fair ore hauled to the Stanford Mill. The large ore-house is nearly finished, and work can be carried on in the mine all winter. ... North Aurora has only 15 men at work, half of them prospecting virgin ground, near the Earle, with the best indications. The others are taking out some good ore. ... In the Eberhardt, the developments are being followed up, and when wanted thousands of tons can be taken out with the least trouble. It will be like a large stone quarry. In the deep workings some of the old class of exceedingly rich ore has been found. ... Ward Beecher yields as much, and as good, rock as ever. The mine is coining money. In the O. H. Treasure, fine milling ore is coming out of the old upper workings, and the lower levels are being put in good shape. ... Fair ore coming out of Silver Wave, with plenty of low-grade in sight. Drifting still going on in the lower levels. ... Wm. Bash & Hemlock suit was decided last week in favor of a Philadelphia Co. who will immediately commence operations on a large scale. ... Anchor company is building a large ore-house over the mine.

BASE METAL RANGE.—Most of the mines are taking out ore. At Mount Ophir the Trench keeps up its reputation, taking out plenty of rich ore. ... Caroline and Amador have been making large shipments of first-class ore to England. ... Robinson is extracting fair rock. ... Mount Hope is in good ore. A drift has been run to connect with a shaft higher on the hill. ... At Carbonate City, nearly every mine is working. ... Imperial has been shut up for the winter. The mine as it stands shows immense quantities of high grading smelting ore. ... Yosemite and Uncle Sam ore is being hauled to the Power Furnace. ... Jennie A is improving daily. The force take out more rock than the two Hamilton furnaces can run through.

MILLS AND FURNACES.—At the International mill the work is pushed with all dispatch. The building is nearly finished, and during the week they will put some of the machinery in place. Mr. Tagliabue is surveying the route for the wire tram-road to connect this with the Eberhardt and North Aurora mine. ... Stanford mill, in Eberhardt, is working with good results. ... Oasis and Sheba are running on Ward Beecher ore. ... Metropolitan has ore from Chloride Flat. ... Big Smoky is working, and at the same time preparing to change to dry crushing. ... Monte Christo is running successfully on Maryland ore. The Stetefeldt furnace is working to a charm, and the whole mill is at last proving profitable. ... Tregloan's mill is working on ore from the Original Hidden Treasure. ... Powers' furnace has been running steadily, and shipped large quantities of base bullion. ... Hamilton furnaces are both running on Jennie A ore. ... Rothschild works are closed—mainly to get a supply of ore and coal on hand.

OUTSIDE DISTRICTS.—In Pinto, the Mary-

land mine ore is now worked at the Monte Christo mill, with good results. In Deep Creek, important discoveries have lately been made. A good deal of work is being done in Robinson, although no furnaces are running. In Reville, the mill has been stopped until the Sept. returns. A letter from Pioche, dated Nov. 10th, says the Crovela mine is now strongly fortified, and held by 30 armed men.

EUREKA.—*Sentinel*, Nov. 19th: Most of the furnaces are getting in winter supplies. The teams are hauling ore to them as fast as possible. The Eureka Consolidated produced, in October, 222 tons bullion, worth \$300 per ton. The two Butteport furnaces produce six tons bullion per day. The Jackson Co.'s furnaces produced in October 92½ tons bullion, worth \$350 per ton. The Separating Works of Ogden, Dunne, & Co. will be ready by Dec. 1st. The product from the mines discovered within a month would alone keep several furnaces running.

Arizona.

MARTINEZ DISTRICT.—*Prescott Miner*, Nov. 12th: It is reported that the clean-up of the ten-stamp mill at Wickenburg, running on Mayflower rock, yielded over \$100 per ton of gold worth \$20 per ounce. The mill was running on surface rock, not selected. The success of this run will probably cause the owners to put up a twenty-stamp mill.

WICKENBURG.—But one lode is being that operated upon—the "Vulture"—and is yielding rich rock enough to keep the forty-stamp mill of the Company running day and night.

WALNUT GROVE.—Parties are now at work upon ore that pays \$100 per ton. Plenty of wood and water.

BRADSHAW.—This district, 35 miles from Prescott, has the richest gold-bearing ledges ever seen, in the midst of abundant wood and water. Among the recent discoveries we have heard of the following ledges: Hidden Treasure, 30 inches in width; Star, 2 feet; Blandina, 10 feet; Oceanica, Belfast and New Era. The ledges are rich in gold; whole sides of specimens which we have seen being covered. The *Del Pasco*, the first lode opened, still keeps up its reputation.

BIG BUTTE.—The mill is running, and the mine is said to be in fine condition.

WALKER.—Some of the miners are taking out rock; the balance are doing a little placer mining.

The prospects are, that outside capitalists will soon take hold of our mines. Such are moving so far as to send experts to examine them. Sylvester Mowry will make a thorough examination of Date Creek and Martinez mines, with a view to erecting a mill, in company with San Francisco capitalists. He takes with him to San Francisco specimens of ores from Lyux Creek and Bradshaw districts for assay.

Idaho.

ITEMS.—*Avalanche*, Nov. 12th: It is estimated that 1,250 tons of ore will be taken from the Chariot mine this month. The Co. have wood enough to last eighteen months, and lumber enough on hand for a year. About 400 tons of ore will be taken from the Ida Elmore this month that will yield between \$40 and \$50 per ton. Operations have been resumed on the Potosi; the tunnel of which is being extended into the hill. Jim Miller has discovered a quartz ledge at Fairview, and asks \$1,000 for his interest.

SNAKE RIVER.—*Statesman*, Nov. 12th: The miners are discovering better pay than ever in a bed of gravel underlying the basaltic formation, and with powder and drill are opening out beds of unknown extent, and rich enough for good pay, high up the banks. Large quantities of dust are daily arriving from there.

WARREN'S.—*Walla-Walla Union*, Nov. 5th: Mr. C. Bradshaw, just down, furnishes items. The mines have been better than the average this year. About 200 white men and 500 Chinamen will winter. A rich quartz lead was discovered by Mr. B. in the course of the summer. They have had three mills in operation at Warren's during the summer, and the returns are understood to be satisfactory. Mr. Isenbeck is running one of the mills, and in working over tailings has taken out \$50 to the ton.

Montana.

CLARK'S FOUN OF THE YELLOWSTONE.—*Pick and Plover*, Nov. 12th: Reports from several points are to the effect that the mines are rich, and may moreover be worked all winter. Nuggets from there have been shown which weighed from 22 to 320.

GREATEST GOLD MINE IN THE WORLD

Under this head, the *Helena Gazette*, of Nov. 14th notes the mine of Cameron & Co. at Cable City. We quote: S. Cameron, Esq., of Cable City, arrived in Helena last night, with 975 ounces in bullion, the result of two weeks' run at the Hanaur Cable Mill. This is the largest clean-up ever made in any mill in this Territory. This mine is now in successful operation, and is unquestionably one of the richest ever discovered. A new incline has been run, striking the lead at a depth of twenty-five feet below the former level, and exposing a body of quartz which, in many places prospects as high as \$1 to the pound. The value of the above clean-up is about \$19,000.

THE NEW NORTH WEST says this clean-up was 1,020 ounces, and was from unselected rock.

PILGRIM BAR.—*New North West*, 11th: To-morrow the water will be shut off. The total yield for the season has been \$347,000. These are good diggings for the next six years. J. Catching has such faith in them, that he has bought up claims to the amount of \$34,000.

CEDAR CREEK.—Mining has nearly ceased in the gulch. The water near Forest City and above is frozen up. In Home Stake, Head-of-Oregon and Other Side and tributary gulches near the head of Cedar, eighteen inches of snow covers the ground. A small portion of the hoys will go out while the larger portion will winter here.

The *Independent* of 12th says, however, that the mines will be worked all winter. The yield of gold is fully as great as at any time during the summer. Miller & Co., at No. 66 above discovery, is the uppermost claim worked in the gulch.

New Mexico.

ITEMS.—*Press and Telegraph*, Nov. 5th: Gulch mining has ended in this vicinity. Some few parties are drifting. In lead mining there is a fair showing. The Chester Co. are sinking a shaft and tunneling. Messrs. Conly & Co., have commenced work again on the Atlantic Lode, near Last Chance. The Aztec mill, on Ute Creek, is reported paying dividends. The Chester on Humburg Gulch will start up in a few weeks. The Montezuma on Ute Creek, is yet idle. There is little prospecting going on, on account of the Grant question.

CHLORIDE DISTRICT.—Through Wm. Uesner we are enabled to verify the statement of Mr. Whitehill, in our issue of the 15th in regard to the silver lode discovered in Chloride District in Grant county, by Isaac Stevens. From 35 pwt., of the ore, Mr. Uesner returned to us 9 pwt., and 18 grs. of silver, which would net \$6,000 to the ton.

SILVER CITY.—Cor. of same: "Our great want is a good stamp mill, and whoever has the enterprise to bring the first one in, will be certain of a fortune, as there is enough rock already mined to run 40 stamps one year at least. It is the opinion of experienced men who have visited our district that it is as rich as Nevada."

Utah.

The *S. F. Bulletin* of Nov. 21st gives a history of the mines at Cottonwood, and notes the commencing rush thither. In the fall of 1868, James Woodman prospected for quartz in the Cañon, and named one of the ledges struck, the Emma. Several partners located claims with him, and organized the mining district. The ledge was narrow and the rock hard, and one by one all abandoned it except Mr. W. He stuck to it until his means gave out and then succeeded in inducing Walker Bros., of Salt Lake City, to help him with provisions and tools. One year more he toiled, and then gave it up. But by this time Walker Bros. were satisfied that it was a big thing, and so they purchased the whole. When the mine was sufficiently opened, 20 tons selected ore was sent to the Selby works, San Francisco, and returned \$21,000 in bullion. Certain San Franciscans went to Salt Lake in the same train with the bullion, and offered Walker Bros. \$400,000 in gold coin for the mine. The offer was rejected. Now comes one Lyons, representing Eastern capitalists, with an adverse claim, which is still pending.

A soldier, discharged in July, went to prospecting at once in Cottonwood Cañon, and found a ledge. On Saturday, Nov. 12th, he refused \$50,000 for his claim. He is taking out \$1,000 a week alone.

There are 15 or 20 other claims in the cañon, yielding rock worth from \$250 to \$700 per ton. Mr. Major, a well-known and reliable man, assured the *Bulletin* correspondent that these mines, including those in Tintic and other districts, were yielding 500 tons a day of ore which would pay to ship to San Francisco for reduction. The Mormons here tried to prevent the news from getting abroad. But every

train brings in men from all parts of the country, and the sidewalks of the principal streets in the city are full of men talking quartz.

New Incorporations.

The following have filed certificates with the County Clerk, San Francisco.

FALLS M. Co. Ely District, Nev.—Nov. 11. Capital stock, \$1,200,000 in 12,000 shares. Trustees: J. B. Baker, J. B. Martin, J. Mendez, R. Apple and I. Brown.

WHITE PINE WATER WORKS.—Nov. 14. Capital stock, \$500,000 in 5,000 shares. Trustees: W. B. Boura, A. Seligman, J. E. Perkins, S. W. Glazier and I. Steinhart.

IMPERIAL REAL ESTATE AND LOAN Co.—Nov. 18. Capital stock, \$50,000 in 50 shares. Trustees: W. Monahan, P. H. Quirk, R. Henry Jr., L. Hemme, G. Moffat, W. D. Heath and R. Croskey.

The following have been recorded in the Secretary of State's Office, Sacramento.

ANAHEIM R. Co.—Oct. 28. Capital stock, \$140,000 in 1,400 shares. Directors: C. R. Johnson, M. Strobel, J. Fischer, H. Kronger and F. Jorehal.

ORPHAN ASYLUM AND HOME, of the Independent Order of Barai Beith, Sons of the Covenant.—Nov. 8.

MEDICAL SOCIETY OF CAL.—Nov. 10. T. M. Logan, President; A. B. Nixon, Secretary; H. Gibbons, Jr., Ass't Secretary; G. Hewston, Cor. Secretary; A. B. Stout, Treasurer.

Meetings, Elections, Etc.

PIUTE M. Co.—Nov. 5. J. W. Gashwiler (President), H. E. Green, W. H. V. Cronise, J. Moss and A. J. Kimball. Secretary, T. F. Cronise.

GIANT POWDER Co. Trustees: L. L. Robinson, T. Varney, E. Judson, H. Brickwedel and J. N. Risdon. Secretary, H. Pichoir.

Mining Shareholders' Directory—Meetings, Assessments and Dividends.

[Compiled weekly from advertisements in the SCIENTIFIC PRESS and other San Francisco journals.]

NAME, LOCATION, AMOUNT AND DATE OF ASSESSMENT.	RATE.	DATE.
Columbia, Cope Dist., Sept. 24, 25c.	Oct. 29—Nov. 22	
Columbus, Placer co., Sept. 28, 75c.	Nov. 2—Nov. 19	
Cos. Virginia, Storey, Sept. 19, \$1.	Oct. 10—Nov. 28	
Crown Point, Gold Hill, Oct. 29, \$3.50.	Dec. 1—Dec. 24	
El Dorado, Y. Co., Oct. 24, \$2.	Nov. 25—Dec. 17	
Empire, G. H. Co., Oct. 18, \$4.	Nov. 25—Dec. 17	
Ida Elmore, Idaho Ter., Sept. 10, \$5.	Oct. 15—Nov. 13	
I. K. L. Alpine Co., Oct. 18, \$2.	Nov. 19—Dec. 7	
Kincaid Flat, Tuolumne co., Oct. 20, \$2.50.	Nov. 21—Dec. 3	
Mahogany, Idaho, Nov. 2, \$2.	Dec. 5—Dec. 27	
Mammoth, W. P., Oct. 6, 10c.	Nov. 11—Dec. 2	
Maxwell, Amador co., Oct. 4, \$2.	Nov. 10—Dec. 9	
Mountain City, Elko co., Sept. 29, 50c.	Nov. 7—Nov. 28	
Meadow Valley Ex., Sept. 19, 50 c.	Oct. 25—Nov. 21	
N. Bloomfield, Nevada co., Sept. 22, \$4.	Oct. 25—Nov. 11	
Ophir, Virginia City, Nov. 8, \$2.	Dec. 13—Jan. 4	
Silver Sprout, Inyo Co., Aug. 29, 25 cts.	Oct. 15—Dec. 1	
San Marcial, Mex., Oct. 18, \$2.50.	Nov. 19—Dec. 5	
Tahleah, Nev. Oct. 14, \$1.50.	Nov. 22—Dec. 10	
Trinidad & San Jo. Co., Oct. 24, \$5.	Nov. 28—Dec. 19	

MEETINGS TO BE HELD.
Confidence.....Annual Meeting, Nov. 11
Hope Gravel.....Special Meeting, Dec. 3
Independent Coal.....Annual Meeting, Nov. 9
Kentuck.....Annual Meeting, Nov. 23
Kearney.....Annual Meeting, Nov. 23

LATEST DIVIDENDS—(Within Three Months).
Chollar-Potosi, \$4.....Payable Nov. 10
Eureka, div., \$7.50.....Payable August, 1870
Golden Chariot, div., \$2.50.....Payable Oct. 20
Hale & Norcross, div., \$5.....Payable Nov. 10, 1870
Sierra Nevada, div., 50c.....Payable Nov. 10, 1870
Union, div., 50c.....Payable Aug. 5, 1870
—Advertised in this journal

Mining Stocks.

SAN FRANCISCO, Wednesday Eve., Nov. 23.
The mining share market has been quite steady during the last week, but the amount of sales effected has been rather small. On account of the occurrence of Thanksgiving Day services, the board will not meet to-morrow (Thursday).

There were a few sales of Amador, commencing at 24¢ and ending at 24½¢. Belcher has remained steady at 2¢. The Segregated Belcher has levied an assessment of \$1 per share, delinquent December 31st. Chollar-Potosi has varied from 79 to 83. Last week the mine yielded 2,100 tons of ore, assaying \$70.40 per ton. The bullion shipment was \$51,356. On Tuesday, \$28,750 were shipped to this city. Crown Point has been very steady at 3 to 3½¢. On Saturday, \$60,000 was received.

Daney has sold steadily, the price gradually increasing from 3½ to 4½¢. Empire Mill sold on Monday and Tuesday at 4½¢ and to-day at 5. The last previous sale was on the 10th inst., when the stock brought 25 cents. Golden Chariot rose from 64 to 68, and the company reports good prospects. Thus far, \$34,625 have been received by them on November account. Gould & Curry has varied from 71 to 79, with light sales. Yield for the week ending on the 21st, 541 tons, assaying \$50.76 per ton. Hale & Norcross sold in small amounts at 196 to 102. For the week ending last Saturday, 430 tons

were raised. Kentuck sales were light at 35 to 38. Mammoth sold at 30 to 32½¢.

Meadow Valley commenced with a decline but rose again rapidly to 21½¢. The mine promises well and the company have received already over \$68,600 on November account, besides \$10,000 more, to have been forwarded to-day. Ophir has been quiet at 4 to 4½¢. Original Hidden Treasure has been quite lively, selling steadily at 8½ to 7½¢. Overman has sold at 5 to 6½¢; last week 500 tons were raised valued approximately at \$13,300. The largest sales of the week have been of Savage, which has risen from 28 to 40. The product of the mine for the past week was 640 tons, valued at \$10,800. Yellow Jacket has varied from 33 to 30.

Occidental appeared in the market on Monday, the first time for a considerable time, and 150 shares were disposed of at 1 cent. On the 2nd inst. a sale was effected at five cents. Imperial has levied an assessment of \$10 a share, delinquent Dec. 27. On Monday, assessments become delinquent of the El Dorado (Nevada) company, \$2 per share, and of the Trinidad and San Jose (Mexico), \$5 per share. By the *Montana*, on Friday, treasure was shipped to the amount of \$458,553 43, making the total shipment this year \$31,103,524 43. The shipments by rail to New York for the week amounted to \$135,941, bullion.

Kentuck M. Co.

The annual meeting of the Kentuck Mining Company was held to-day. An entirely new Board of Trustees was chosen, viz: M. J. McDonald, O. H. Bogart, H. F. Cutter, W. F. King and L. Vesaria. According to the report, the mine produced, during the year ending Oct. 30th, 18,103 tons of ore yielding \$371,198, or an average of \$20 50 per ton. Dividends have been paid to the amount of \$70,000, viz: \$20,000 each in November, December and January, and \$10,000 in February. In August an assessment of \$10,000 was levied.

RECEIPTS.	
From bullion.....	\$371,198 21
Assessment No. 3.....	10,000 00
Lumber contract—paid last year.....	11,250 50
Other items.....	485 88
Total receipts.....	392,934 12
Cash on hand November 1, 1869.....	79,880 54
Total.....	\$472,814 66
DISBURSEMENTS.	
Dividends to stockholders.....	\$ 70,000 00
Crushing ores.....	220,970 48
Labor.....	102,127 50
Timber.....	21,179 97
Holsting ore.....	\$ 594 70
Oil, candles and other mine supplies.....	7,115 57
Mine and office expenses.....	12,268 53
Gold Hill expenses.....	5,868 98
Trans. h. railroad to Kentuck dump.....	5,136 79
A. saying.....	1,026 23
Miscellaneous items.....	9,312 11
Total disbursements.....	466,669 86
Cash on hand November 1, 1870.....	6,144 80
Total.....	\$472,814 66

Latest Mining Stock Prices.

[S. F. Stock and Exchange Board.]

BID.	ASKED.	BID.	ASKED.
Alpha Cons.....	—	Ida Elmore.....	—
Anador.....	24 1/2	Imperial.....	—
Belcher.....	2 1/2	Kentuck.....	35 1/2
Chollar-Potosi.....	79 1/2	Occidental.....	—
Confidence.....	15	Ophir.....	3 1/2
Crown Point.....	3 1/2	Orig. Hid. Treas.....	7 1/2
Empire Mill.....	4 1/2	Overman.....	6
Eureka.....	—	Savage.....	39 1/2
Golden Chariot.....	—	Silver Wave.....	—
Gould & Curry.....	76	Sierra Nevada.....	15 1/2
Hale-Norcross.....	101 1/2	Yellow Jacket.....	31 1/2

PITTSBURGH has thirty-two iron, nine steel and two copper mills. The daily consumption of the iron mills is 1,200 tons, and their annual production is \$23,000,000. There are forty-eight foundries, employing 2,000 men in all, and adding \$3,000,000 per year to the wealth of our country. THE CENSUS of 1870 will cost the government \$1,750,000.

THE TOBACCO CROP.—The tobacco crop of the United States is given by the *Financial Chronicle* comparatively thus—

Hbds.	1868-69	1869-70
Virginia.....	47,000	38,000
Maryland.....	30,000	25,000
Ohio.....	16,000	16,000
Kentucky.....	90,000	65,000
Other Western.....	30,000	25,000
Total hbds.....	213,000	163,000

Cases.
Conn. and Mass..... 31,000 30,000
New York..... 50,000 6,000
Pennsylvania..... 7,000 12,000
Ohio and Western..... 14,000 20,000

This shows a falling off to the extent of 44,000 hogsheds of Kentucky, Maryland, Virginia and Western tobacco.

The Profits of Farming.

In the two previous issues of the *PRESS* we have considered how much it costs to commence farming. The subject was examined under two conditions—commencing without capital, and commencing with capital. We now propose to consider the Profits of Farming, and this subject will also be examined from different stand points, the first of which will be that of the wheat farmer.

We would premise what we have to say, however, by a statement in which we think all who have carefully examined the subject will agree: That circumstances being equal, farming will furnish as ample a compensation for labor, and as large a profit upon investment, as any or the aggregate of the common trades in which men engage; and we would not except even the ordinary pursuits of mercantile or commercial life. If we take ten merchants with a given amount of capital, and ten farmers with a corresponding amount, we shall find that at the end of either ten or twenty years, the farmers will have the largest aggregate amount of increase; and that the same will be more equally divided among those who have earned it. And more than this, it is safe to say that fully *twenty* merchants fail in business to *one* farmer.

A comparison between mechanics and farmers will not show so marked a difference; still we think we shall be borne out in the assertion that in any given number, under similar conditions, the farmers will always have the advantage. This is the money view of the subject. If we look at the question in the matter of health and in its moral aspect, the advantages in favor of the farmer will be still greater. Such facts as these, which no one pretends to controvert, ought to open the eyes of our young men who are so much disposed to crowd the counting-house and workshop, at the expense of the farm, where their presence and services are vastly more needed.

But, turning to the special object of this article, we will endeavor to ascertain what amount of profit may be derived from wheat raising upon an outlay of \$5,625 for land (instead of \$6,250 as incorrectly printed last week), added to \$1,394 for the animals, tools, etc., required to stock such a farm. We have assumed that the land will yield an average of 30 bushels to the acre, and 25 acres will be required to sustain the farm stock, etc. We also propose to summer fallow one-third of the wheat land each year, thus leaving but 133½ acres for constant culture in wheat. We also assume that one man and a boy will do all the work of plowing, planting, hauling the produce to railroad or steamer, taking care of stock, and raising the necessary hay, etc., for their sustenance, taking care of a small garden and orchard, providing wood for the fire and keeping things in order about the farm generally. Besides this they ought to add something to its value every year, by setting out trees and otherwise improving the place. The only outside labor or other expense needed upon the farm will be at harvest time, and may be set down at \$3 per acre for cutting and threshing. The time occupied in thus harvesting 133½ acres, with proper appliances, need not exceed four or five days, during which time the farmer will be expected to board from 15 to 18 men and 12 horses. The only other expense will be seed and sacks at 12½ to 15 cents each.

Then we have 133½ acres, at 30 bushels each, yielding 4,000 bushels, or 240,000 pounds, which at 1½ cents per pound, will amount to \$3,600. Deduct for seed \$120; harvesting and threshing \$400; for sacks \$360; interest on investment, say \$625—total \$1,505, leaving a net profit for the year of \$2,095. But if by reason of an unfavorable season the crop should be reduced one-third, or to 20 bushels to the acre,

the farmer would still have the very respectable amount of \$1,015 as the sum of the net earnings for himself and boy for the year, beside a good return for his investment, to say nothing of the natural increase in value of his property, as the country is filling up around him, and opening a better, more diversified, and profitable system of farming.

Of course much hard work is involved in the above programme, but not more than can be done by one man aided by a good, stout boy. Possibly a little aid might be needed in plowing; but if the work is properly planned and pushed energetically it can be accomplished. We have in our mind instances where much more is done.

The necessary outlay for the family during this time will be very small. Of course a good farmer will produce his own small vegetables, pork, poultry, butter, cheese and eggs, and by the fourth year he ought to be able to supply his own fruit, and perhaps realise something in that way from his less provident neighbors. If properly managed, he might realise some cash for his pork, butter, cheese and eggs over and above his family use; so the amount to be drawn from the profits which we have supposed will be very small indeed. His interest account ought to furnish him with all the money he needs, and leave something to add to his profits. The only drawback to what we have named will be loss of stock by death or accident, and depreciation of farm tools. A little surplus stock, well managed, which need not interfere with his ordinary farm work, ought to fully make up any such loss. In our next we will endeavor to show the profits derivable from other branches of farming.

Cotton Culture in California.

The articles upon cotton culture in this State which have recently appeared in the *SCIENTIFIC PRESS*, the *Bulletin* and the *Call*, seem to have awakened a renewed interest in this important subject, and will undoubtedly lead to more careful and extended trials. The experiments heretofore have generally been upon a very small scale, and have been conducted under quite adverse circumstances. The seed employed has generally been of varieties not adapted to our soil and climate; and much of that employed was so badly damaged that replanting was found necessary. A lack of practical experience has also been acknowledged by several experimenters. Mistakes have been made, which have subsequently been fully recognized; but which in future experiments will be carefully avoided. The most of those who have been thus engaged have recently been comparing notes, and carefully seeking such information from each other, and from outside sources as it is hoped may lead to better success in future efforts.

The sum of our experience in this matter may be stated as follows:

First.—That the Pettel Gulf and Tennessee upland seed may be considered the safest and most profitable, and that it should be planted as early as the ground will allow.

Second.—That the low bottom and tule lands of this State are well adapted to the raising of cotton; and that we know by actual experiments, that equally good crops can be produced on selected lands, from Butte county on the north to San Diego on the south; or through a range of country from 400 to 500 miles in extent, and from the border of the sea back to the foothills of the Sierras, avoiding those portions of the coast only where fogs and cold winds prevail.

Third.—That the ordinary condition of our soil and climate require but little irrigation anywhere—none in many localities; that less water is required as a general thing, than is needed to perfect a good crop of corn.

Fourth.—That the absence of rain during the picking season in this State, enables the planter here to gather his crop entire and in good condition, while an average loss of fully fifteen per cent. from rains must be counted on in any of the Southern States.

Fifth.—Experiments thus far made show that when the proper advantage is taken of the soil and climate of California, fully double the yield per acre can be obtained here than can be realised from average culture in the Southern States.

Sixth.—The increased production, due to climate, soil, absence of insect pests, superior facilities for operating machinery, etc., etc., more than make up for the higher wages paid for labor here; so much so, that careful estimates made by Col. Stroug, of Merced, show that cotton can be produced here *cheaper* than it can be raised anywhere east of the Mississippi. Nearly twice as much cotton can be raised here to the band, by the aid of machinery, as is produced in the south by the usual appliances employed there.

Seventh.—Opinions given by unprejudiced experts at the East, and tests made by careful microscopic and chemical examinations show that the fibre and composition of California-grown cotton is decidedly superior (the same kinds being compared) to that grown in any other part of the world.

The yield of clean cotton in India is about 70 pounds to the acre; in the Southern States, 180 pounds; in California, 260.

In making our statement of yield, we have taken the estimated average yield for ten of the cotton States for the year 1867; said States averaging from 160 pounds, the lowest (Florida), to 250, the highest, (Louisiana). Small experiments in this State have shown as high a yield as 500 pounds and over to the acre.

No insects trouble the cotton in this state, while the louse, the cat-worm and the caterpillar are most destructive foes to it in the Southern States. The constant showers in the south greatly encourage the growth of weeds, the removal of which is attended with much labor and expense. This drawback is greatly lessened here, allowing their destruction by means of machinery (properly constructed cultivators) a comparatively easy task.

At the south, cotton, after being picked, has to be ginned, haled, transported to tide water or rail, shipped, and re-picked at the factory. The production of cotton in California would lead immediately to the construction of factories to work it up as fast as produced (thus introducing a new and greatly needed industry). These factory owners would buy the cotton on the plantation—in the seed—transport it, slightly compressed, to the factory, where the re-picking and shipping would be saved as well as the expense of careful baling. The seed would then be just where it would be needed for manufacture into oil and cake. The South is beginning to realise this advantage by erecting factories convenient to the cotton growing districts.

So far as finding a market is concerned, if manufactories are not established here, cotton can be shipped as directly and cheaply from California, for Europe as from Atlantic ports.

The question of rates of labor between the two sections may be nearly or quite offset by the better system of labor which prevails here. We may pay higher wages, but labor here is more regular and reliable, and is never interrupted by the weather, even for an hour. Mr. Dickson of Alabama says that the system of "shares" to which they are obliged to resort there is most pernicious in its tendency, and is an effectual bar to progress in cotton or any other kind of cultivation.

Col. Strong, of Merced, since his earlier experiments here, has spent two years in managing a cotton plantation in Arkansas, and assures us that there can be no doubt

about the superior facilities here. He is making arrangements to put in 100 acres the coming season, by which he hopes to thoroughly test the question and remove all doubts in the matter. A South Carolina gentleman, who has thoroughly informed himself on what has already been done in this State, has made a proposition to put in 1,000 acres near San Diego, if satisfactory arrangements can be made for the required land. The public spirited land holders in that section will not allow so generous a proposition to fail for want of the acres. If these experiments are made, as proposed, and carried to a successful issue, the results will be of immense importance to the Pacific Coast and to the world.

PLANTING FOREST TREES.—Mr. Jesse Eaton of Spanish Hollow informs the *Dalles Mountaineer* that he intends to set out ten acres of locust trees on his farm to be used hereafter for fencing and fire wood. Had he and hundreds of others both in Oregon and California, who own treeless farms done such a thing eight or ten years ago, they would not now be in need of small timber. If the neglect is continued the want will be largely increased at the end of the next decade. Plant trees now. It does not take fast growing trees more than eight or ten years to attain a size sufficient for almost any purpose on a farm.

HOW TO FEED PUMPKINS AND SQUASHES TO STOCK.—A farmer of some practical experience has told us how he feeds pumpkins and squashes to stock: He cuts the "fruit," open and scoops out the seeds with a ladle. The seeds are fed to his pigs, and he says they are better than barley for them. Squashes and pumpkins thus prepared are more wholesome for cattle, as the seeds are generally swallowed by them, and act injuriously upon the digestive organs.

A POTATOE FROM MONTANA.—Mr. Thomas M. Stewart, of Helena, Montana, has sent us a potatoe, raised upon his ranch in Prickly Pear Valley, which measures 18¼ inches in circumference the longest way, by a fraction over 11 the shorter, and weighs two pounds. Mr. S. writes that the tuber sent is a sample of 6,203 pounds raised from 21½ pounds of seed.

San Francisco Market Rates.

Wholesale Prices.			
THURSDAY EVENING NOV. 24, 1870.			
Flour, Extra, 3 bbls.	5 00	14½	14½
do, No. 1, 3 bbls.	4 50	14	14
Corn Meal, 3 bbls.	2 25	20	20
Wheat, 3 bbls.	1 25	20	20
Oats, 3 bbls.	1 25	20	20
Barley, 3 bbls.	1 25	20	20
Beans, 3 bbls.	1 00	20	20
Potatoes, 3 bbls.	1 00	20	20
Hay, 3 bbls.	10 00	20	20
Live Oak Wood, 3 cord.	10 00	20	20
Seal, extra, dressed, 3 bbls.	7 00	20	20
Sheep, on foot.	2 00	20	20
Hogs, on foot.	1 00	20	20
Hogs, dressed, 3 bbls.	7 00	20	20
GROCERIES, ETC.			
Sugar, crushed, 3 bbls.	14½	14½	14½
do, Hawaiian, 3 bbls.	14½	14½	14½
Coffee, Costa Rica, 3 bbls.	20	20	20
do, Rio, 3 bbls.	20	20	20
Tea, Japan, 3 bbls.	65	1 10	1 10
do, Oreen, 3 bbls.	60	1 10	1 10
Hawaiian Rice, 3 bbls.	7½	8	8
China Rice, 3 bbls.	40	50	50
Cool Oil, 3 bbls.	40	50	50
Candles, 3 bbls.	14	14	14
Overland Butter, 3 bbls.	30	30	30
Ranch Butter, 3 bbls.	25	25	25
Butter, 3 bbls.	25	25	25
Cheese, California, 3 bbls.	12	12	12
Eggs, 3 dozen.	60	60	60
Lard, 3 bbls.	11½	14	14
Ham and Bacon, 3 bbls.	15	17	17
Shoulders, 3 bbls.	9	10	10
Retail Prices.			
Gutter, California, fresh, 3 bbls.	70	75	75
do, pickled, 3 bbls.	40	50	50
do, Oregon, 3 bbls.	20	25	25
Cheese, 3 bbls.	20	25	25
Honey, 3 bbls.	25	30	30
Eggs, 3 dozen.	60	75	75
Lard, 3 bbls.	18	25	25
Hams and Bacon, 3 bbls.	22	25	25
Grauberrries, 3 gallon.	75	1 00	1 00
Potatoes, 3 bbls.	2	3	3
Butter, 3 bbls.	2	3	3
Tomatoes, 3 bbls.	2	3	3
Onions, 3 bbls.	2	3	3
Apples, No. 1, 3 bbls.	5	5	5
Pears, 3 bbls.	5	5	5
Plums, dried, 3 bbls.	10	12	12
Peaches, dried, 3 bbls.	10	15	15
Oranges, 3 dozen.	60	75	75
Chickens, 3 dozen.	75	1 00	1 00
Turkeys, 3 bbls.	10	15	15
Soap, 3 bbls.	15	15	15
Soap, Castile, 3 bbls.	18	20	20

THE WHEAT CROP AT LARGE.—The agricultural report from Commissioner Capron shows that the wheat crop the present year is some 14 per cent. less than that of the previous year; but the quality is better than in 1869.

Household Reading.

Flavor and Relish in Food, Essential.

Too little consideration is generally given to the importance of flavor and relish in food; although no close observer has failed to notice that a little food, well relished, will go further in sustaining the system, than so much badly cooked or so imperfectly flavored that it cannot be eaten with a relish. Frenchmen are smaller than people of other nationalities, because they pay more attention to the relish or flavor of their food.

A common failing in flavoring food, arises from over-doing the thing. A very little nutmeg, for instance, will flavor a dish, when a very slight excess will spoil it.—Nature's flavors are exceedingly delicate.

Taste and appetite in the natural man, before the senses become vitiated by abuse, is a pretty sure safeguard to the stomach. Just so instinct is almost infallible in governing animals in the selection of their food—perhaps always so in those which have never been domesticated. We should never allow ourselves to eat anything disagreeable to the taste; food so taken will be but poorly appropriated by the system. Articles which require cooking, should be considered *done* just as soon as they have their flavor most perfectly developed. Eaten under such conditions, they afford the greatest possible amount of nutriment.

A pound of fried meat, says one who has studied up the matter, will not afford so much nutriment as a pound of broiled meat. Who does not recognize the vast superiority of flavor and relish in the one over the other; and yet how many people will put up with their fry, and—dyspepsia!

Scientists call the principle which gives relish to food and drink, *osmazome*. This principle is very volatile, and may be entirely driven off by over-cooking. It is found in everything we eat or drink.—When, by over-cooking, the "taste," or the *osmazome* is gone, we try to replace it with various flavors and condiments; hence certain mixed and re-cooked foods, as minced meat, soups from re-cooked meat, some kinds of sausages, etc., are made more palatable by the addition of condiments.

A person would undoubtedly starve to death in a very short time, with a plenty of food before him, if it was so cooked and re-cooked as to entirely remove all the *osmazome*, or smell as it may be called. His stomach would soon get such a loathing for it, that although it might be forced down by the pangs of hunger, still the system would refuse to appropriate it.

An experiment of this kind has been tried upon a dog, which was shut up with plenty of good food before him, from which, however, the *osmazome* had been so carefully extracted by cooking and re-cooking, that although the muscle and fat-making elements were left, still it had noither taste nor smell. The result was that the dog gradually pined away, until starvation was so imminent that the experiment was considered conclusive, when proper food was placed before the brute to nourish and restore him.

These things show the importance of good palatable food, properly cooked.—Even the manner of serving up food is important in this respect. Who, especially with a poor appetite, does not relish his food better when it is placed before him in a tempting, tasteful manner. Even the white cloth, and graceful manner of serving the table, add to the relish, and in just so much increase the actual nutritive power of the food. Who has not realized the fact that when food is not relished, the stomach is oppressed by its contents remaining undigested, until a little relish—either liquid or solid—is added to aid digestion. A good laugh or story, or pleasant company will also set the digestive organs thus arrested, once more to work. One will relish his food better when taken with genial companions, than when eaten solitary and alone, or in a mixed unsocial company.

The Curative Power of Music.

It was the celebrated German physician, Hof-laud, who first fully recognized the curative power of music. Frequently the life of a dying man may be saved by gentle music not too near his bedside. It is only to catch his attention and hold it with something that imparts pleasurable feelings in order to sustain him beyond the moment of supreme exhaustion, which makes the crisis of disease. Usually, however, the cars of the dying are regaled with no sweeter music than the sighs and sifflings of their sorrowing friends. Of course they are troubled, depressed, and when the critical breath comes, fail to catch it and so die. There is much in this theory.

Music as an agent for promoting health is of high value. If invalids would devote an hour or two daily to practising vocal music it would often restore them to health. Persons with weak lungs may thus ward off fatal lung disease. The effects on the body and mind are excellent.

WHAT MUSIC DOES TO WOOD.—Some authorities contend that the wood of the violin becomes changed in structure after being played upon, and is reconstructed on a finer principle, and for this reason a very old violin that has been well treated by refined playing can hardly be bought, because it has yielded up its original coarseness and obeys a divine law. When Ole Bull wished to repair his violin he waited till one day some accident in the orchestra "killed" the double bass, when he secured a portion of the wood to incorporate in his instrument. Military music converts men from a mob into a machine, and subjects their wills to the purpose of one enthusiastic moment.

Care of the Feet.

Many are careless in the keeping of the feet. If they wash them once a week they think they are doing well. They do not consider that the largest pores of the system are located in the bottom of the feet, and that the most offensive matter is discharged through these pores. They wear stockings from the beginning to the end of the week without change, which become completely saturated with offensive matter. Ill health is generated by such treatment of the feet. The pores are not repellants, but absorbents, and this foetid matter, to a greater or less extent, is taken back into the system. The feet should be washed every day with pure water, as well as the arm-pits, from which an offensive odor is emitted, unless daily ablution is practised. Stockings should not be worn more than a day or two at a time. They may be worn one day and then aired and sunned and worn another day, if necessary.

Color of Furniture.

Nothing contributes so much to enhance the beauty of a stuff intended for chairs, sofas, etc., as the selection of the wood to which it is attached; and, reciprocally, nothing contributes so much to increase the beauty of the wood as the color of the stuff in juxtaposition with it. We should assort violet or blue stuffs with yellow woods, such as citron, maple, satin-wood, etc. Green stuffs with rose or red-colored woods, as mahogany. Violet or blue-gray are equally good with yellow woods, as green-grays are with the red woods. But in all these assortments, to obtain the best possible effect it is necessary to take into consideration the contrast resulting from height of tone; for a dark blue or violet stuff will not accord so well with yellow wood as a light tone of the same colors; and it is for this reason that yellow does not assort so well with mahogany as with wood of the same color, but not so deep. Among the harmonies of contrast of tone, ebony or rose-wood permits its employment with light stuffs to produce contrasts of color. It can also be employed with very brilliant, intense colors: scarlet, aurora, flame-color, etc.

LEMON JUICE IN DIPHTHERIA.—Dr. Revillout, in a paper presented last summer to the French Academy of Medicine, asserts that lemon juice is one of the most efficacious appliances for diphtheria, and he relates that, when a dresser in the hospital, his own wife was saved by this timely application. He got three dozen lemons and gargled her throat with the juice, she swallowing a little at the same time, in order to act on the more deep-seated parts. The doctor has noted numerous cases of complete success obtained by this method of treatment.

Household Receipts.

TO ROAST A GOOSE.—Chop a few sage leaves and two onions very fine, mix them with a good lump of butter, a teaspoonful of pepper, and two of salt, put it in the goose, then split it, lay it down and dust it with flour; when it is thoroughly hot, baste it with nice lard; if it be a large one, it will require an hour and a half, before a good clear fire; when it is cooked enough, dredge and baste it, pull out the spit, and pour in a little boiling water.

POTATOE SALED.—Boil six potatoes and six onions until they are soft. The potatoes must be sliced—not mashed. Mash the onions fine, and add to the potatoes, with some pepper, salt, and a small piece of butter. Then set it over the fire again, and add a little vinegar; when hot, serve it.

WELSH RABBIT.—Cut some cheese into thin shavings, and put it in a pan with a bit of butter. Place it over a gentle fire, and stir it till the cheese dissolves. Serve it with toasted bread in the bottom of the dish.

TO CLEAN GLASS BOTTLES.—Roll up, in small pieces, some white brown or blotting-paper; then wet and seep the same, put them into the vessel, with a little lukewarm water; shake well for a few minutes; then rinse the glass with clean water, and it will be as bright and clear as when new from the shops.

DELICIOUS DROP CAKES.—One pint of cream, three eggs, and salt; thicken with fine rye till a spoon will stand upright in it, and drop on a well-buttered iron pan, which must be hot in the oven. They may be made thinner, and baked in buttercups.

WORTH TRYING?—A correspondent of the *Scientific American*, writing from Columbia, South Carolina, propounds the following: "My laundress boils a bunch of peach-leaves with her clothes to whiten them. Is it an idea, or is there any chemical action produced? The clothes are certainly very white when they come from her hands." [Would they not be white without the peach leaves?]

Mechanical Items.

HOME-MADE CHLORIDE OF LIME.—Farmers can manufacture their own chloride of lime by dissolving a bushel of salt in a barrel of water, and with the salt water, slack a barrel of lime, which should be wet enough to form a kind of paste. For the purposes of a disinfectant, this is nearly as good as that purchased at the shops and drug stores, at more than treble the expense. Buy a barrel and use it freely about the sinks and gutters, it may keep the unwelcome visitor, the doctor from your house at the season of the year, when you have other more pleasant matters to attend to.

The hardness of zinc, copper and tin alloys causes them to blunt the edge of the turning tool when in the lathe. It is said that if the point of the tool be moistened with petroleum, the work will proceed as readily as with red hot metal. Steel tempered to a light yellow has been turned with the greatest facility, by using a mixture of two parts of petroleum and one of oil of turpentine.

SOLUBLE GLASS has been successfully applied on hands of machinery to restore elasticity and polish, and is found to be better adapted for the purpose than gum arabic or similar substances. Experiments upon the leather straps of a spinning jenny proved entirely satisfactory, and as liquid quartz or soluble glass is now largely manufactured, a fair trial of it is worthy the attention of our machinists.

TO SOFTEN HAND PUTTY.—Break the putty in lumps the size of a hen's egg, add a small portion of linseed oil, and water sufficient to cover the putty; boil this in an iron vessel for about ten minutes, and stir it when hot. The oil will mix with the putty. Then pour the water off and it will be like fresh made.

EXTERIOR HOUSE VARNISH is the name of a new article which has been imported from England in small quantities during the past year.

FULMINATING silver is prepared by dissolving silver in nitric acid, then precipitating it by adding caustic potash or lime-water. The precipitated oxide of silver thus obtained is next washed with water, then drained and digested for twelve hours in cold, strong ammonia. The liquor is next poured off and the powder washed with fresh ammonia and drained on blotting paper. When dry it forms one of the most dangerous of fulminating powders; it can scarcely be touched without exploding.

Life Thoughts.

A MAN may betray the cause of truth by exhibiting unseasonable zeal.

MAKE few promises. Live up to your engagements. Keep your own secrets, if you have any.

HE has hard work who has nothing to do.

IT costs more to avenge wrongs than to hear them.

DO GOOD ALWAYS.—Be always at leisure to do a good action; never make business an excuse for avoiding offices of humanity.

SO MUCH as you excel others in fortune, so much ought you to excel them in virtue.

TRUE COURAGE.—In general, that man is a coward who shapes his course of action by his fears; and he alone is a man who dares to do right.

BE MODERATE IN PLEASURE.—Whenever we drink too deep of pleasure, we find a sediment at the bottom which polutes and omitters what we relish at first.

SITUATIONS are like skeins of silk. To make the most of them we need only to take them by the right end.

FORGET INJURIES.—The best memory is that which forgets nothings but injuries. Write injuries in the dust, and kindness in marble.

LABOR AND THOUGHT.—It is only by labor that thought can be made healthy, and only by thought that labor can be made happy.

Strike the Knot.

When we were little fellows living in California, said a man of himself and younger brothers, our father began to teach us to work, and we were anxious to perform our allotted tasks in spitting weed. A rough stick, with a most obstinate knot, tried all the skill and strength of a weak arm, and we were about to give up the task when father came along. He saw the piece of wood had been chipped down, and the knot backed, and took the ax, saying, "Always strike the knot, boys." The words have remained safe in my memory, and they are precious words. Never try to shun a difficulty, but look it right in the face, catch its eye, and you can subdue it as a man can a lion. It will cover before you, and sneak away and hide itself. If you dread difficulties, difficulties will grow upon you till they overcome you. Therefore don't chip round about the knot, but drive fair and full at it.

THE ESSENCE OF VULGARITY is the want of sensation. Simple vulgarity is merely an untrained and undeveloped bluntness of body and mind; but inbred vulgarity is a dreadful callousness, which, in extremity, becomes capable of every sort of bestial habit and crime, without fear, horror or pity. It is the blunt hand and the dead heart, in the diseased, habit hardened conscience, that men become vulgar; they are forever vulgar, precisely in the same proportion as they are incapable of sympathy—of quick understanding—of that tact which the Mimosa has in the trees, which the pure woman has above all creatures; fineness and fullness of sensation beyond reason—the guide and sanctifier of reason itself.

THE THIRD PARTY.—There is a third silent party to all our bargains. The nature and soul of things takes on itself the guaranty of the fulfilment of every contract, so that honest contract cannot come to loss. If you serve an ungrateful master, serve him more. Put God in your debt. Every stroke shall be repaid. The longer the day is withheld, the better for you; for compound interest on compound interest is the rate and usage of this exchequer.

MIND—SOUL—SPIRIT.—The mind is generally thought to be the intelligent power in man,—the power that perceives, conceives, judges, and reasons. The soul embraces all that is meant by mind, and also the sentiments and moral affections; in other words, those faculties which enable him to think and reason, and renders him a subject of moral government. Soul and spirit mean about the same thing.

BE LIBERAL.—The surest road to poverty, is to hoard up treasure. The surest road to wealth, is to bestow liberally where it is most needed. The miser is the poorest on earth; the most liberal man is the most wealthy. If, therefore, you would be rich, do not aim at riches, but simply use what you already possess for the greatest possible number.

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TWO EDITIONS.—We now issue a mining edition and a farming edition of the Press. The difference consists in changing the reading matter of the 6th and 7th pages. [All advertisements appear in both issues, affording an immense circulation.] Subscribers will please notify us if they do not receive the edition they prefer. Both editions furnished to one address for \$7 per annum.

San Francisco:

Saturday Morning, Nov. 26, 1870.

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Gold and Legal Tender Rates.

San Francisco, Wednesday, Nov. 23, 1870.—Legal Tenders buying @89½; selling @90¼. Gold in New York to-day 112.

Notices to Correspondents.

E. M., Watsonville, asks whether "eating the leaves of poison oak is an antidote for poisoning by the same plant. There are firm believers in this doctrine, and no less a person than the editor of the *Pacific* declares that he has tried it with success in his family. I tried it once and got a very sore mouth." We should be afraid to recommend the practice. We know of cases where extreme suffering and even death have resulted therefrom, although, on the other hand, we have tried it ourselves without injury. One of the best remedies, which has been recommended as effective even in extreme cases, has been given by medical authority as the *Grindelia*, a plant from one to three feet high with bright yellow flowers in heads one to two inches in diameter, which somewhat resembles a small sun flower. This grows often almost in the vicinity of poison oak and flowers from June to October. It may be used either by bruising the fresh herb and rubbing it on the parts affected, or, better, a strong decoction may be made, by boiling the plant in a covered vessel, and applying this decoction.

MURPHY, Virginia City, asks for information on the subject of growing and manufacturing indigo. We will furnish the information desired at an early date. COMMUNICATION received from Bull Run.

BOILER INCrustATIONS.—It has been observed that water slightly contaminated with the impurities of crude coal gas forms no scale in steam boilers. The recent discovery that red iron rust is not an oxide of the metal, but a carbonate of the sesquioxide, explain this phenomenon, and promises an effectual remedy for scale. The addition of a very slight percentage of caustic ammonia (the "aqua ammonia" of commerce) must, by neutralizing any carbonic acid present in the water, serve as an efficient and ready method of avoiding this troublesome incrustation. This is of importance, not only to those using boilers, but also especially to gas companies, who are thus promised a no mean addition to their revenues from the manufacture of the ammonia.

Railroad Matters.

Oregon.

Concerning the results of the surveys on the Northern Pacific we have heard nothing very certain of late. The difficulties of the northern part of the country seem by no means to diminish by nearer examination. As to the absence of snow in winter, the statements hitherto made appear to have no foundation on ascertained facts, while all surveys point to the fact of there being very heavy falls of snow. Last month there were withdrawn from market eighty sections of land in Oregon and Washington along a route following down the Columbia, on the north side, to Vancouver, thence one branch crossing to Portland and another proceeding down the Columbia, to a point opposite Rainier, and thence to the Sound. If the line is run, as has been suggested, southerly from Montana, through the lower part of Idaho, it will be a big benefit for that country.

Articles of incorporation of the Yaquina Bay and Willamette Valley R. R. Co. were filed November 4th. The road is to be run from Corvallis to Yaquina Bay. It was announced, at the beginning of the month, that Alvinza Hayward, of this city, had agreed to build a road from Walla Walla to a point on the Columbia, provided the citizens of Walla Walla subscribed \$100,000. The county is authorized to subscribe \$300,000. The distance is given as about 30 miles. The bill authorizing the city of Portland to donate \$300,000 of bonds to the West-Side R. R. passed the Oregon State Legislature but was vetoed by the Governor.

On the Oregon and California road, work is progressing rapidly. The grading has been completed to the one-hundred mile stake. The track is already laid for over 60 miles south of Portland and will be down for 100 miles in a short time. It has been ballasted and fully completed within a few miles of Salem. Cars are now running as far as Jefferson.

California.

On the California and Oregon road, some three hundred graders and tracklayers are employed and the track is laid at the rate of half a mile per day. The Deer creek bridge, eight miles from Tehama and 20 miles from Chico, is finished and the iron was to reach this point this week, and Tehama, it was hoped, at the end of the month. It is said that the road will be pushed on to Red Bluff immediately. The track has been raised three feet on both sides of Bear river for a distance of a mile and a half, to protect it from the possibility of an overflow. It is reported that a branch will be built from Gridley station (Butte county) to Colusa. The surveyors in the upper part of the State have finished several lines east of Mt. Shasta. According to the Yreka papers, Mr. Bates, the head of the parties on the east side, does not appear favorably impressed with that aide. Engineer Hood has run a second line from Klamath river to Siskiyou mountains.

The San Francisco and North Pacific is pushing on to Healdsburg. On the 22nd ult., the first passenger car was run from Petaluma to Santa Rosa, amid considerable enthusiasm. On the 2nd inst., the trains commenced their regular trips between these places, making two trips daily. An additional force of laborers was sent up from this city on the 22nd.

The California Pacific has been raising its embankment over the tules from the east end of the trestle work to near Sutter station in Sutter county, about five miles. The additional height thus obtained is three feet. The road has found it necessary to enlarge its freight depots, to accommodate its business.

The Central Pacific has engineers at work on the west side of the Summit, running a new line which leaves the present one on Cold Stream, passes to the north of

Truckee Knob, and regains the present route near Emigrant Gap. A tunnel three miles long is said to be contemplated and a distance of 14 to 16 miles is to be saved. A large Roundhouse is being erected at Corinne, and machine shops. Considerable trouble is still experienced in the line of burning snow-sheds. Part of the short route (at least) between Sacramento and San Francisco has been surveyed, and surveyors are now running a line from Sacramento via Maine Prairie and Collinsville.

The San Joaquin Valley road was pushed forward rapidly for a time, when the working force was transferred back to the California and Oregon road. The first locomotive ran down as far as Stanislaus county on October 11. According to the Snelling *Argus*, the first goods shipped through from San Francisco to Modesto (alias Ralston, the new town on the Tuolumne) by rail, and thence by team, reached Snelling on the 11th inst. With this road, as with the Stockton and Visalia, the matter of subsidies seems to be rather a stumbling block. The legality of such should be definitely settled.

The Stockton and Copperopolis road seems to be about to have another lease of life. There was a rumor that the California Pacific had made arrangements to build it before March 1st, 1872, when the franchise to the present parties will expire. On the 27th ult., subscriptions were taken up for paying off the indebtedness of the road, and the requisite amount was raised. The San Joaquin *Republican* declares that the completion of the road is a "forgone conclusion." On the 17th inst., the first shipment of ties, etc., for the road arrived at Stockton. We may then hope that the *Republican* is right. Since the above was written, the same paper asserts authoritatively that work is to be commenced immediately.

The Southern Pacific, also, seems on the point of a renewed life. The consolidation of the several roads, already mentioned in the Press, appears to promise well. The speedy building of the road is certainly of great importance to us. At the eastern end work is going on, and trains are already running. It was expected that the road would be open to Neosho, near the S. W. corner of Missouri this week. Lines have been run from Missouri to the Canadian river. On this end, the Company advertises for ties to be deposited along the line of the road south of Gilroy.

New Projects—Narrow Gauge.

The discussion of narrow gauge has stirred up new projects and rendered apparently more feasible old ones. We have alluded to the incorporation of a Narrow Gauge R. R. Co. previously. Gen. Banning, one of the most energetic promoters of the formation of this company, is said to be working for a narrow gauge road from Los Angeles to San Bernardino, thence through the San Geronimo Pass to La Paz and Wickenburg, in Arizona. The length of the route would be about 500 miles, and it calculated that the expense would not exceed \$10,000 to \$13,000 per mile. This would aid immensely the mining regions through which it would pass. The Los Angeles and San Pedro R. R. matters appear to be approaching a settlement with a chance of a road from Los Angeles to Anaheim. On the 28th of October the Anaheim R. R. Co. filed a certificate of incorporation. The object is to build a road from Anaheim to Anaheim Landing, a distance of 14 miles. The Directors are C. K. Johnson, M. Strobel, J. Fischer, H. Krongerand F. Jorchal.

The Nevada county papers have been warmly and ably urging the construction of a road from Colfax to Grass Valley and Nevada City, perhaps further. A company has been incorporated to build a narrow gauge road. We believe the project feasible, and that the resultant effect will be

very great. We see it stated that \$17,500 was subscribed in two hours to aid the enterprise, the other day. The *Gazette* thinks \$50,000 can easily be obtained in Nevada, and \$100,000 in Grass Valley for the projected road. The Monterey *Republican* is fighting for a narrow gauge road from Monterey to Salinas Valley. If it succeeds, it will do much for Monterey. Los Angeles is agitating the subject of a road from San Bernardino and Clark District and one to Cerro Gordo. The Los Angeles, Santa Barbara, San Bernardino and other papers are awake on the matter of roads, and if the *Inyo Independent* does devote "considerable space to road matters," it is not at all out of the way. Antioch wants a narrow gauge railroad, connecting with the Western Pacific at Santa's.

Utah—Montana—Colorado.

The Utah Central, according to rumor, has been purchased by the Central Pacific. The rumor asserts further that the intention is to push the road south through Great Salt Lake Valley, down to Sevier River Valley, thence to connect with the Kansas Pacific, thus giving it an advantage over the Union Pacific. This rumor is contradicted in the *S. F. Bulletin* "on the best authority."

Montana's first railroad incorporation has been formed. The Helena, Big Horn and Cheyenne R. R. and Telegraph Co., incorporated on the 1st inst. The proposed road will run south-east from Helena to Gallatin Valley, on to the Big Horn Mountains, to connect, at the boundary line, with the road of a Cheyenne company.

Directors were elected at Helena, on the 20th inst, and arrangements are said to have been made for an early commencement and vigorous prosecution of the road.

On the Colorado Central, two trains are run daily from Golden City to Denver, at 6 A. M. and 4 P. M., returning immediately after their arrival at Denver; time, one hour. The company advertise for proposals to grade a branch line from Ralston (between the above-named places) to Greeley, whence it is proposed to extend the line north-east to Pine Bluff, 43 miles east of Cheyenne on the U. P. The *Register* says that C. C. Welch has the contract for grading some distance west of Golden, and expects to have the track laid to Guy Gulch by May or June, and to the junction of North and South Clear Creek within 90 days thereafter. Mr. Levitt has charge of the western division. A wide gauge is taken.

The Pine Bluff Road is progressing rapidly. The completion of this and of the C. C. to Guy Gulch, says the *Transcript*, will make it possible to deliver coal at Central City for \$10 50 per ton. The Boulder *News* advocates the route from Greeley via Burlington and so on to Boulder.

The Boulder Valley Road is under contract, according to the *Register* of October 26, to be completed to the Austin coal bank within 30 days. It is contemplated continuing this road from the coal banks to Caribou, Central and Georgetown; the certificate of incorporation has been filed, and engineers have been employed to examine the routes. The Denver *News*, of same date, gives the awards of contracts for ties, pile driving for bridges, and for grading in sections 1 to 13 inclusive. The road was to be completed to the Briggs' coal mines in 30 to 40 days. The engineer in charge is R. R. Holbrook.

THE COMMENCEMENT EXERCISES of the Medical Department were held on Wednesday of last week, at Mercantile Library Hall. The degree of M. D., was conferred on Messrs. C. T. Sage, M. Briggs, J. L. Seawell, H. Buckner and J. H. Mackenzie, who are the first who have received these medical honors from our University. Mr. C. T. Sage was presented with the Toland medal, as the first student of the graduating class. A most interesting address was delivered by Prof. Carr. The occasion was one most pleasant and noteworthy.

Patents and Inventions.

Full List of U. S. Patents Issued to Pacific Coast Inventors.

[FROM OFFICIAL REPORTS TO DEWEY & CO., U. S. AND FOREIGN PATENT AGENTS, AND PUBLISHERS OF THE SCIENTIFIC PRESS.]

FOR THE WEEK ENDING NOVEMBER 15th.

MEDICAL COMPOUND FOR CURE OF RHEUMATISM.—Andrew J. Jenkins, Virginia City, Nevada.

APPARATUS FOR THE MANUFACTURE OF SUGAR.—John William Hahn, San Francisco, Cal.

CENTER-PIECE.—Samuel Kellett, San Francisco, Cal.

CENTER-PIECE.—Samuel Kellett, San Francisco, Cal.

NOTE.—Copies of U. S. and Foreign Patents furnished by Dewey & Co., in the shortest time possible (by telegraph or otherwise) at the lowest rates. All patent business for Pacific coast inventors transacted with greater security and in much less time than by any other agency.

Mechanics' Institute—Cash Premiums.

In our next we hope to be able to speak more at length in regard to the Eighth Industrial Exhibition of the Institute, to open on the second Tuesday in August, 1871, which will be more general in its scope than heretofore, and for which no exertion will be spared.

The Institute is doing every year more and more to identify itself with the interests of the Coast. The managers are now taking a step which cannot be too highly commended. They will offer premiums to the amount of THIRTY-THREE HUNDRED AND FIFTY DOLLARS for the best essays and reports on the Manufacturing Interests of California, the Timber of the Pacific Coast, the Stone of the Pacific Coast, Preserving Timber and Wood, Iron Roofing, the Currents and Tides in the Bay, the best Street Pavement, the best Drainage System for this City, Treatment of Gold and Silver Ores, Transportation of Ores and Goods over Difficult Roads, best System of Reclaiming Overflowed, Tide and Tule Lands, best Attempt to raise Ramie, Beet Root for Sugar, Cotton, Tea, Rice, Tobacco, best Design for a Cocoonery adapted to this State, and for the Best and Second Best Collection of Woods of the Coast. These premiums will be paid in cash or in engraved plate, as the successful competitor may agree. We shall speak further on the subject in our next.

THE SHEFFIELD SCIENTIFIC SCHOOL.—

The recent establishment of a professorship of mechanical engineering at this institution strikes us as a most excellent addition. Where so much dependence is being placed on our manufacturing interests, this subject rises to one of the highest importance. The advantages thus offered a young man of acquiring, under teachers who are personally interested in his advancement, a knowledge of the principles of his profession and the rules of their application under ordinary circumstances, cannot be too highly estimated. While the want of such instruction has not prevented many of indomitable industry and application from rising, it has doubtless kept back vast numbers of average qualifications. The Sheffield school has called to the chair in question Prof. Wm. F. Trowbridge, a graduate of West Point, formerly on the U. S. Coast Survey, and lately superintendent of the N. Y. Novelty Iron Works.

PACIFIC GLACIERS.—The existence of glacier markings along the western slope of the Sierra Nevada has long been known, and the recent researches of the state geological survey have shown that a very great number of these ice-streams must have formerly swept down the mountain sides. Lately parties have found on Mt. Shasta the most interesting markings, showing the courses of ancient glaciers, and have found several still existing there. Mt. Rainer has quite a large number of these, some of great extent and on all or nearly all sides.

New Water-Elevating Apparatus.

We transfer from *La Propagation Industrielle* the accompanying illustrations of a French apparatus for raising water, termed a *balance hydraulique*. The end attained by it is the same as in the well-known "Mont-

descends and the weight rises. The bottom of the vessel is furnished with valves, K, from which project downward stems having floats, L, upon their lower ends. As soon as the descent of the vessel brings the floats upon the water in the bottom of the case within which the vessel works, the valves, K, are

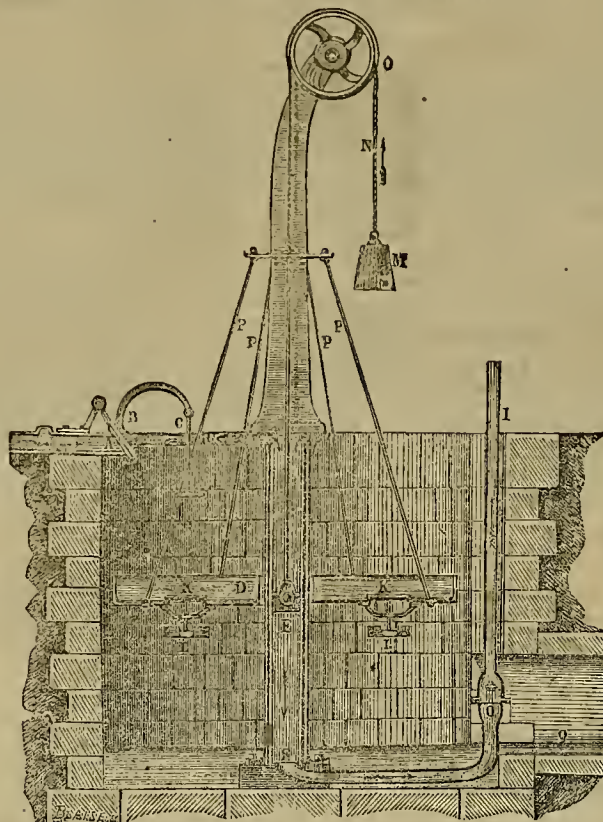


Fig. 1.

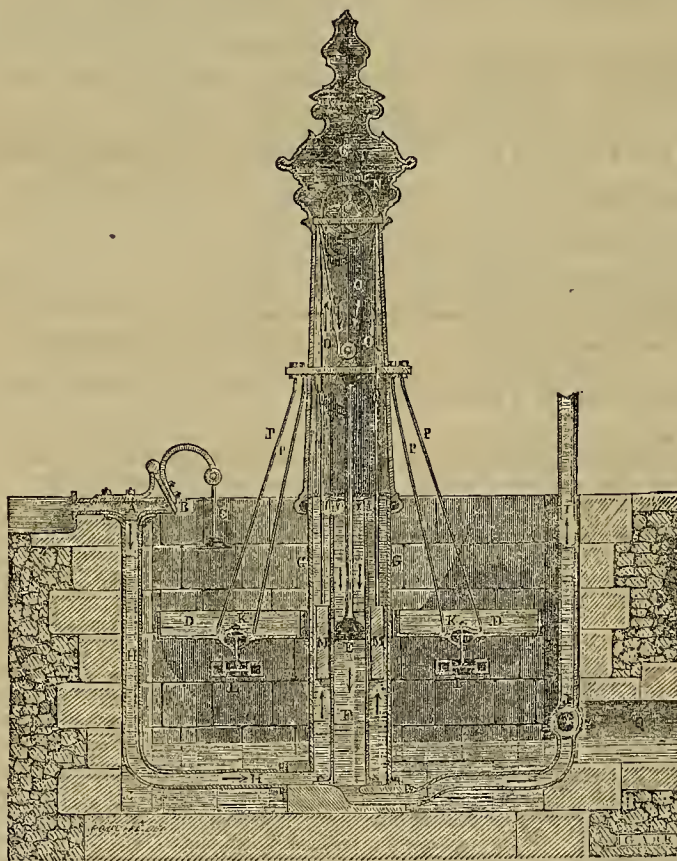


Fig. 2.

golfer Rim," but the mechanism and process employed are very different.

A flat annular vessel, D, works up and down within a suitable surrounding case, and is connected by rods, P, with a band, N, which passes over a pulley, O, and has at its extremity a counterbalancing weight, M. When the vessel, D, is empty, the descent of the weight, M, raises the vessel until it strikes a downwardly extending stem from the arm, C, of a valve shown at B. The lifting of the arm, C, by the upward motion of the vessel, raises the valve, B, and permits water to flow from the supply-pipe, A, into the vessel, D—the latter being filled until, the action of the weight being more than balanced, the vessel

lifted and the water flows out of the vessel, which, being thus relieved of its contents, is again elevated by the descent of the counterbalancing weight, M. By this means, it will be seen, a vertical reciprocating movement is given to the vessel.

The sustaining framing constituted by the rods, P, is connected at top to a disk, from the center of which extends downward the piston rod of a pump, the cylinder, F, of which is placed at the center of each of the two figures shown in the engraving, and which surrounds the piston, E. The reciprocating movement of the vessel therefore communicates a corresponding movement to the pump-piston, and this forces a portion of the water at the lower level, received by

the pump through a suitable valve, upward through the ascension-pipe, I, while that not thus elevated is conducted away at Q. The two figures represent the same machine, except that Fig. 1 is the more simple form, illustrating the principle of operation and general arrangement of parts, while Fig. 2 indicates a more elegant style, adapted for raising water in parks and gardens where ornamentation is more desirable than where the object sought is more strictly utilitarian.—*Am. Artisan*.

A PHILANTHROPIC ENDOWMENT.—Hon. Horace Hawes has taken a grand step for the prevention of suffering among his fellow-men to a great extent. He has conveyed, by deed of trust, to five prominent citizens of San Francisco, a large block of land, now valued at \$150,000, to be leased out, and its earnings to accumulate until \$5,000,000 are realized, which capital is to be employed in the endowment, establishment and maintenance of a philanthropic institution, dedicated and directing all its operations to the prevention of want, by means of the protection of labor and the promotion of useful industry, which establishment shall be organized and maintained under the name of the Chamber of Industry. Such an act deserves the highest commendation from our people.

LYCEUM FOR SELF-CULTURE.—This association meets every Sunday at 2 P. M., in Dashaway Hall. According to their circular, the Lyceum "seeks to supply a social want in the present period of religious transition, and is intended to bring together thoughtful and earnest persons for free conference on all the problems of life, destiny and duty. * * * We extend a cordial welcome to all, and invite every seeker for truth to aid by presence and co-operation the accomplishment of our common desire. We have no ism to establish, no system, no sect, no party, no pre-established mode of warfare on existing systems. Our purpose is to arrive at truth."

KING'S RIVER IRRIGATION DITCH.—On this, according to the *Alta*, work is to be commenced immediately, and the preliminaries of locating the line at the head of the ditch, securing the water right and obtaining the right of way for portions of the route, have already been attended to. The ditch is to start in section 29, township 13 south, range 23 east, and is to run westward and south-westward by various branches to Fresno Slough and the San Joaquin river. The work is said to be the easier as several old channels can be utilized. The length of the route on a due west line to the Fresno Slough is about 50 miles.

THE CALIFORNIA PHARMACEUTICAL Society held their regular meeting on the 14th inst. Besides other matters, a resolution was adopted, appointing a committee to consider the matter of establishing a course of 24 lectures, commencing the second week in January, and giving two weekly. The first lecture is to be on elementary chemistry, the second on chemistry, the third on pharmaceutical chemistry, and the fourth on botany.

TEST OF CALIFORNIA COALS.—In accordance with a request of a number of prominent San Franciscans, the Chief Engineer at the Mare Island Navy Yard has been directed to carefully test any California coal sent thither, free of cost to the Government, in proper quantities. Each lot must be accompanied with an invoice giving the kind and the name and location of the mine. A tabular report will be published at the termination of the experiments.

SILVER ORE AND BORAX.—The *Lower Lake Bulletin* says: We were shown a fine specimen of silver ore taken from a ledge in the chamizal hill about Lower Lake. As it is but an outcropping, it is hardly a fair indication of what further may develop. The work at Little Borax Lake is in constant operation, turning out a superior article of borax, and in remunerating quantities. There was some talk that work would soon be commenced at the large lake, but nothing definite has as yet transpired in regard to it.

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Travellers' Guide.

Central Pacific Railroad.

Time Schedule, September 2, 1870.

EASTWARD.		Express		Mixed *
		Trains	Passenger	
		Daily.	Sunday	excepted
San Francisco	Leave	8:00 A. M.	1:10 P. M.	7:00 P. M.
Stockton	"	8:00 A. M.	4:30 P. M.	"
San Jose	"	7:45 A. M.	4:35 P. M.	"
Stockton	"	7:30 P. M.	7:35 P. M.	"
Sacramento	Arrive	1:30 P. M.	9:30 P. M.	7:40 A. M.
Sacramento	Leave	1:10 P. M.	"	9:10 A. M.
Marysville	Arrive	4:00 P. M.	"	1:15 P. M.
Colfax	"	6:45 P. M.	"	5:20 P. M.
Colfax	Leave	5:00 P. M.	"	4:10 P. M.
Reno	"	1:15 A. M.	"	5:45 A. M.
Winnemucca	"	1:10 A. M.	"	6:15 P. M.
Battle Mountain	"	12:00 P. M.	"	8:30 P. M.
Carlin	"	3:10 P. M.	"	10:00 A. M.
Eiko	"	4:10 P. M.	"	12:30 P. M.
Kelton	"	1:30 A. M.	"	7:45 A. M.
Ogden	Arrive	6:00 A. M.	"	5:00 A. M.

WESTWARD.		Express		Mixed *
		Trains	Passenger	
		Daily.	Sunday	excepted
Ogden	Leave	6:00 P. M.	"	5:10 P. M.
Kelton	"	10:42 P. M.	"	1:30 A. M.
Eiko	"	8:15 A. M.	"	7:15 P. M.
Carlin	"	10:15 A. M.	"	9:45 P. M.
Battle Mountain	"	1:25 P. M.	"	3:45 A. M.
Winnemucca	"	4:05 P. M.	"	9:00 A. M.
Reno	"	8:45 A. M.	"	1:30 P. M.
Colfax	"	8:45 A. M.	"	12:20 A. M.
Colfax	"	6:30 A. M.	"	10:30 A. M.
Marysville	"	9:10 A. M.	"	2:30 P. M.
Sacramento	Arrive	11:25 A. M.	"	6:30 P. M.
Sacramento	Leave	11:45 A. M.	7:00 A. M.	7:30 P. M.
Stockton	"	1:40 P. M.	8:55 A. M.	"
Stockton	Arrive	5:35 P. M.	12:01 P. M.	"
San Jose	"	5:30 P. M.	2:10 P. M.	"
San Francisco	"	6:00 P. M.	12:10 P. M.	9:30 A. M.

LOCAL TRAINS.		A. M. P. M.	
3:00	9:00	Leave.....SAN FRANCISCO.....	Arrive.....
3:20	9:20	Leave.....OAKLAND.....	Arrive.....
4:40	11:00	Leave.....NILES.....	Arrive.....
5:35	12:00	Leave.....SAN JOSE.....	Arrive.....

From		To	
SAN FRANCISCO.	From	OAKLAND.	From
6:30 A. M.	B 5:30 A. M.	B 5:25 A. M.	BROCKLYN.
8:00 " "	B 6:55 " "	B 6:40 " "	B 7:00 " "
9:00 " "	B 8:00 " "	B 7:50 " "	B 8:00 " "
10:00 " "	B 9:00 " "	B 8:50 " "	B 9:00 " "
11:00 " "	B 10:00 " "	B 9:50 " "	B 10:00 " "
12:00 P. M.	B 11:00 " "	B 10:50 " "	B 11:00 " "
2:00 P. M.	B 12:00 P. M.	B 11:50 " "	B 12:00 P. M.
4:00 " "	B 2:00 P. M.	B 12:50 P. M.	B 1:00 P. M.
5:15 " "	B 3:15 P. M.	B 1:55 P. M.	B 2:00 P. M.
6:45 " "	B 4:45 P. M.	B 3:25 P. M.	B 3:30 P. M.
B 11:30 " "	B 6:15 " "	B 4:55 P. M.	B 5:00 P. M.
From	From	From	From
SAN FRANCISCO.	ALAMOGA.	ALAMOGA.	ALAMOGA.
B 7:20 A. M.	B 4:15 A. M.	B 4:15 A. M.	B 4:15 A. M.
B 7:30 " "	B 4:25 " "	B 4:25 " "	B 4:25 " "
B 9:30 " "	B 6:00 " "	B 6:00 " "	B 6:00 " "
B 11:30 " "	B 8:00 " "	B 8:00 " "	B 8:00 " "
1:30 P. M.	B 9:45 " "	B 9:45 " "	B 9:45 " "
4:00 " "	B 11:55 P. M.	B 11:55 P. M.	B 11:55 P. M.
6:00 " "	B 1:05 P. M.	B 1:05 P. M.	B 1:05 P. M.
	B 4:05 " "	B 4:05 " "	B 4:05 P. M.

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SHORT ROUTE.



The following time will take effect
Saturday.....October 1, 1870

GOING NORTH—DAILY (SUNDAYS EXCEPTED).			
Leaves	Arrive	Trains	Trains
San Francisco.	Stockton.	Stockton.	Marysville.
8:30 A. M.	12:15 A. M.	12:30 A. M.	2:15 P. M.
4:30 P. M.	8:15 P. M.	8:20 P. M.	9:30 P. M.

ON SUNDAYS.			
8:30 A. M.	12:30 P. M.	1:30 P. M.	5:30 P. M.

GOING SOUTH—DAILY (SUNDAYS EXCEPTED).			
Trains	Trains	Trains	New World
Leave	Leave	Leave	Arrive
Marysville.	Colfax.	Sacramento.	San Francisco.
6:30 A. M.	7:15 A. M.	7:15 A. M.	10:30 A. M.
1:00 P. M.	2:30 P. M.	3:15 P. M.	7:30 P. M.

ON SUNDAYS.			
10:15 A. M.	3:00 P. M.	2:30 P. M.	7:30 P. M.

The KEYS for sale at 213 Montgomery street, or on board
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Vallejo October 1, 1870 13v2-1y



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agent has had so wide-spread sale or given such
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the LAST, and
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order and
VALLEY. Buy the
LATEST always. Call
and see S. R. H. 223
Kearney St. S. F. Act.

Mechanic Arts College.

[CONTINUED FROM PAGE 362.]

this zone. And in this zone exist and have existed far back into the earlier ages the highest types of human civilization, of intellectual and moral energy; as if these deposits were purposely placed in the earth and hidden until the proper times, for the use of the highest races of mankind.

Origin of Coal.

The belief in the vegetable origin is now general. Some of the reasons for this belief are as follows: With every coal seam we find abundance of impressions of vegetable remains; we find leaves, trunks and roots of trees, often in position. These trunks have both the external appearance and the internal structure of trees and are yet perfect coal. The objections to the supposition that they have been changed, as in petrifications, by replacement of the original substance by bituminous matter, molecule by molecule, are that such petrifying substances are soluble, but bitumen is insoluble; and the material in which the logs are imbedded, the petrifying material, is found on close examination to have itself a vegetable structure. Between wood and coal we can trace every stage of gradation; from trees to the slightly blackened logs in peat bogs and mud, to black logs which are soft and can be cut like cheese, to brown coal which still retains the structure of wood, and so on to the hardest coal and even to graphite. The chemical composition can also be traced back in full series. We can also trace, it may be added, a peat series, to a certain extent, when it coalesces with the wood series.

Varieties of Coal.

There are many varieties of coal. One class is distinguished by the relative amounts of combustible or organic and the incombustible or mineral matter, the last giving the ash. We have every shade of coal, with from $\frac{1}{2}$ to 1 per cent. of ash, up to 10, 20, 30 or 40 per cent. With a larger per cent. than the last, we call it shaly or slaty coal; with over 50 per cent. we call it coaly shale, and so we can trace this series up to pure clay. As all vegetable matter contains some mineral substance, and as, in the change to coal, it loses a certain amount of the organic matter while keeping all the inorganic, we can call coal with not over 5 per cent of ash absolutely pure; that is, it holds no inorganic matter but what was in the vegetable substance from which it was formed.

Some varieties are founded on the more or less perfect bituminization of the coal.

Varieties are very usually founded on the relative amounts of bitumen and of carbon, which compose the combustible parts of coal. Here we find every variety. We can easily separate these two substances, as by retorting in closed vessels. The volatile bitumen is driven off and caught as gas and as coal tars; the carbon is left as coke.

The total absence of bitumen gives graphite. With 80 to 60 per cent of carbon, we have anthracite, valuable for iron smelting (with hot blast) etc. With 70 to 80 per cent, we have semi-anthracite or bituminous coal, which burns with a bright flame and without coking, gives a rapid, hot fire and is especially adapted for generating steam. With 60 to 70 per cent, we have caking coal, which cakes but doesn't fuse or run, on burning, and which is our ordinary bituminous coal. With 50 to 60 per cent., we have the fat or fusing coal, which fuses and runs; this variety is not adapted for iron smelting unless previously coked.

Again, we have varieties depending on the chemical change of the material in passing from wood to coal, and on the chemical change effected after the coal is formed. A few examples will illustrate the first of these points. We may take the general formula for wood as $C_3H_5O_2$; bitumen, $C_{24}H_{16}O_2$; cannel coal, $C_2H_5O_1$; anthracite, C + a little H and O ; graphite, C alone. The only difference then is in the gradual loss of carbon and hydrogen.

Chemical Changes.

Now we can trace these changes in the decay or decomposition of wood. But here there is an important difference whether the wood decays in contact with air, (called sub-aerial decay) or where no air can get to it, as under water or mud (sub-aqueous decay). In the first case, one part of carbon unites with two parts of oxygen and goes off as carbonic acid, CO_2 ; while two parts of hydrogen (for every single part of carbon) unite with oxygen from the air and also go off. Now, according to this, taking the formula of wood as before ($C_3H_5O_2$) the first step of decay, losing one part of carbon, two of hydrogen and two of oxygen, gives us $C_2H_3O_2$; the next, $C_2H_3O_1$; and so on until we finally have only carbon left. We might think then that this would give us anthracite and graphite, but we must remember that sub-aerial decay always produces a material which crumbles and disintegrates. In every coal basin we find streaks of a black crumbling substance resembling black chalk and called mineral charcoal, which we can think formed in this way, but not so the coal with brilliant resinous fracture.

This last we must consider formed by sub-aqueous decay, where the elements must combine with one another, no air being present, and which we will now consider. We know that in such decay, carbonic acid (CO_2) carburetted hydrogen (CH_4), and olefiant gas (C_2H_4) are formed. If we stir up the water of a pool, at the bottom of which lies decaying vegetable matter, bubbles arise which hold CO_2 and CH_4 . In every coal mine choke damp (CO_2) fire damp (CH_4), and some olefiant gas are forming.

Now by taking different amounts of these combinations from wood, the chemical formulae resulting will show us how every variety of coal can be formed. Thus, from wood ($C_3H_5O_2$) takes 9 parts of CO_2 , 3 of CH_4 and 3 of water (H_2O), that is, take $9CO_2 + 3CH_4 + 3H_2O = C_{12}H_9O_{11}$, and we have left $C_2H_3O_1$ or the formula of cannel coal. Taking away $11CO_2 + 11CH_4 = C_{24}H_{16}O_2$, we have $C_{12}H_9O_{11}$ or pure carbon or graphite. Taking $10CO_2 + 3C_2H_4 = C_{16}H_5O_{10}$ we have $C_2H_3O_2$ or bitumen.

Effect of Heat.

Many believe that all true normal coal is bituminous, and that it is heat below in the earth which divides off anthracite and graphite. If we drive off the bitumen rapidly we get porous coke, but if the action is performed very slowly the coal becomes dense and compact. We may, perhaps, speak of anthracite as metamorphic coke, as we speak of metamorphic rock. Indeed, we find an invariable connection between anthracite (or graphite) and metamorphic rocks. Thus, in the oldest rocks which have undergone the greatest change we find only graphite. Coming back in the paleozoic era, we find the same connection between the changed rocks and the changed coal. In the carboniferous age, with both anthracite and bituminous coal, we find the former always with the more metamorphosed rocks. And so on. Thus in the tertiary even, we find anthracite, but the condition of the rock always explains it. The anthracite in Colorado and New Mexico is due to the great lava flows. And whenever a dike of eruption rock breaks through a coal field, the coal is always changed, only as we have here a greater or less exposure to air and rapidity of change, we get not so much anthracite as coke.

The lecturer spoke somewhat longer on this subject and announced that in his next lecture he would treat of the coal plants.

ROASTING OF GOLD AND SILVER ORES and the extraction of their respective metals without quicksilver; by G. Kustel, mining engineer and metallurgist. Contains 142 pages embracing illustrations of furnaces, implements and working apparatus. It is a work of great merit by an author whose reputation is unsurpassed in his speciality. Price \$2.50 coin or \$3 currency. Published and sold by Dewey & Co., Scientific Press Office, San Francisco, 1870.

THE CONCENTRATION OF ORES (of all kinds,) including the Chlorination Process for gold-bearing sulphurets, arsenurets, and gold and silver ores generally, by Guido Kustel, with 120 lithographic diagrams. Published and sold by Dewey & Co., Scientific Press, San Francisco, 1868. Price, postage paid, \$7.50, in gold or its equivalent. The best treatise published.

NEVADA AND CALIFORNIA PROCESSES of silver and gold extraction; for general use, and especially for the mining public of California and Nevada, by Guido Kustel, containing 350 quarto pages, and illustrated with accurate lithographic engravings, 1868. Sold by Dewey & Co., Publishers Scientific Press, San Francisco. Price \$5 (coin).

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"SPALLING'S GLUE," stickiest thing out.

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Having had large experience, and gratifying success with the great variety of cases emanating on this coast, we feel confident of our abilities to assist inventors in patenting their inventions, saving them from vexatious delays, and from receiving worthless papers by reason of imperfect preparation of their claims before being sent to the Patent Office.

In early days but little preparation was needed, or but ordinary skill required to obtain a patent; but now, by reason of the multiplicity of inventions, and the numerous Acts of Congress, found necessary to protect the inventor while the patent lasts, and to do justice to the people after it expires, the utmost care and skill are requisite in managing cases and obtaining a patent that will be of real value to the Patentee, and stand the test of passing through the legal ordeal of an infringement suit.

The general practice of the Patent Office regarding the examination or issue of Letters Patent for inventions has not been materially changed for many years, yet there have been amendments added to the laws of 1861, 1863, and 1866, and which it is necessary for all parties managing an application to be conversant with. Old inventors invariably advise the employment of none but agents of responsibility and experience. As agents with such qualifications, we solicit honest patronage.

Saving of Time.

In urgent cases for an immediate patent, persons can deposit the amount of the last fees with us, in San Francisco, and have our Washington agent procure the issue of the papers as soon as granted, saving at least several weeks time which would otherwise be required for the inventor to receive notice and then forward the money. Money advanced for this purpose will be returned, should the application be rejected. By adopting this course, we are enabled, with our other advantages, to secure the receipt of patent papers to inventors on this Coast several months sooner than can generally be done, through agents in the East,—without the applicant going to the risk and expense of sending on the last fee before it is known whether the patent will be granted.

Dangers of Delay.

Situated so remote from the seat of Government, delays are even more dangerous to the inventors of the Pacific coast than to applicants in the Eastern States. Valuable patents may be lost by the extra time consumed in transmitting specifications from Eastern agencies back to this coast for the signature of the inventor, or by reason of return for amendment when addressed directly by the inventor to the Government.

Expense of Applying for Patent.

The Government fee, on filing an application for a patent in the United States, is fifteen dollars; and if the patent is allowed, twenty dollars additional is required. If rejected, the first fee of fifteen dollars is all that is demanded.

To the foregoing official fees must be added fees for preparing the various documents and expense of drawings. Our charge for preparing the documents for a case, presenting it to the Government, and attending to all business connected with it, is \$25 and upward. For cases demanding extra work and attention, only a reasonable fee in accordance with the services required, to do full justice to the case, will be charged.

Following is the list of Government fees, payable in currency:

On every event.....	\$10
On every application for a patent, for seventeen years.....	15
On every application for a design, for 3 yrs and 6 mos.....	10
On every application for a design, for seven years.....	15
On every application for a design, for fourteen years.....	20
On issuing each original patent.....	20
On filing a disclaimer.....	10
On every application for a re-issue.....	30
On every additional patent granted on a re-issue.....	30
On every application for an extension.....	50
On the grant of every extension.....	50
On appeal to the Examiners-in-Chief.....	10
On appeal to the Commissioner from Examiners-in-Chief.....	20
On every appeal to the Judges of Circuit Court, D. C.....	25

Inventors on the Pacific Coast, located at great distance from the Patent Office, of all others, should be careful to avoid inexperienced, dishonest, or otherwise unreliable and irresponsible agents.

Inventors having models in our possession must send written orders when they desire any particular friend to see them.

Advancing Cases.

If any case placed in our hands meets with rejection, we do not wait to write and inform the inventor of this fact, (as is the case with most agents,) but our representative at Washington proceeds at once to examine the stated objections, and if it be not a just and unavoidable decision, the claims of the inventor will be persistently argued before the Examiner, and if possible the decision reversed.

By Telegraph.

In cases of immediate importance we can have their progress reported by telegraph, so that applicants know immediately the result of the examination and decision of the Patent Office. We also make examinations by telegraph regarding the patentability of inventions; examine patent assignments on record at Washington; obtain copies of patents or claims, and also derive other information desired instantly from the Patent Office.

DEWEY & CO.,

Publishers and Patent Agents, Scientific Press Office, San Francisco.

SCIENTIFIC PRESS.—This paper comes to us this week with a full double sheet extra. It contains a full map of California, a map of the San Joaquin valley, with a brief description and statement of the productions of each county, besides the usual mining, agricultural and scientific intelligence. It is a paper that should be in the hands of every farmer, miner and manufacturer on this coast.—Nov. 26, 1870.

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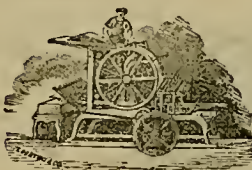
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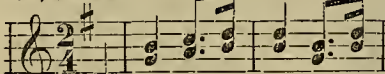
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Mining and Company Adv'ts.

Every Advertisement in this journal is published throughout its entire Mining, Agricultural, Monthly and Quarterly Editions.

I. X. L. Gold & Silver Mining Company,

Location of Mine Silver Mountain Mining District, Alpine County California.

Notice.—There are delinquent upon the following described stock, on account of assessment levied on the eighteenth day of October, 1870, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
Gom-r Evans.....	355	20	50 00
G W Cuddebeck.....	318	2	2 00
Donald Davidson.....	328	17 1/2	17 50
Arch Carmichael.....	112	5	6 00
Arch Carmichael.....	231	10	10 00
E D Bentley.....	359	10	10 00
A B Sabm.....	149	5	6 00
Henry Jarulue.....	334	15	15 00
A Wagner.....	388	2 1/2	2 50
Christies Helms.....	387	2 1/2	2 50
Louis Blanding.....	237	28	28 00
Henry Eno.....	301	3	3 00
Henry Eno.....	327	7 1/2	7 50
Henry Eno.....	394	19	19 00
E F Gibson.....	270	12	12 00
Walter J Gardner.....	328	20	20 00
Walter J Gardner.....	329	20	20 00
Walter J Gardner.....	400	20	20 00
Walter J Gardner.....	401	10	10 00
John Holt.....	381	19	19 00
D C Radcliff.....	238	5	5 00
It K Love.....	329	12	12 00

And in accordance with law, and an order of the Board of Trustees, made on the 18th day of October, 1870, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, by Olney & Co., Auctioneers, No. 602 Montgomery Street, San Francisco California, on Wednesday the seventh day of December 1870, at the hour of 12 o'clock M. of said day, to pay said delinquent assessment thereon, together with costs of advertising, and expenses of sale.

J. CROWNSHILL, Secretary.
Office, Ploose Hall (up stairs) 808 Montgomery street, San Francisco, California. nov26

Kincaid Flat Mining Company, Tuolumne County, California.

Notice.—There are delinquent upon the following described stock on account of assessment levied on the 20th day of Oct. 1870, the several amounts set opposite the names of the respective shareholders, as follows:—

Names.	No. Certificate.	No. Shares.	Amount.
S. Card.....	10	10	25 00
S. Card.....	39	5	12 50
Wm. A. Charles.....	15	10	25 00
Wm. A. Charles.....	16	10	25 00
Ira P. Rankin.....	33	10	25 00
Ira P. Rankin.....	34	10	25 00
Ira P. Rankin.....	65	5	12 50
Ira P. Rankin.....	59	5	12 50
Wm. H. Sharp.....	35	10	25 00
Wm. H. Sharp.....	36	10	25 00

And in accordance with law, and an order of the Board of Trustees, made on the 20th day of Oct. 1870, so many shares of each parcel of said stock as may be necessary will be sold at public auction at the salesroom of J. C. Merrill & Co., 204 and 206 California Street, S. F., on the 3rd day of December 1870 at the hour of 12 o'clock M., of said day, to pay said delinquent Assessment thereon, together with costs of advertising and expenses of sale.

D. H. CROWE, Secretary.
Office 220 Clay street, San Francisco. nov26

Mahogany G. & S. M. Company.—Location of Works, Silver City, Owyhee County, Idaho Territory.

Notice is hereby given, that at a meeting of the Trustees of said Company, held on the second day of Nov. 1870, an assessment (No. 1) of \$2.00 per share in United States Gold coin, was levied, payable immediately to the Secretary at the office of the Company, Room No. 2, Express Building, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on Monday Dec 5, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, on Dec. 10, 1870, and unless payment shall be made before, will be sold on Tuesday December 27, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of the sale.

C. M. RICHARDSON, Secy.
Office No. 2, Express Building, San Francisco, Cal. Nov. 5

Nevada Land and Mining Company.—Location of Works: Steptoe, Johnson & Latham, Antelope and Clifton Districts, Elko County, State of Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the sixteenth day of November, 1870, an assessment of four (4) cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary, at his office, Room 5, 202 Montgomery street, San Francisco, Cal.

Any stock upon which said assessment shall remain unpaid on the seventeenth day of December, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Saturday, the seventh day of January, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

W. H. WATSON, Secretary.
Office, Room 5, No. 302 Montgomery street, San Francisco, California. nov14

Silver Sprout Mining Company.—Location of Works and Mines, Kearsage District, Inyo County California.

Notice.—There are delinquent upon the following described stock, on account of assessment levied on the twenty ninth day of Aug. 1870, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. of Certif.	No. Shares.	Amount.
Brown, B. L.....	11	10	2 50
Cleveland, R. H.....	24	10	2 50
Devlin, J. D.....	12	10	2 50
Davis, James H.....	20	40	10 00
Hearst, Geo.....	(unissued)	200	50 00
McLaughlin, J. W. (unissued)		1000	250 00
Mott, E. B. Jr.....	29	200	50 00
Stowell, Chas R.....	22	1000	250 00
Spaulding, Geo.....	25	40	10 00
Wade, Wm N.....	(unissued)	220	55 00

And in accordance with law and an order of the Board of Trustees, made on the twenty ninth day of Aug. 1870, so many shares of each parcel of stock as may be necessary, will be sold at public auction, at the salesroom of Maurice Dore & Co., No. 327 Montgomery St., San Francisco, on the first day of December 1870, at the hour of 11 o'clock A. M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

T. B. WINGARD, Secretary.
Office, 206, Front street, San Francisco, California. Advertising charges \$2.00 each certificate. Oct. 20-27

Providence Gold and Silver Mining Company.—Nevada County, California.

Notice is hereby given that at a meeting of the Board of Trustees of said Company, held on the 12th day of November 1870, an assessment of one dollar per share was levied upon the capital stock of said Company, payable immediately in United States gold and silver coin to the Secretary.

Any stock upon which said assessment shall remain unpaid on the 21st day of December 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Thursday the 6th day of Jan. 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

J. M. BUFFINGTON, Secretary.
Office, No. 37 New Merchants Exchange, San Francisco California. nov19,

Land Purchasers' Association—Office, No. 304 Montgomery street San Francisco.

Notice.—There are delinquent, upon the shares of the following named persons on account of Assessment levied on the first day of October, 1870, the several amounts set against the names of the respective shareholders as follows:

Names.	No. Certificate.	No. Install.	Amount.
Thomas R. Mayes.....	1,2,3,4,5	5	\$250 00
James E. Boyce.....	9	6	30 00
J. W. Cherry.....	10	6	30 00
John Bay.....	28	8	80 00
Thomas H. Day.....	32,33	2	40 00
Gustave Scott.....	44	4	40 00
James E. Ager.....	75,76	1	20 00
E. P. Heald.....	66	1	10 00
Philo Doud.....	87	1	10 00
H. H. Mayhew.....	91	7	70 00
Martha L. Vass.....	102,103	7	140 00
C. M. Kinke.....	104,105	6	120 00
John C. Koch.....	106	1	10 00
A. Whitney.....	108	7	70 00
S. S. Spangue.....	114,119	6	120 00
Mrs Nellie McCarty.....	113	4	40 00
W. Green.....	117	1	10 00
Henry Keller.....	127,128,129,130,131,132,133,134	3	300 00
	135,136		

Dr. D. C. Cone.....	157	2	20 00
G. C. Buroett.....	160	2	20 00
Charles Prey.....	171	5	50 00
Otis Jackson.....	173,174	3	60 00
E D Haver.....	20	8	80 00
L Kilgour.....	21&22	8	160 00
J A Collison.....	31	1	10 00

And in accordance with law, and an order of the Board of Trustees, made on the first day of October, 1870, so many shares of each parcel of said stock as may be necessary, will be sold at the office of the Secretary No. 304 Montgomery Street, San Francisco, on Saturday, the twenty-sixth day of November 1870, at the hour of 12 o'clock M. of said day, to pay said delinquent Assessment thereon together with costs of Advertising and expenses of sale.

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This Book contains 120 pages. Price, \$2.50, gold, or \$3 currency, postage paid.

KUSTEL'S NEW BOOK.—We have received from the publishers, Dewey & Co., a copy of Kustel's work Roasting of Gold and Silver Ores. It abounds in valuable information upon the subjects which it treats, and no person engaged in mining should be without it. Mr. Kustel's writings are based upon actual accomplishments with the ores of the Pacific slope, are not mere theoretical propositions. Sold at the SCIENTIFIC PRESS office S. F. Price \$2.50 coin, post paid.—Marysville Appeal.

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Scotch and Eng. Pig Iron, per ton...	@ \$32 50
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Refined Bar, good assortment, per lb.	— 04 —
Boiler, No. 1 to 4...	— 04½ —
Plate, No. 5 to 9...	— 04 —
Sheet, No. 10 to 13...	— 04½ —
Sheet, No. 14 to 20...	— 05 —
Sheet, No. 21 to 27...	— 05 —
COPPER.—Duty: Sheathing, 3½¢ per lb.; Pig and Bar, 2½¢ per lb.	
Sheathing, per lb.	— 26 —
Sheathing, Yellow...	— 20 —
Sheathing, Old Yellow...	— 10 —
Composition Nails...	— 21 —
Composition Bolts...	— 21 —
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Sheet, English Cast Steel, per lb.	— 16 —
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Sheet...	— 9 —
Pipe...	— 10 —
Bar...	— 8 —
ZINC.—Sheets, per lb.	— 10 —
BORAX...	— 35 —

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Foundry and Iron Works.

HINCKLEY & CO.,

MANUFACTURERS OF

STEAM ENGINES,

Quartz, Flour and Saw Mills,
Hayes' Improved Steam Pump, Brodie's Im-
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Iron and Locomotive Works.

INCORPORATED.....APRIL 30, 1868.
CAPITAL.....\$1,000,000.

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SAN FRANCISCO.

Steam Engine Builders, Boiler Makers, Machinists,
Foundrymen, and Manufacturers of Car Wheels equal to
the best imported, and guaranteed equal to Eastern Wheels.

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WILCOX'S PATENT WATER LIFTERS,
Dunbar's Patent Self-Adjusting Steam Piston
PACKING, for new and old cylinders.
And all kinds of Mining Machinery.

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ESTABLISHED 1851.

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And all other classes of work generally done at first-
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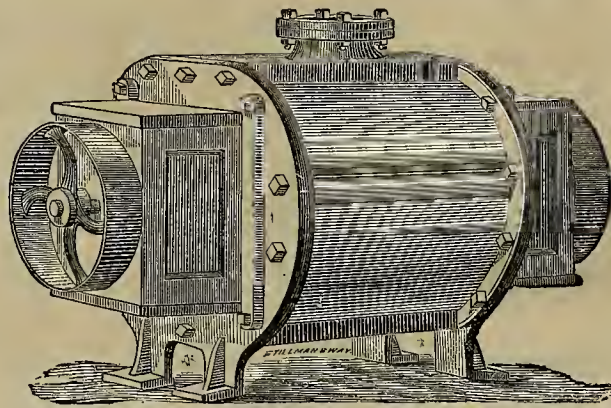
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ROOT'S PATENT FORCE BLAST ROTARY BLOWER.

MANUFACTURED BY KEEP & BARGION,

At the Globe Iron Works, Stockton, California.

Awarded the First Premium at
the Paris Exposition.Patented Nov. 1st, 1864; July
24, 1866; and Oct. 9, 1866.

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REQUIRES

Fifty Per Cent.

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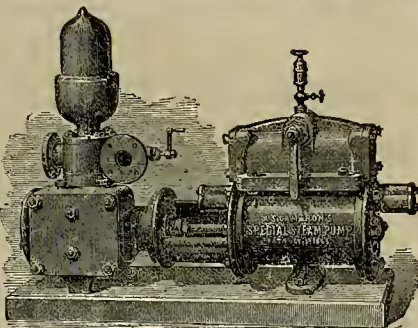
One of these Blowers may be seen on exhibition at W. T. Garratt's Brass Foundry, corner of
Mission and Fremont street. They are also in use at the Almaden Quicksilver Mine; Gridley's
Foundry, Gold Hill, Nevada; Anna Iron Works, San Francisco, and many other places.

CAUTION.—Purchasers will find it to their advantage to apply direct to the Stockton Agency, as
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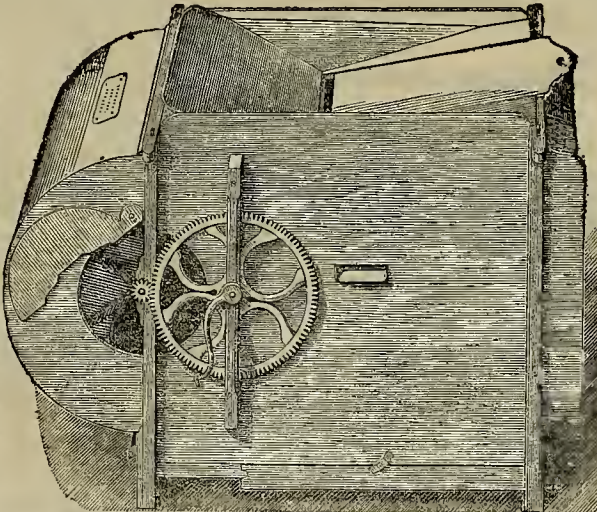
114 BEALE STREET.



NOVELTY MILL AND GRAIN SEPEARATOR.

THE undersigned having purchased of the Pat-
entees, WILSON & SWIFT,
of Hudson, Michigan,
their right to this mill,
Patented June 22d, 1869,
for California, Oregon,
Washington Territory,
Montana, Utah, New
Mexico and Arizona, wish
to call the attention of
FARMERS, MILLERS AND
GRAIN DEALERS to one of
THE GREATEST IM-
PROVEMENTS OF THE
AGE for cleaning and sepa-
rating grain. While it
combines all the essential
qualities of a first-class
FANNING MILL, it also far
exceeds anything that has
ever been invented for the
separation of grain. It
has been thoroughly
tested on all the differ-
ent kinds of mixed grain,
separating all the differ-
ent seeds in almost a mag-
ical manner, placing them
in their different compart-
ments in the mill arranged
for their reception, at the
same time taking out all
the Mustard, Grass Seed,
Barley and Oats, and mak-
ing two distinct quali-
ties of wheat if desired, thereby selecting superior, large plump and perfect kernels for SEED WHEAT, and all the
small and cut kernels, such as merchantable wheat, is deposited in another compartment. By the use of this
Mill a great quantity of wheat usually sown that has been cleaned in the common mills will be saved to the
farmer, as the cut or shrunken kernels will never germinate.

The above mentioned Novelty Mill is the only mill known to possess all these superior qualifications, and was
exhibited and tested at the last Michigan State Fair held at Jackson, Michigan, September 21, 22, and 23, 1869, and
bore away the palm over some thirty other different mills from all parts of the United States, including the fa-
mous DICKY Mill of Racine, Wisconsin. All who have witnessed here the operations of the NOVELTY MILL, de-
clare its perfection, and the most beneficial invention to the Farmers, Millers, and Grain Dealers ever introduced
on the Pacific Coast. The farmers in Santa Clara County, are loud in its praise, and also in other parts of the
State where it is being introduced. No. 1 Mill, complete, is capable of cleaning 25 tons of grain per day; No. 2
Mill, 15 tons; No. 3, 10 tons. A large number of recommendations and certificates of the practical working
of the mill will be furnished. Circulars containing references sent free by mail N. B. Town, County, or State
Rights for sale on favorable terms. For further particulars apply to
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MACHINE WORKS,109 and 111 MISSION STREET,
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These Governors are the most sensitive
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SOLE AGENT FOR

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—SUCH AS—

Lathes, Planers, Drills, Boring Mills, Mill-

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Which I will offer at very low rates. Also,

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PUNCHES. 3v21

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Miners' Foundry & Machine Works,

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Saws of superior tone. All kinds of Cocks and Valves, Hy-
draulic Pipes and Nozzles, and Hose Couplings and Connec-
tious of all sizes and patterns, furnished with dispatch.
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Flue or Tubular Boilers, with plain circular or spiral
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the fall, and total length of pipe, so as to enable the firm to
determine the diameter of the pipe and thickness of iron to
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practical experience necessary to put the same in form, by
making Drawings of their inventions, giving them the ben-
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Thomas Firth & Sons' Cast Steel.



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10v14r

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Mathematical Instrument Makers,

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Having increased their facilities, expect in future to
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celebrated Shifting Tripod for Transits. Original man-
ufacturers of Burt's Solar Compass. 14v21-2m

New York Metal Market.

[CONNECTED WEEKLY FROM THE AMERICAN ARTISAN.]

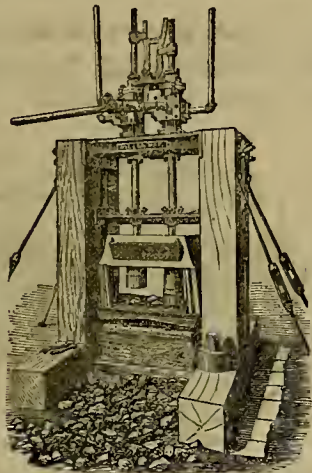
New York City, Saturday, Nov. 12, 1870.

Pig, Scotch, No 1 (cash), per ton..	\$33 00	@	\$36 50
Pig, American, No. 1 (cash).....	33 00	@	34 00
Pig, American, No. 2.....	29 00	@	31 00
Swedish, ordinary sizes.....	110 00	@	125 00
Common.....	75 00	@	80 00
Refined.....	77 50	@	95 00
Rods.....	85 00	@	120 00
Hoop.....	95 00	@	—
Scrap.....	105 00	@	150 00
Scrap.....	97 50	@	125 00
Nail-roads, per lb.....	7	@	7 1/2
Spring.....	7 1/2	@	—
Tire.....	8 1/2	@	—

STEEL.

Bars, best cast, warranted, per lb..	— 17	@	— 18
Sheet, best cast.....	— 18	@	—
Sheet, second quality.....	— 16	@	—
Sheet, third quality.....	— 14	@	—
Saw-plates, circular.....	— 27	@	—
Double-shear, warranted.....	— 23	@	—
Single-shear.....	— 19	@	—
Montague & Co. (cast bars).....	— 18	@	—
Machinery, round.....	— 11	@	—
German, best.....	— 10	@	—
German, goat.....	— 10	@	—
German, angle.....	— 9	@	—
Blister, warranted.....	— 16	@	—
Blister, common.....	— 15	@	—
Jessop & Sons', common.....	— 17	@	—
Double-refined.....	— 26 1/2	@	—
Stone ax shapes.....	— 26 1/2	@	—

Machinery.

THE WILSON
Patent Steam Stamp Mill.

This extraordinary Mill, now so justly popular in the East, is now offered to the miners of the Pacific Coast. Having been in operation now for about two and a half years, the Company feel confident that the

WILSON STEAM STAMP MILL,

For Durability, Efficiency,
AND ECONOMY OF WORKING,
HAS NO EQUAL.

The Wilson Steam Stamp Mill is the only Steam Mill that has had the severe ordeal of practical working, and proved itself eminently successful. It is now in operation in several of the Eastern States and Territories, and gaining an enviable popularity. The whole machine is so simple as to be readily understood by the most ordinary minds. In fact, its simplicity is its durability. The expense of crushing rock or cement with this Mill is less than one-half the expense of any other Stamp Mill, and less than one-half the cost. For further particulars inquire of

FURMAN R. WILSON,
San Francisco.

Or of THE WILSON STEAM STAMP MILL CO., 326
Walnut street, Philadelphia, Pa.

NOTICE.—All persons are hereby warned not to manufacture or use any Steam Stamp Mills that are an infringement on the Wilson Patents, as they will be prosecuted to the utmost rigor of the law.

F. R. WILSON,
209 1/2-tf Supt. W. P. S. S. M. Co., Philadelphia.

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of sufficient capacity to supply their Asphaltum Pipe in
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Are now Prepared to Take Orders
AND MAKE CONTRACTS,

This Company will manufacture Pipe and guarantee
it to stand any pressure required; it is lighter than iron
pipe, and more durable, it is not affected by chemical
action, cannot corrode, and being glazed imparts no dis-
agreeable taste to water. To miners and farmers it is
invaluable; any body can put it down; it is twenty per
cent cheaper than iron pipe and ten times more durable.
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Circulars sent on application. 16v21-tf

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Best quality of Silver Plated Amalgamated Plates for
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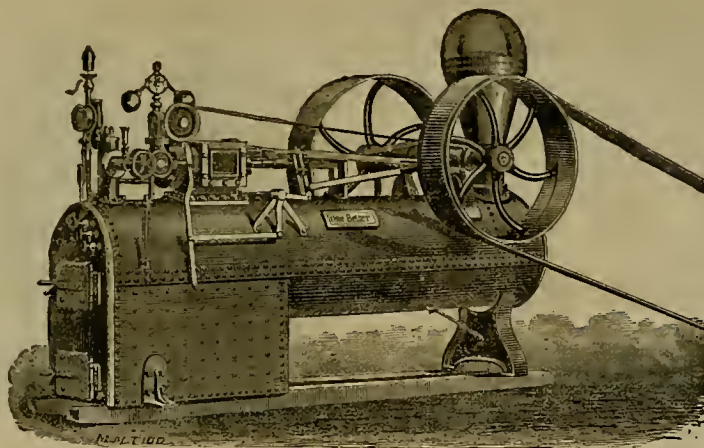
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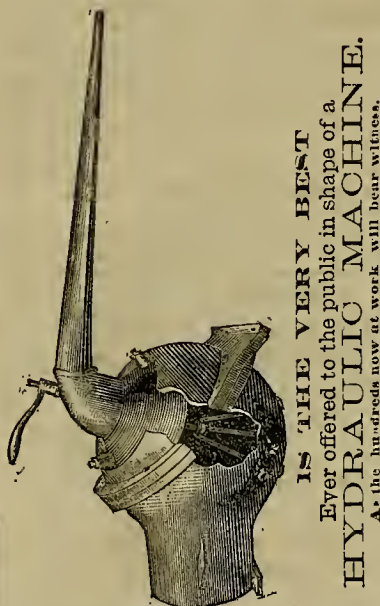
Saw Mills, Grist Mills, Tanneries, Machine Shops, Planing Mills, Factories &c.,
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tural uses they are unsurpassed. For Circulars or pamphlets, describing dimensions and price address

TREADWELL & CO., Sole Agents,

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IS THE VERY BEST
Ever offered to the public in shape of a
HYDRAULIC MACHINE.
As the hundreds now at work will bear witness.

NOZZLE.

Caution to Everybody.

Be it known that the Hydraulic Chief, manufactured
by F. H. Fisher, of Nevada City; Champion Nozzle,
made by Thos. Watson of Nevada City, and Dictator,
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fringements upon our Patents dated Dec. 8th, 1865, Dec.
7th, 1869, Dec. 28th, 1869, &c. that suits are now pending
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that we will prosecute all responsible parties who make,
sell or use, without our consent, any one or either of
them.

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For information of any description respecting this
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STETEFELDT FURNACE COMPANY.

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(OF ALL KINDS,) INCLUDING THE

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FOR GOLD-DRAINING SULPHURETS, ARSENURETS,
AND GOLD AND SILVER ORES GENERALLY.

By GUIDO KUSTEL,

MINING ENGINEER AND METALURGIST,

Author of "Nevada and California Process of Silver
and Gold Extraction."

With 120 Lithographic Diagrams.

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- II. REDUCTION.—Reduction of Ores; Description of
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der of Lifts; The Discharge of Batteries; The Feeding
of Batteries; Reduction by Rolling Mills; Grinding;
Pans with Plane Mullers; Pans with Conical Mullers;
Pans with Fractory-Conical Mullers; Pans with Per-
pendicular Mullers.
- III. CONCENTRATION.—Concentration of Reduced
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QUARTO-MEDIUM SIXTEEN PAGE PAPER

AND IS A FIRST CLASS

Literary and Family Newspaper,

AS WELL AS THE

Organ of the Masonic Fraternity on the
Pacific Coast.

ENDORSEMENT OF THE GRAND LODGE.

The following resolution was unanimously adopted by
the M. W. Grand Lodge, F. A. M., of the State of
California, at its Annual Communication, October, 1870.
Whereas, in the opinion of this Grand Lodge, a well
conducted Masonic Journal is of great benefit to the
craft, in disseminating Masonic information among the
fraternity, as well as furnishing a medium for general
Masonic intelligence. Therefore,

Resolved, That this Grand Lodge, recognizing in the
Masonic Mirror, edited by Brothers Amasa W. Bishop
and Edwin A. Sherman, and published by the Masonic
Publishing Company of San Francisco, a Masonic Journal
of the character above set forth, do hereby recom-
mend the said Masonic Mirror to the craft generally, as
worthy of their most favorable consideration and support.

ENDORSEMENT OF THE GRAND CONSISTORY.

At the communication of the M. P. Grand Consis-
tory, Ancient and Accepted Scottish Rite of Freemason-
ry in and for the State of California, held October, 1870
at San Francisco, the following resolution was unani-
mously adopted: Resolved, That the Masonic Mirror,
published in this city be the official organ of this Grand
Consistory.

TO ADVERTISERS.

The Mirror presents the best Advertising medium on
the Pacific Coast, as it circulates in every town and
hamlet, and among a class of citizens that it will be of
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Varney's Patent Amalgamator.

These Machines Stand Unrivaled.

For rapidly pulverizing and amalgamating ores, they
have no equal. No effort has been, or will be spared,
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They are constructed so as to apply steam directly
into the pulp, or with steam bottoms, as desired.
This Amalgamator Operates as Follows.
The pan being filled, the motion of the muller forces
the pulp to the center, where it is drawn down through
the aperture and between the grinding surfaces.—
Thence it is thrown to the periphery into the quicksilver.
The curved plates again draw it to the center, where it
passes down, and to the circumference as before. Thus
it is constantly passing a regular flow between the grind-
ing surfaces and into the quicksilver, until the ore is
reduced to an impalpable powder, and the metal amal-
gamated.

Suits made on the same principle excel all others.
They bring the pulp so constantly and perfectly in con-
tact with quicksilver, that the particles are rapidly and
completely absorbed.

Mill-men are invited to examine these pans and settlers
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STEAM JET PUMP.

Blakelock & Williams' Patent, for
Water, Oils, Acids, Etc.

The best cold water
pump for filling tanks for
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Steam Engines. Also high-
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MINES, DISTILLERIES,
SALT WORKS, STONE
QUARRIES, and similar
places, and saving the ex-
pense of putting up and
running an engine.

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power to the following
points of merit:—It is
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any kind; it requires no
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Satisfaction guaranteed or the money refunded.

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SEVERANCE HOLT & CO.,

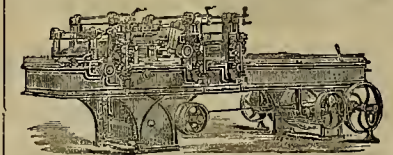
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Smith's Patent Wood-working Machinery of all descrip-
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in the Pacific States. And more than this, we shall freight its columns with fresh thoughts, and new ideas, which hastened across the continent by rail, shall awaken and quicken the zeal of the more staid and gradual moving culturists of the eastern and European States, to their

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We shall not only make a good paper for all husbandmen and homestead owners, (who now, more than ever require a knowledge of new discoveries in science and mechanical improvements,) but shall also render the journal a desideratum for those who contemplate becoming freeholders, and a large class of

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whose interests are more or less identical with successful farming, and the active development of our vast and rich resources. Few there are—male or female—who will not find pleasure and ennoblement in the study of progressive farming and gardening.

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An improved Cultivation of the Soil; A greater Diversity of Products; Better Breeds of Stock; Better Varieties of Fruits; The Culture of New Products; Creation of New Home Industries; Adoption of Improved Implements, etc. Higher and Happier Aims in Life;

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will be given weekly to lessen the labors of the farm, the household and the shop, and add to the health, the wealth and the wisdom of every patron of industry.

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As the conditions and circumstances of soil and climate and seasons on this coast are so peculiar that many of the approved methods of eastern agriculture are not at all applicable on our side of the Continent,—special attention will be given to considering the need, extent and character of the modifications necessary. This will alone render the paper of great practical value to our home readers and more essential to them than all the distant publications obtainable, without such auxiliary and modifying instructions.

The following are among the specialties upon which the PACIFIC RURAL PRESS will treat:

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A Plain and Simple Style

Of writing will be our endeavor. Necessarily dealing largely in researches for facts we believe it desirable to present them in an inviting shape and in so comprehensive language that our special journalism shall advance in popularity and common relish.

No editorials or selections of unchaste or doubtful influence; or lottery, quack or other disreputable advertisements, will be admitted into its columns.

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Our reports of agricultural, horticultural and other fairs, lectures, farmers' clubs and social literary meetings [the improvement and increase of which we shall especially advocate] will be carefully prepared in a valuable form for preservation; and the matter of our entire columns will be so classified as to be convenient to readers of various minds and individual tastes for ready perusal and future reference.

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Of special or peculiar interest to our readers will be published weekly in liberal variety. No pains or reasonable expense will be spared to furnish a

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And Neighborly Experiences,

the reading of agricultural newspapers and books is lately increasing with a rapidity quite astonishing, and with the most profitable results.

We enter the field after a careful consideration and consultation with many of our leading agriculturists, with the strong conviction that such a journal on this coast is greatly needed and earnestly desired by the most prospectively flourishing and rapidly progressing community in the Union if not in the world. We know the task before us,—two of the proprietors and editors having experienced respectively 18 and 13 years of successful journalism in this state.

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We shall print 5,000 copies of the issue of January 7th. That is the number of subscribers we hope to start with, having half that list already.

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DEWEY & CO.,

Publishers Patent Agents and Engravers, No. 414 Clay st., San Francisco. Nov. 21, 1870.

[Being also publishers of the SCIENTIFIC PRESS, we would say here that no change will be made in that paper except to improve it in its present character. Each journal will be published entirely distinct from the other.—D. & Co.]



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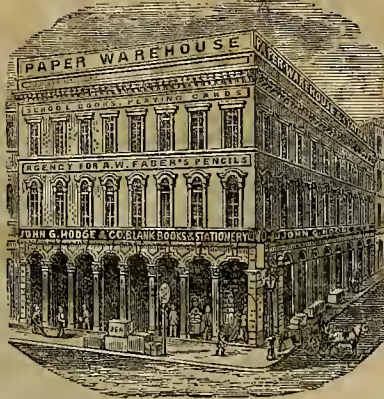
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THE PRESS is just such a journal as the people of this valley should patronize—it ought to go to every fire-side. It is devoted to the agricultural and mining interests, mechanic arts and general industrial progress. The subscription price is \$4, which, considering that the Press is one of the largest and ablest journals of its class in the Union, we consider very reasonable. Every business man of Bozeman, will we are satisfied, give Mr. Murray his name, and we hope such of our country friends as he interviews will be equally liberal. PICK & FLOW, MONTANA.

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Proof of its Superiority for Blasting purposes.

GOLDEN CHARIOT MINING COMPANY, SILVER CITY, IDAHO TERR., Oct. 18, 1870.

Messrs. Bandmann, Nelson & Co., Agents Giant Powder Co., San Francisco, Cal.

DEAR SIR: In reply to your late favor, I give you the following result of my working here—the cost of drifting, which cost under the old system of mining here, \$40 per foot, with the single hand system of working and Giant Powder I have reduced to a cost of \$22 per foot, and when under the old system but one foot per day was given, my men are easily making one and a half feet.

Under the old system wining (5 feet square) cost \$35 per foot, same is now costing me \$24.75 per foot with the same difference in time as shown in drifting.

Under the old system, our mine could never be made to yield exceeding 400 tons per month; with Giant Powder and single hand drilling, I am now furnishing monthly 1,000 tons at a reduced cost of at least 33 1/2 per cent, less per ton than under the old system.

In conclusion, will state that the neighboring mines Ida Elmore and Oro Fino, influenced by results in the Golden Chariot Mine, have adopted single hand drilling and Giant Powder to the utter exclusion of double hand work, large drills and common blasting powder. In corroboration of results in Golden Chariot Mine, I refer you to the President and Board of Trustees, resident in your city. Yours, respectfully,

JOHN F. CASSELS, Superintendent G. C. M. CO.

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AN ILLUSTRATED JOURNAL OF SCIENTIFIC AND INDUSTRIAL PROGRESS,
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BY DEWEY & CO.,
Patent Solicitors.

San Francisco, Saturday, December 3, 1870.

VOLUME XXI.
Number 23.

Mining Edition.

A New Car Wheel.

The need of an improved car wheel is felt everywhere. In this country and in Europe railway men are looking for some device which will answer the demands of the present age. Railroadings have increased so rapidly, demanding larger and heavier cars and a greater speed for transportation of the much heavier burdens, that the wear and tear of the wheel have doubled. The average run of car wheels now may be set down, perhaps, as not over thirty thousand miles, which gives an idea of the great expense of this one part of railroad construction.

This need has called forth the most varied construction, and wheels made of all sorts of materials. Wood has been employed in various ways, with wrought iron flanges and bolts and steel tires. Even paper has been called into requisition, and numerous other constructions, all designed to give greater elasticity and hence greater durability. But these combinations are very costly and, all things considered, there seems nothing, as yet tried, which can equal good chilled iron, and the point now desired is, how to devise a way of preventing the chill from becoming imperfect on the tread.

We are happy to say that at this point California has produced an invention which we think answers the difficult question in an excellent manner. Patents have been granted this year to a Californian for the device which we here illustrate, and which we are disposed to consider of the greatest merit. The main principle of the invention is the interposition of rubber to receive the shocks, give the requisite elasticity, and save valuable material.

The accompanying cuts will give a correct idea of the construction. Fig. 1 shows the general appearance of the wheel, with a part of the covering-plate broken away to show the manner in which it is attached; Fig. 2 is a section through the wheel. A is a solid wheel with a circular opening at its center, in which fits snugly a rubber block, B, surrounding the axle, C. It is provided with circular flanges (one is shown between E and F) and with a series of projections, D, on each side, all these being cast of one piece with the wheel. The inner circular flange is surrounded by a circular ring of rubber, F, and the projections, D, are covered with rubber sleeves or thimbles, of greater length than the projections. In Fig. 2, the rubber parts are shaded with heavy vertical lines, except that part marked B.

On each side of the central part of the wheel there is a covering-plate, J, which is provided with recesses for the corresponding projections, D, of the wheel, and with a groove for the reception of the flange between E and F. D is a ring of rubber, around the central boss of the plate. The dark, diagonally-shaded parts are elastic packing fitted to the inner side of the covering plate.

The rubber and packing are made of such size that considerable power is necessary to force the covering plates on, 100 tons pressure being applied to pack the various parts. After these are put together, they are riveted (merely to hold them in the proper place) while in the press. Then the wheel is ready to be hored out to receive the axle, which is made of such diameter that when in place, all the parts are held together without the need of any bolts or rivets, which, indeed, can be entirely dispensed with.

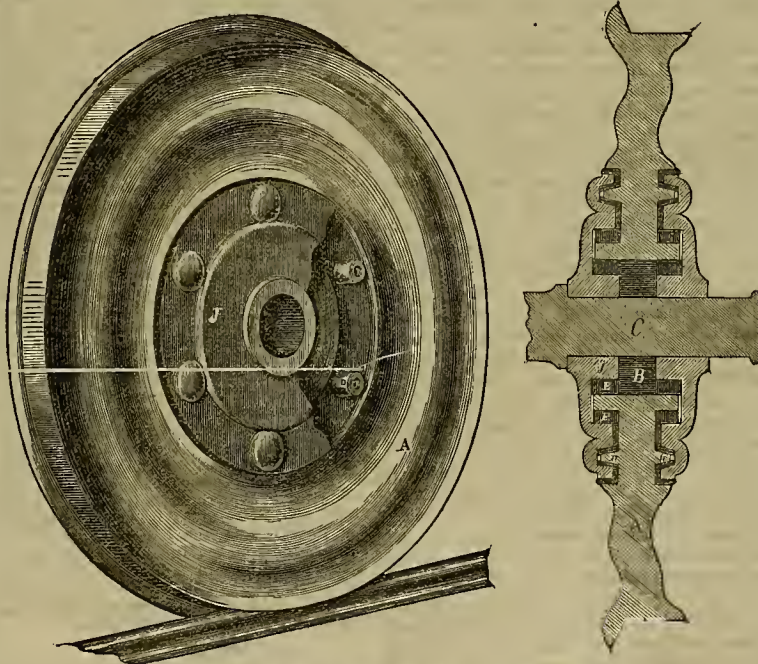
The wheel is so constructed that 8 lbs of vulcanized rubber are distributed so as to give 350 inches of surface bearing, and to interpose between each of the parts, thus deadening any shock and preventing its passing (to a great extent) from one portion to another, and relieving the journal

These wheels are now used by the Pullman Car Co., the Michigan Central, Boston and Maine, and Boston and Fitchburg R. R. Co.'s, while other roads have sent in orders. Of these, parties have given second orders, showing that they approve of the device, which has been in use over six months. Patents have been secured in this country and Europe by Dr. A. F. Cooper, of San Francisco, who, after successfully introducing it into the East, has now come back to this State to introduce here his invention. The device may be seen at Kimball's Carriage Factory on 4th street.

Academy of Sciences.

Peculiar Fish—Meteors.

At the regular meeting last week a very large number was present. Among the



COOPER'S PATENT AMERICAN ELASTIC CAR WHEEL.

from this frequent source of accidents. This elastic packing is always in direct line with the blows or shocks, receiving them instantly and without danger of slipping. When the wheel strikes a curve, the rubber lets the wheel yield and no shock is transmitted. Those who have tried it, say that where this wheel is used, there is a remarkable increase of ease. In no case thus far has a heated journal-box been known.

The wheel is claimed to be much stronger, safer, more durable and cheaper than any wheel now used. When the tread is injured or worn, it is only necessary to force off one of the covering-plates, take off the outer part of the wheel and replace it with a fresh one, thus saving always one third of the whole wheel. Its importance in saving the journal cannot be dwelt on too much, for this point has been passed over in other constructions. Its durability is more than double that of the ordinary wheel, as one of this construction will last, the inventor claims, a run of over 75,000 miles.

contributions was a specimen and a drawing of a fish which has been regarded heretofore as very rare on this coast, but of which two specimens have been taken here at almost the same time. It is a cartilaginous fish, viviparous, when first caught of a rich brown color in places, and white elsewhere, provided with small leg-like appendages for holding during copulation (apparently), with blow-holes in the head communicating with the abdominal cavity, with a curved horny excrescence on the head, and otherwise peculiar. The back and sides were covered with gold and silver spots, and the head and back lined with black stripes. A fresh specimen preserved in alcohol was also shown. It was pronounced by Dr. Blake a species of *Chimaera*, known in Europe as the Herring-King.

Prof. Davidson gave an account of his observation of meteors on the night of the 13th and 14th. The moon was bright. From 12.30 to 1.45, 3 meteors were seen;

from 1.45 to 2, 3 others; and from 2 to 6, 66 others; all were bright and only 5 were non-conformable. He thought that the earth, at the time of the observation, had either passed through or was possibly on the edge of the meteoric belt. Last year he observed 556 in 3 hours; maximum about 2.30 A. M. One "persistent" meteor left a train after bursting which lasted 8½ minutes, in which time it changed from a straight line to two-thirds of an ellipse, and moved back over two-thirds of its track. The nights were then cloudy.

Fossil Ship—Colorado Desert—Cloud-Bursts.

Mr. Hanks reported on the "Fossil Ship" of the Colorado Desert, reading the various accounts and theories which have been published, and giving as his opinion that very likely the supposed ship was only a mass of the curious travertine which forms often in fantastic shapes in the alkaline lakes on the plains and southern deserts. Prof. Davidson remarked that a surveying party of the 32nd Parallel Railroad made the Desert 750 feet above the sea level, instead of below it. Col. Evans gave a very interesting account of his trips across the desert, during which he had seen the ship, but always at a distance of 3 to 12 miles. The clearness of the atmosphere enabled him to make out quite distinctly an object which certainly bore an extraordinary resemblance to the hull of a vessel, but he could not state with certainty that it was a ship.

Col. Evans and others made some very interesting remarks on the desert formation and the effects of "cloud-bursts." The locality of the ship is a salt plain, covered with a hard salt crust in dry weather, but dangerous as quicksand to the traveler in wet seasons. The Colonel's impression was that the desert might well be above the sea level. The "New River," running up into the desert from the Colorado, might have been formed by a cloud-burst emptying on the desert and cutting a channel which was afterwards closed by drifting sands. These cloud-bursts often make a wonderful difference in the appearance of the country. The fine shells, spirals, denote that ocean-water covered the desert at a very recent date. Graphic descriptions of cloud-bursts were given by Col. Evans and others, and the question of the level of the desert or parts of it was discussed without arriving at any certain conclusions for want of unquestionable data.

At the regular meeting of the Bay District Horticultural Society, last Saturday evening, Prof. Bolander delivered an interesting lecture on the Conifers of the Pacific Coast, which will be continued at the next meeting.

THE WIRE TRAMWAY at White Pine, from the North Aurora and Eherhardt mines to the International mill, will be commenced in a very short time.

GREENBACKS.—Last week, three million dollars, in greenbacks, were brought to this city from the East in one lot.

Communications.

IN THIS DEPARTMENT we invite the FREE DISCUSSION of all proper subjects—correspondents alone being responsible for the ideas they advance.

All About Montana.

[WRITTEN FOR THE SCIENTIFIC PRESS.]

In closing my series of letters from Montana, I think it will be of interest to the readers of the Press to have a general review of the territory, with facts and statistics gleaned from various publications and from my own experience in the various parts of the country. Some of the places which I have visited, I have already described quite fully, of others I have said but little, and some I have not touched at all, although intending to speak of them. Hence I am led to lump my notes into a general article. [Since the above was set, a delayed letter from Silver Star has been received.—Ens.]

Extending about 750 miles from east to west and 270 from north to south, Montana has an area of 143,776 square miles, or 92,016,640 acres, of which fully a third, according to the Surveyor General, is susceptible of cultivation. Of the remainder much will doubtless be found valuable for the farmer, while for the miner inexhaustible riches are still untouched.

Population—Labor—Climate.

The population was set down as about 40,000 in 1869. In the U. S. census reports published in September of this year, the total number of inhabitants is given as 38,580. This includes 17,995 whites, 179 negroes and of mixed blood, 473 Indians and mixed blood living among the whites, 1,936 Mongolians, and 18,000 Indians living in tribes, under charge of Gen. Sully. Of the 473 Indians living among the whites, only 87 are of unmixed blood, and these people are generally old and poor. The Chinese are beginning to come in in quite large numbers, being attracted principally to the placer mines, but the feeling of the majority here is that they are no help to the country, but rather a curse. The Indians have caused considerable trouble in former days, but strong measures and especially the completion of the Union Pacific Railroad, which brought in its train many other benefits, have made a great change for the better in this respect. No one need now hesitate to come hither on this account.

The price of labor is governed here, as elsewhere, by the law of supply and demand, and of course varies considerably. In the winter wages are much lower than in the summer, when many go into mining, which is impossible, in the placer digging, during the winter. Good carpenters and machinists get from \$6 to \$8 per day. Board is \$4 per day all over the territory for travelers stopping only a short time, and varies from \$12 to \$18 per week, currency.

The climate is naturally exceedingly varied. Often the traveler can see the high mountains covered with snow, while at his feet the cattle are feeding on the grassy plains. In winter it is very cold, but the cold is more endurable than in the moist atmosphere of the States. Yet the lowlands are often almost free from snow during the whole year, and the stock find plenty of nutritious grass in the valleys, during the long winters, on which to grow fat. Wild flowers blossom on the hills in March, and the mountain sides are often green in April. It cannot be denied that in places the winter is severe and the roads almost or quite impassable here and there, when a heavy snow has fallen; yet the mere fact of being so far north proves nothing of itself. Walla Walla on the 46th degree, according to all reports, has a similar temperature to Washington city on the 38th; Clark's Fork of the Columbia, in Montana, on the 48th, the same as St. Joseph, Mo., on the 41st; Bitter Root Valley, Missoula county, on the 46th, the same as Philadelphia, on the 41st, etc. There are also some hot days in August, but as far as I can find, the climate is remarkably equable, pleasant and healthy.

Commerce—Manufactures.

In commerce and manufactures, probably much more is done in Montana than is generally understood outside. The annual commercial transactions amount to \$7,000,000 or \$8,000,000. I know of seven flour mills,—three in Gallatin county, two in Missoula, one in Lewis and Clark, and one in Madison,—costing about \$100,000 to \$120,000, and producing about 250,000 sacks of flour worth, say at \$10 per sack, \$2,500,000; two tanneries, one foundry, 17 saw mills; 15 distilleries, four furniture and a number of plow, wagon, harness and other manufactories. These produce wares annually, worth, in round numbers, two and a half millions of dollars. Very likely others exist, here and there, of which I have no knowledge. Of other productions I will speak hereafter.

From Fort Benton to Lewiston, Idaho, on the Snake river, the distance by way of the Mullen road is given as 525 miles. Over this road trains pass in large numbers every year, although the state of the road is not such as it should be or will be soon. But the Missouri is said to be navigable between the Great Falls and Gallatin City. By this land travel from the Missouri to the Columbia is reduced to less than 300 miles. Let any one take a map and trace the river courses, and the relative position of the territory, the proposed railroads and other improvements, and he will see that the territory is bound to be a commercial center.

W. H. M.

[TO BE CONTINUED.]

Bull Run District, Nevada.

[WRITTEN FOR THE SCIENTIFIC PRESS.]

Eds. Press.—I will again send a few lines from our camp. Notwithstanding the cold, the miners are still at work, and ores are still being shipped away for reduction. The Blue Jacket Co. have contracted for the shipment of 25 tons; the Lady Don Co. will ship 10 tons next week; Johnson and Highland Queen Co.'s will ship several tons next week; all of which goes to Vance's mill at Mountain City. Some of the prospectors have already left here and more will soon follow on account of the cold weather, and want of suitable houses to live in through the winter. But about 50 miners will stay to run tunnels and work underground, most all of them having comfortable houses to live in and plenty of provisions for six months. It will thus be seen that things are improving here, as last winter only eight men remained, and if I am not mistaken we will have as large a proportionate increase next winter.

As for the climate here, we must admit it is cold. But the coldest day last winter, it was only 16 deg. below zero, while at the same time in Elko the thermometer stood at 28 deg. below. The snow is deeper here than in Elko, while it is about 80 miles further to the North and about 2,000 feet higher. Yet we are sheltered from all cold winds by the high mountains on all sides.

Our District probably will be shut off from communication for a while, but next spring lively times may be expected. BULL RUN MINER.

Bull Run, Nov. 15 1870.

Notes of Travel in Butte County.

[WRITTEN FOR THE SCIENTIFIC PRESS.]

Forbestown.

Forbestown is situated about 30 miles from Marysville, and 25 from Oroville. The place is small, but its inhabitants are all alive, which makes up for number.

THE OHIO FLAT MINE, Gaskill & Bowers, proprietors, is situated 2 miles south of Forbestown, in the edge of Yuba county. This claim is a deep channel, washed quartz, gravel and decayed granite. It has been mined for some 14 years past by drifting, and paid handsomely (to other owners); but the disadvantages incurred in keeping out the water, quicksand, etc., and its apparent richness, led the present proprietors to open a cut for drainage, which they did by hydraulic process, with the exception of a very short space which had to be done by blasting. This cut is over a mile long, and averages 30 feet deep the entire length; 3½ years were spent in accomplishing this work; 100 inches of water were consumed daily, and four men constantly employed during that time; this work was finally finished July 1st, this year, after \$24,000 had been expended in running the cut and constructing the flume, which extends the entire length of the cut. In running through the adjoining claim below (which they had to do to get sufficient fall,) they struck bed-rock, 400 feet from their line. In the width of their flume, in running that distance, they took out, and handed over to the owners \$2,500. In 60 days after getting in, they took out two-thirds of their entire expenses for the 3½ years outlay (or \$16,000), and out of a spot not over 150 feet square. They have nearly 3,000 feet ahead of them, and there is no reason why it will not pay even better than that passed over, for it has not been drifted so thoroughly. The gold is quite coarse; several pieces ranging from 3 to 19 ounces were taken out of the part passed over. For some three miles up and down this flat a similar deposit exists.

SOUTH FEATHER WATER CO., Gaskill & Bartholemew. This company own the entire water privileges of this section, extending to Oroville down one range, and to the vicinity of Marysville down another. Their ditch has a carrying capacity of 3,000 inches, and in the driest season they have 1,500 inches of water to dispose of. The ditch waters a larger mining and agricultural section than any other of the same length in the State. It cost its original owners over a quarter of a million dollars. A dividend for this year of \$3,000 was declared August 1st. I should call it a splendid paying property.

TROJAN QUARTZ MILL & MINE. This property, situated 2½ miles west of Forbestown, is owned and superintended by E. W. Slater. The mine is 2,600 feet in length running northeast by south-west, with a ledge from two to six feet thick. There is an incline shaft down on the ledge 120 feet. As far as tested the rock has paid from \$5 to \$8 per ton; it is easily

crushed; for with an 8-stamp mill, 18 to 20 tons are reduced every 24 hours; nine men are constantly employed; the mill is run by a 15-horse power steam engine; and all the modern improvements are brought into use.

Oroville—Oregon City.

Oroville, the county seat of this county, is reached by rail from Marysville; distance, about 24 miles. The bed of the Feather river, which has been successfully mined by fluming for many years, has been abandoned temporarily, and its principal mining now is from the deep channel diggings on its banks extending into the hills. Its citizens are turning their attention more to agriculture, and one gentleman here has invented and patented a new and improved steam plow, a short sketch of which will not be out of place at this time. [The description of the Locher Steam Plow, and the remarks on Mr. Marchella's Turkish Melons are transferred to our agricultural columns.—Ens.]

Oregon City, is situated eight miles north of Oroville. At this point, the CAMBRIAN QUARTZ MILL AND MINE is owned, superintended and successfully worked by E. A. Halstead. This mine is worked through an incline shaft, now down 120 feet. The ledge is from one to four feet thick, and averages about 18 inches; seven men are employed below ground; a 9-inch Cornish pump keeps the mine dry. The mill has five stamps, with shafting complete for five more; at present it is crushing 7½ tons per day (24 hours) which yield about \$18 per ton, besides 4 or 5 per cent. of sulphurets which assay from \$275 to \$600 per ton.

Table Mountain.

This mountain is six or eight miles in length and capped principally by a basaltic or lava rock, lying near the bed-rock on the eastern side and quite thin. On the west side of the mountain the cap-rock is much thicker, and a deep gravel deposit lies between it and the bed-rock. The main Feather river runs at the southern base.

MORRIS RAVINE cuts through the mountain for about two miles, forming North and South mountains, and has cut down below the plane of the deposit on the lower part of the ravine several hundred feet. This ravine is a forty-niner of great richness. Several companies are at work on its sides, mining into either mountain. The principal company is an Eastern one, mining on the extreme head of the ravine, with a clear outlet behind them through Morris ravine into Feather river. Owing to a heavy land slide (which I shall term a land glacier) which has been encroaching upon them, and as yet relying upon the winter rains for water, they have not yet got through the old works and driftings of the last four years that they have been opening. They have spent about \$50,000 in purchasing other mining interests, and in constructing mining conveniences, and they contemplate a still heavier outlay to cover their claims with living water.

CHEROKEE FLAT, BLUE GRAVEL CO., has a tunnel 1,600 feet long, and an incline 750 feet down which has recently reached the deposit of blue gravel and rotten boulders. The company claim 5,000 feet on the lead, and 10,000 feet to the center of Table mountain, and claim to have a lower tunnel for drainage (when complete) than any other in progress, for outlet to this rich and almost inexhaustible lead.

SPRING VALLEY CANAL AND M. CO. are constructing works to bring water to Cherokee, which, if successful, will stir up the engineering world! They have now about 20 miles of ditch which will be extended to Kimeshew Lakes, in 1871, about 18 miles across the west branch of Feather River, at a depression from grade line of 840 feet, on a Howe truss bridge, the iron pipe lying 70 feet from the bottom of the river. The pipe is 30 inches in diameter, and nearly 2½ miles long, laid in a trench about five feet deep. The head is 180 feet above the level of discharge. N. B. Harris is superintendent, and H. B. Lathrop is secretary and agent.

Cherokee Flat

Is picturesquely situated and enjoys a pleasant, healthy climate, being too low for the deep snows of winter and too high for the miasmas of the valleys. The population, of about 500, is engaged almost entirely in mining. Here is undoubtedly one of the most extensive and richest gravel deposits in the State, the development of which has been retarded by the lack of water; being surrounded by deep cañons, it has been considered almost impracticable to get this article to the place.

THE CHEROKEE M. CO., the oldest mining company here, consists of Wm. Gregory, Jenkins Morgan, M. R. C. Pulliam, H. A. Moore, John A. Moore, David Gage, W. L. Howard and the estate of Thos. McDaniel. They have expended for tunnel and flume \$80,000. Their flume is four feet in width with 30-inch sides, and three miles in length, one half of which being through a tunnel. They use rock for rifles with the exception of a few hundred feet at the head of their flume. Having to depend entirely on the rains for water to wash their mines, they have expended \$150,000 in the construction of reservoirs and ditches, have built three miles of embankment (entirely of earth) of an average height of 20 feet, and 60 feet wide at the bottom, for their reservoirs which cover 100 acres. They have about 30 miles of ditches. Those constructed to lead the flood water to their reservoirs are ten feet wide. The deposit in their claim is of three strata; the first, or top, is of light gravel; the second, rotten boulders; the third, or bottom, blue gravel; with pay from

top to bottom. They have as yet only worked the two first. They work the top strata by simply turning the water over the banks, running a few pipes to keep the banks square. The second strata is worked by undermining and caving. During the mining season they employ 50 men. They have recently commenced a tunnel on the west side of the Table mountain, to run entirely through the mountain, which will be 8,000 feet in length, and will enable all of the mines in this vicinity to be worked to the bed-rock, thus opening up the treasures supposed to be deposited under the Table Mountain encased in basalt rock. This company having been long located here, have secured a vast amount of valuable mining ground. Some interesting agricultural statistics in my next from Chico. L. P. MC.

Mechanics' Institute—Cash Premiums for Essays.

The Mechanics' Institute offer the following premiums for essays on the following subjects:

Best General Report on the Manufacturing Interest in California, its present condition and future prospects—Statistics of Manufactures, showing their establishment, progress and present status, Imports, Exports and Consumption. Causes operating against and for it, \$400.

Best Report on the Currents and Tides in the Bay of San Francisco—the effect of building piers, jetties and obstructions therein—the requirements of the harbor and the needs of shipping, and matters of interest in connection therewith, and the water frontage of San Francisco, \$250.

Best Report on the Timber of the Pacific Coast, its adaptability to the industries—embracing its application to ship-building, house-building and general construction, with specifications of localities, distinctive features, durability, transverse strength, value in San Francisco, etc., \$250.

Best Collection of Woods of the Pacific Coast, not less than four examples of each wood—two of these samples to be 12 inches long and 2 inches square, and two to be 12 inches long, 6 inches wide and 1 inch thick—each specimen to be faced on one side, properly classed and labelled with species, transverse strength, specific gravity, green and seasoned, location, dimension of tree the specimen is from, soil, exposure, special characteristics, etc., \$250. Second ditto, \$100.

Above specimens to be the property of the Institute.

Best Collection of all kinds of Stone of the Pacific Coast, with Report on location, accessibility, available for building purposes, pavements, slating flags or ornamental work, limes, cements, etc., \$250.

Specimens to be the property of the Institute.

Best Street Pavement, adapted for heavy traffic and the climate of San Francisco, accompanied by statement of cost, methods of construction, actual tests made, durability, etc., \$150.

Best Report on System of Drainage, adapted to the City of San Francisco, its sanitary requirements and its future wants, \$200.

Best System for Economical transportation of ores, minerals and goods over mountainous places and difficult roads, and its application more particularly to conveying the products of the mines to the mill, \$100.

Best System of Reclaiming Overflowed and Tide lands, \$100.

For the best Essay and Report on the various modes of treating ores of gold and silver, here and elsewhere, showing the best practical results (i. e., the largest percentage of precious metals at the lowest cost), where and how obtained, with a view to pointing out the advantages and defects in the system adopted on this Coast in the management of the mines, above and underground, \$250.

NOTE.—In the above Report it is not the object to advance any new theory, but to confine it to practical processes, modes and results, now in existence. It is also desirable that the methods adopted in the reduction of low-grade rock in Australia be presented.

For the best method of Clearing and Cultivating Tule Lands, \$100.

Best Report on economical process of Preserving Timber and Wood from decay, with sample, \$100.

Best and most successful attempt to raise Ramie Plants, with statement of cultivation, method, etc., \$100.

Best and most successful attempt to raise Beet Root for Sugar, with statement of method of cultivation, and other data in connection therewith, \$100.

Same of Tea, \$100.

Same of Cotton, \$100.

Same of Tobacco, \$100.

Same of Rice, \$100.

Best Design for a Cocoonery adapted to the climate of California, \$50.

Best Collection and largest variety of Metals on the Pacific Coast, \$100.

Best Design for Iron Frame for Roof, \$100.

The above premiums are to be paid either in cash or plate (engraved) of equal value, at the discretion of the successful competitors. The Board of Managers reserve the right to reject any Report, Essay or Exhibit which may be deemed by the Judges to be unworthy.

All communications, reports or essays for premiums shall be considered the property of the Institute, and may be published by them in any way and time they may deem proper; and any papers which have been read in any public manner whatsoever, or published in any form shall not be admitted to competition.

Mechanical Progress.

THE HENDERSON PROCESS OF STEEL MAKING.—The *Iron Age* of November 17th thus describes it: "The new steel process consists in the combined use of fluorspar and titanio acid, applied to cast iron at the melting temperature, preferably in reverberatory furnaces. Fluorine is given off from the fluorspar, and is a more powerful agent for the removal of silicon than oxygen, and removes it almost entirely from the cast iron before the reactions with the carbon begin; the phosphorus and sulphur are next acted upon and removed in the order they are named by means of the combined action of fluorine and titanio acid, or fluorine, titanium and oxygen; and, last, the carbon is removed. The fluorine is derived from fluorspar combined with iron ores containing titanio acid in such wise as to ensure simultaneous action of the fluorine, titanium and oxygen upon the cast iron; and by reason of the affinities of fluorine, titanium and oxygen for silicon, phosphorus, sulphur, manganese, arsenic and carbon, these substances are taken from the iron in the form of vapor or slag, leaving the purified metal in the condition to be hammered or rolled as merchantable steel. English and American pig iron may be made direct into steel by the new process; and with the large class of irons smelted from hematites, specular, and better qualities of magnetic ores, with good fuel, pure steel may be made that will be entirely deacidized, dephosphorized, desulphurized, and contain but the desired amount of carbon to form steel of any particular degree of hardness, by arresting the decarbonization of the metal whilst undergoing conversion."

Details of experiments and analyses following. We quote again: "From the foregoing it will be seen that the refined cast iron of the new process contains but one twenty-fifth of the silicon, and, also less than one-half the sulphur, and about the same amount of phosphorus, as compared with the Hoop L bar iron. This is the most celebrated wrought iron in the world, and is used exclusively for making steel, and sells in Sheffield at £24 per ton. The analysis of the steel of the new process shows, as compared with Sanderson's and Krupp's that while the latter are alloys of carbon, silicon, sulphur, phosphorus, etc., the steel of the new process is practically pure iron and carbon."

NEEDLE AND FISH HOOK FACTORY.—We find in the *Iron Age* an imperfect notice of an establishment in New Haven. The writer says there is some difficulty in gaining permission to visit it. His description, though vague, may serve to give a general idea of the operations, and we give a portion of it:—"The machinery for needle making occupies but little space. First, the wire is uncoiled, passed through the straightener, then cut off the proper length; it next passes through the trimming dies, which make and perfect the point; then goes under three dies which form the eye; the eye is trimmed by trimming mills; the needle now passes along on a revolving disk, and the points are trimmed by another set of mills, after which it drops into a pail and is ready for inspection, tempering and polishing. The writer was not admitted to the polishing room. The needles are stuck upon the papers by another machine. * * * The machines for making fish hooks were of different sizes. The same can be used for a smaller hook, but has to be set over in such a case. The wire first passes from the wheel, through the straightener, is then cut off the proper length; the barb is next made, then the shears cut the point and the mills trim it; the wire now passes under the bender which forms the hook, and being ready for inspection and tempering, is dropped into a pail."

PYROGRAPHY.—This is a new art invented in England, and consists, as the name indicates, in printing by fire through a system of metallic cylinders, which burns into the wood any design required. From its nominal cost and great beauty, it seems likely to take the place of much of the expensive ornamentation and inlaid work now done by hand. The samples now on exhibition at the Fair of the American Institute, are panels of wood, printed with very beautiful and ornamental designs, in great variety; for car and carriage manufacturers, architects, builders, carpenters, cabinet makers, etc., this art must be very useful.—*Gas Light Journal*.

IRON-MAKING PROGRESS IN THE UNITED STATES.—We take the following figures from the address delivered at the Fair of the American Institute by A. W. Humphreys, Esq.:—In 1810 there were 54,000 tons of pig iron made in the United States. In 1869, 1,916,000 tons, having a greater value, by some \$5,000,000, than the gold and silver product. "Thirty years ago, not a ton of rails was made in America, the first rail having been rolled in 1843; while last year nearly 600,000 tons were made, more than half in Pennsylvania, and nearly 100,000 tons of it in New York, at Spruett Duvill, Troy, Rome, Syracuse, Elmira, and Buffalo, of a quality admitted to be far superior to the foreign rails generally brought here, and with which we are compelled to compete in price. The quality of our pig iron is better than three-fourths of that made in England, yet the question of quality is usually practically ignored, when discussing the question of sustaining in America the production of iron in any form. * * * The statistics of the Lake Superior district will place vividly before you the astonishing increase of the mineral development of our northern border. within a little more than a decade of years; beginning with 1856, when iron ore was first mined there in any quantity, there were shipped 7,000 tons of ore, but not a ton of pig iron was then made there; in 1869, 633,238 tons of ore were shipped over the two railroads leading from that region, and 39,000 tons of iron were made; during these 13 years, 3,000,000 tons of ore, and 400,000 tons of pig iron have been brought from what, 20 years ago, was practically a wilderness. Still further west, the Northern Pacific Railroad will open up another region, where a similar history will be repeated. Missouri has already begun her race in the same direction of industry; the whole tier of Southern States only need complete restoration from the fever and delirium which began in 1861, and from which they are now convalescent, to pour out from their northern frontier such stores of mineral wealth as would make us gape with astonishment, had not constant employment of that faculty made wonder at any display of material resources in the United States almost impossible."

ENLARGING PHOTOGRAPHS.—Prof. Fowler, in the *Philadelphia Photographer* describes a process for producing enlarged photographs, without solar printing. The small negative is made in the usual manner. He advises that the picture be taken with a long-focused lens at a long distance, only one principal object to be included in the view. "From the negative, print a transparency or positive upon glass. From this transparency make an enlarged negative in the usual manner, of any size desired. With the enlarged negative print enlarged positives. The glass on which these positives are printed is to be ruled over with white wax dissolved in ether, and polished with clean silk cloth. A colorless collodion, made with ammonio-cadmium, is used. After the picture is fixed, while yet wet, it is toned for a moment with a dilute solution of chloride of gold, afterwards with hyalochloride of mercury. Wash the picture and let it dry. The paper to receive the picture is prepared by floating on a solution of gelatin, ten grains to the ounce, and dried. For use, float the paper on clean water, until it lies quite flat. Then draw it once through the water and drain. Now place it upon the collodion film of the picture, cover with blotting paper, place flat weights thereon, and let stand until dry. Then, by means of a knife, cut the edges of the collodion, and the picture may be raised from the glass, mounted on the paper."

SKILLFUL MOULDING.—At the late Mechanics' Fair in Cincinnati, says the *Scientific American*, F. Lunkenheimer exhibited fine specimens of brass casting. "As an evidence of the skill of some person in his employ, there is shown a cup on the saucer with a spoon in the cup, all cast in one piece and at one time, showing no "fins" or marks where the flask joined, or the pattern parted; also a plate, knife and fork cast in the same way, and a little cream pitcher, with a big belly, all cast in one piece, without core, yet exactly like the original crockery from which it was made. We were given to understand that this ingenious piece of handiwork is produced by baking the sand mould and afterwards carefully cutting it away and replacing it again similar to statuary work."

Scientific Progress.

A NEW FIELD OF MAGNETIC RESEARCH.—Frederick Varley, F. R. A. S., read a paper before the British Association from which we quote: "It occurred to the author, in the year 1858, that as iron could be deposited by electrolysis, that if a permanent magnet were connected to the receiving pole of a battery and placed in a solution of ammonio-chloride of iron, and the dissolving pole of the battery with a plate of the same metal, iron would be deposited on the poles of the magnet, and in all probability would take up the true form of the magnetic curve, and we would thus get solidified magnetic rays. The use of the ammonio-chloride of iron gave but feeble results, as the deposit then obtained was exceedingly thin and slow in forming. Small but promising results were, however, obtained; the experiment was left in abeyance for the want of a better solvent than chloride of ammonium. This year, whilst experimenting with the new mode of electrolyzing iron by means of the solution of sulphate of iron and magnesia, a sufficiently large deposit was obtained to induce me to resume the magnetic experiments. Accordingly I placed a compound magnet into the depositing bath, and straightforth commenced electrolyzing magnetic rays. It may, and indeed, has been, asked by one of our most eminent chemists, what is the use of this mode of obtaining the contour and formation of magnetic rays, when it can be so simply obtained by means of iron filings sprinkled upon the poles of a magnet, or permanently recorded on paper in the manner so beautifully accomplished by the late Prof. Faraday? I would answer to this, that the formation of these curves, as shown by the iron filings, are a modification of the curves which magnetic rays assume in passing through non-magnetic substances; these are not the curves that would be formed if a magnet be plunged into a solution of a magnetic metal, and that metal allowed to crystallise under the influence of magnetic action. Now, if we find that when depositing iron on the poles of magnets that, instead of an uniform layer of metal, the deposited metal assumes another form, indicating the action of the magnet upon it, we have at once afforded a means by which we can get solid iron to crystallise and build itself up under the superintendence and coercive guidance of magnetism. Independently of the crystalline structure of the iron thus modified and grouped in the lines of these rays, we shall have something solid and tangible to examine. * * * Diamagnetic metals, such as bismuth and thallium, may also be deposited in a bath between the poles of a powerful magnet, and we may thus glean much information of the crystalline structure of these substances whilst crystallising upon the receiving pole of the battery. * * * We have thus obtained a new adjunct in physical investigation; the mode of research offers a means of experimenting in a countless number of ways. New facts must assuredly be derived from these researches. This magnet, which is the first that has given important results, has been in a depositing bath five weeks, and here we find that, instead of the coat of iron being uniformly deposited on the poles, it is almost entirely built up on the margin. I must admit that it gives a quite unlooked-for result; nothing can be more beautiful than the manner in which this formation of iron crystals have been arranged by the magnet. I will not theorise upon the results at present obtained, as I hope by pursuing the investigation to get solid facts."

EXPERIMENTS ON GOLD AND ITS COMPOUNDS.—J. P. Prat gives, in *Journal de Chimie*, as the result of his experiments as follows:—That nitro-muriatic acid chlorurizes gold in various degrees, and that this depends upon the composition of the acid, the quantity which is applied in reference to the gold, and the degree of heat; that pure gold can be readily and rapidly prepared and obtained in spongy state; that gold can be readily oxidized and salified by ox-acids; that there exists a liquid and volatile chloride of gold containing more chlorine than the sesquichloride; that there exists, likewise, a sesqui-iodide and a carbonate of gold; that there exist two oxides of gold capable of giving a new series of salts; and, lastly, that gold behaves in many instances like some of the other metals.

LOCAL GLACIERS IN THE WHITE MOUNTAINS.—At the Troy meeting of the American Association, was read a paper upon this subject, prepared by Prof. L. Agassiz. We give part of the conclusion:—"These facts show that there were local glaciers, on the southern as well as the northern slopes of the White Mountain ranges, moving in opposite directions; those on the northern slope moving northward, and those on the southern slope moving southward. * * * It follows from the facts enumerated above, as well as from a general consideration of the subject, that the local glaciers of the White Mountains are of more recent date than the great ice sheet which fashioned the typical drift. On another occasion I hope to show that the action of the local glaciers of the White Mountains began to be circumscribed within the areas they covered, after the typical drift had, in consequence of the melting of the northern ice-sheet, been laid bare in the Middle States, in Massachusetts and Connecticut, after even the southern portions of Vermont, New Hampshire and Maine had been freed, and when the White Mountains, the Adirondacks and the Katahdin range were the only ice clad peaks in this part of the continent. When in their turn the glaciers of the White Mountain region began to melt away, the freshets occasioned by the sudden large accumulation of water remodelled many of these moraines and carried off the minute materials they contained, to deposit them lower down in the shape of river terraces. I have recently satisfied myself, by a careful examination, that all this river terrace of the Connecticut River valley and its tributaries, as well as those of the Merrimack and its tributaries, are deposits formed by the floods descending from the melting glaciers. What President Hitchcock has described as sea-beaches and ocean bottoms near the White Mountain and Franconia Notches, as well as in the Connecticut River valley and along the Merrimack, have all the same origin. The ocean never was in contact with these deposits, which nowhere contain any trace of marine organic remains."

A NEW FORM OF SPECTROSCOPE.—Prof. C. A. Young, of Dartmouth College, has devised and had constructed a new form of this instrument which he describes in the *Journal of the Franklin Institute* for November. We quote briefly: "The light from the slit after passing the collimator, is transmitted through the lower portion of a train of 6 prisms of heavy flint glass each 2½ inches high, and having a refracting angle of 55°. A seventh half-prism follows, and to the back of this is cemented a right-angled prism by which, after two total reflections, the light is sent back through the upper part of the same train of prisms, until it reaches the observing-telescope. This is placed directly above the collimator, and firmly attached to it. Finally, a diagonal eye-piece brings the rays to the eye in a convenient position for observation. The instrument thus has the dispersive power of 13 prisms, and even with the low magnifying power of only five on the observing-telescope, shows perfectly the lines of aqueous vapor, which make their appearance between the sodium lines when the sun is near the horizon. Of course, everything shown on the maps of Kirchhoff and Angstrom is readily seen with it, and many lines hitherto."

DIMORPHISM OF TIN.—C. Rammelsberg refers to experiments made with tin by Dr. Fritzsche and other savants, and states that he concludes, as to the dimorphism of tin, as a result of researches which prove that the sp. gr. of tin obtained by electrolysis, and also that of the metal after exposure to cold, is far less (viz. from 7.143 to 7.195) than after the metal has been molten, when its specific gravity varies from 7.29 to 7.31. Its form (viz. crystalline) after fusion is, as far as can be ascertained, regular; but at a very low temperature this form is entirely modified, and belongs to the irregular system.

IRON BY ELECTROLYSIS NOT PURE.—Dr. Klein, says *Les Mondes*, has ascertained that the iron obtained by electrolysis is not, as has been often thought, the pure metal, but, on the contrary, a compound or mixture of iron and hydrogen, which, when heated to redness, gives off an enormous amount of that gas, and becomes, while greatly increasing in bulk, a silver-white, very soft, ductile, and malleable metal, which decomposes water readily below its boiling-point, and oxidizes most rapidly.

Mining Summary.

The following information is gleaned mostly from journals published in the interior, in close proximity to the mines mentioned.

California.

ALPINE COUNTY.

WILL START UP.—*Chronicle*, Nov. 19th: The saw mill of the Exchequer Co. will probably start up work next week. Two weeks more of fine weather will get out the winter's supply of timbers and lumber for the mine.

GLOBE.—*Miner*, 19th: About sixty thousand feet of lumber already delivered for the mill, and carpenters are framing. Good progress made in the drift on the ore vein, and samples yesterday showed ruby silver.

MT. BULLION.—Last week the rock was hard and progress slow. This week, the ground is working better, and the tunnel going ahead at a satisfactory rate.

TARSHISH.—The three companies working this lode are still pushing ahead. The Schenectady winze is near making the connection from lower to upper works.

AMADOR COUNTY.

SUTTER CANAL AND MINING CO.—*Ledger*, Nov. 26th: This canal, which will carry 5,000 inches of water, miner's measurement, is 23 miles in length, from the 700-foot tunnel at Slabtown, now being run, to Sutter Creek. It will now be completed in three or four weeks. A cut 1,000 feet long and 20 feet deep, is nearly finished. Nearly two thousand feet of the iron pipe, thirty inches in diameter, is ready for laying. From Slabtown up the river nearly two hundred men have been constantly employed. The benefit to the county will be immense. It will furnish cheap water power for cheap quartz mills. We learn that the Amador, Oneida, Keystone and other mills will change from steam to water. Col. C. C. Bowman of San Francisco was the originator of the enterprise, and is now the President of the Co. There are immense gravel ranges and placer mines along the line of the canal known to be rich in gold, and we shall see a revival of mining that will remind us of the days of 1850-'51.

CONY.—On the contract to sink 100 feet, the price to be paid was \$28 per foot, it finished in 3 months, and only \$26 if not. It was done in 2½ months. The same parties have commenced on a contract for another 100 feet.

INYO COUNTY.

CERRO GORDO.—*Cor. of Independent*, Nov. 21st: Mr. Belshaw is running his furnace incessantly. Mr. Beaudry has made some improvements to his furnace, and intends to start it again as soon as a supply of ore can be obtained; which will be when the miners on the Belmont side complete their tunnels. The Belmont miners are in with their lower tunnel 375 feet, and have their track laid, which will expedite the working. They are in the upper tunnel taking out some fine silver ore. The Wittekind still work on their tunnel with two shifts. The rock is somewhat harder, but good headway can be made. This tunnel is in 140 feet. The Crowning Glory are in with their tunnel 150 feet, and are working night and day. The Oseola have their tunnel in 100 feet. The Friendship after having lain idle for a year, is being worked again with good results, although the shaft is only down 75 feet. It has produced since the present commencement two tons of first class ore, that will assay nearly \$450 per ton; two men having extracted that amount in about a month. Burns & Harrington, sinking upon the Sunburst, are down 75 feet, the ledge being ten feet wide, with spots of very rich ore. The Cumberland has changed hands. Dr. Gould, the purchaser, has changed the name to Buena Suerta, or "Good Luck." On this side, Hart & Co. are taking out the most ore at present.

NEVADA COUNTY.

MINING AT EUREKA.—*Gazette*, Nov. 26th: The Erie mill south of Eureka three miles, leased by Veatch & McCurdy, had a clean up on Tuesday last, after eleven days' crushing, and realized \$3,800. The mine and mill employ about fifty men. The rock yields on an average thirty dollars a ton. The ledge is seven to nine feet wide. Black & Irwin, are working thirty men, ten in their mill and twenty in their mine. They are taking out from \$1,200 to \$1,500 per month clear of all expenses.

GOOD RUN.—*Grass Valley Union*, 27th: The Eureka mine and mill had a good run for the twelve days ending yesterday. The clean up amounted to about \$30,000. It will be noticed that the Eureka has paid over \$2,000 per day for the last six months.

RICH STRIKE.—Telegram, Grass Valley Nov. 30th: The Hope Gravel struck a very rich deposit of blue cement, three feet thick, in the west drift to-day.

A SPECIMEN.—Same of 29th: A Chinaman on his way from Deer creek yesterday, picked up a quartz specimen worth \$30 from a rut in the road over which a wagon had just passed.

NORTH BLOOMFIELD GRAVEL CO.—*Transcript*, 22d: This Co. has gravel averaging a "hit" to the pan, and no hed rock. They are sinking an additional shaft a quarter of a mile further west, are down 70 feet, obtaining excellent prospects, and this week intend commencing a third one further down the ridge.

Same of 23d says of the same Co.: A correspondent writes that the hed rock has been reached in the shaft by the North Bloomfield Co., at a depth of 208 feet, through 138 feet of blue gravel which gave a number of colors to every pan the whole distance down to within 15 feet of the bottom, which yields from 15 to 25 cents to the pan—20 pans giving a product of \$3.83. They are now preparing to run a drift at the bottom, to ascertain the inclination of the bed rock northerly. The shaft in the Hiller Ravine is now down 83 feet, prospecting well all the way.

U. S. GRANT.—Same of 24th: This mine is at Carlile, Meadow Lake Township. The new stamp mill started up for regular work last Monday week. They have not yet cleaned up, but the rock is yielding handsomely, from the appearance of the battery. They have out about one hundred tons of first grade ore, and keep a force of twenty-two men constantly at work. The mine will be worked without interruption during the winter.

PLACER COUNTY.

NORTH FORK DITCH.—The Rattlesnake cor. of *Stars and Stripes*, Nov. 24th, says the ditch is being driven ahead energetically with Chinese laborers.

Dutch Flat cor. of same says: The mines which will be worked the coming season are waiting for rain, only one washing at present, Kelsey, supt. The law providing for the sale of mineral lands is having a good effect here. Many will avail themselves of it, and ground which has lain idle for years, will be entered and purchased.

PLUMAS COUNTY.

INDIAN VALLEY.—*Quincy National*, 19th: We are informed that a remarkably rich quartz ledge has been discovered in Light's Cañon. Messrs. Tanner & Cole found rich specimens of float quartz, and commenced a tunnel in search of the ledge; after running sixty feet, they struck a lode twenty-eight inches wide, and the richest rock ever discovered near Indian Valley.

TUNNEL.—The O'Neill boys, who have very flattering prospects in a shaft near Elizabethtown, but were unable on account of water to find the hed-rock, have commenced a tunnel which is expected to open up rich diggings.

POORMAN'S CREEK.—*Cor.* of same: Henly & Co. are well fitted up for the winter. Harry Brown & Co. are rigging up their claims for spring; so are White & Gains. Old man Riley has laid his prospect tunnel over till spring, when he thinks to strike it rich, on the South Fork. Evan Jones took out a nugget of gold on the main creek, opposite to town, weighing forty-two ounces, this week.

SISKIYOU COUNTY.

RICE.—*Yreka Union*, 23d: A very rich quartz ledge has been discovered on Salmon near Sawyer's Bar. A cut was being made along the mountain side for a road where the ledge was uncovered. The ledge is eighteen inches in thickness. Sheffield and others located a claim. It is in the vicinity of the Black Bear and Klamath.

TRINITY COUNTY.

PROSPECTS WELL.—*Journal*, 26th: We are told that the high and low bars on Trinity river, from Lowden's bridge to Cement hill, will pay half an ounce a day. There is no water, but Mr. Woods intends to extend his Rush creek ditch to cover the section.

TULARE COUNTY.

The *Visslia Times* of 19th says: New mines have been discovered near home, and we have some rock which, we think equals Yellow Pine rock. The parties owning assure us that the ledge is at least twenty-five feet in width at the surface. These mines are forty to sixty miles from Visalia, easy of access, and have abundance of timber and water. The owners intend to open their claims as soon as the Spring opens.

Nevada.

COPE DISTRICT.

MOUNTAIN CITY.—*Elko Chronicle*, Nov. 27th: All three of the mills are now in operation—the Vance crushing rock from the Blue Jacket, with small supplies from Bull Run and Bruno to test. Norton's mill is crushing rock from the Belle of the West, but will soon commence crushing

200 tons from the Excelsior lode for the Argenti Co. Drew & Co.'s mill is running on the Idaho. New discoveries are being made in Bruno. A ledge called the Lady Franklin and owned by Bohem, Mardis & Co., is thought to equal the Miners' Rest. The Spiritual ledge continues to show rich rock and abundance of it.

BULL RUN DISTRICT.—A friend writes Nov. 19th: "I have been spending the last week in this place, and you can bet we have mines here that are richer, more extensive, and more numerous than they are at White Pine or Mineral Hill."

SPRUCE MOUNTAIN DISTRICT.—*Elko Independent*, Nov. 26th: This is 40 miles southeast of Humboldt Wells. J. B. Osborne has a shaft down 120 feet, following a very rich silver bearing lead. On the side of the mountain below is an old incline tunnel connecting with the shaft from above, both shaft and incline showing the characteristics of those in the mining regions of Mexico and South America. In addition, later developments have proved that this is one of the richest countries yet discovered in Eastern Nevada, as the Latham, Schuyler, or Osborne mines will prove.

HUMBOLDT.

OREANA.—*Cor. of Silver State*, Nov. 26th: The large smelting works are closed pro tem. I hear that George Lovelock will reopen them. Torry and son have commenced smelting at their works on the river, and are getting out ore from their mine. The Miller mine, Relief District, will pay back to the New York company all the money it has expended on its other mines. The company is erecting workshops, etc., and is about to erect a mill.

CRYSTAL.—This is a promising mine, owned by James C. Wood and J. F. Cole. It is on the eastern slope of the main mountain. The ore assays from \$182 to \$431 the ton. The claim was located last August, and an incline, following the dip has been sunk twenty feet, exposing a fine body of ore.

CONTRACT.—The Potosi Co. has let a contract for sinking on the Potosi ground, one mile south of the Inskip, and the prospect, so far, is flattering. The vein tapped is said to be nearly five feet wide, and the ore of good quality.

INSKIP AND NORTH STAR.—As work progresses these mines continue to improve, both in quantity and quality of ore at present, a quantity of fine shipping ore is being taken out.

REESE RIVER.

An Austin telegram of 23d says: The Manhattan mill has just completed a run of 93 tons of ore from the El Dorado South mine, of Belmont, belonging to Leon & Co., which keeps up with the previous yield. The 90 tons gave an average assay value of \$240 per ton, and three tons yielded at the rate of \$303 per ton. The ore was obtained from the water level, at which point the lode is nine feet thick. The lot worked was selected from this vein in the proportion of one-third, the other two-thirds, averaging between \$60 and \$75 per ton, not being sufficiently rich to justify hauling. Upward of 1,200 tons of this class of ore are now on the dump at the mine, and the quantity is constantly increasing. Fifty tons of first-class ore are now on the way here for reduction.

DEEP SPRING VALLEY.—The Franktown Cor. of the *Inyo Independent* assayed ore samples from 23 locations, and found the lowest \$29, and the highest \$1,091 per ton. A sample of La Cruz ore assays \$7,491 in silver.

WHITE PINE.

The *News* of Nov. 26th says the principal mines on Treasure Hill have finished their preparations for winter; and without inconvenience will be enabled to work all the time. The Eberhardt Co.'s wire tramway, which will pass the dumps of the principal mines on the southern slope of the hill, will enable those mines also to deliver ore at the mills even when all the roads are blocked up with snow.

ITEMS.—South Aurora is steadily producing the same quantity and quality of ore during each week. The housings are finished. North Aurora is being partially worked by contract. Some fair ore is taken out of the Iceberg. On the Earl, close to the northern line, two shafts are being sunk. Out of the lower, ore is produced, which by mill workings has yielded \$75 to \$100 per ton. The shaft was down 25 feet and indications favorable. Eberhardt is improving daily. The working force has been increased to 25 men. It is surprising to see how advantageously the men have been put to work. Not only does the mine yield a fair quantity of the old rich chloride ore, but immense quantities of low grade ore have been put in such shape that they can be extracted in large quantities with little trouble. The lower works, have

demonstrated lately, that the claim below is as good as on top. Ward Beecher dumps are full, ore-house is full, and teams hauling away as fast as possible. A prominent gentleman of this city recently offered to the owners the sum of \$60,000 in cash for one month's lease of the mine, but was refused. Mammoth has still a small force at work prospecting the eastern part. Anchor has commenced shipping ore to the mill. On Thursday 27 tons were shipped. Work is to be pushed through the winter. Wahash has been enclosed, and is being vigorously worked. Some fine rock is taken out. Silver Wave, a small force is developing the mine, at the same time taking out fair ore. Noon-day still yields some good pay ore. On Chloride Flat, Sagebrush is taking out good ore; Posthole is prospecting; Industry has ore and is doing well; Nevada is yielding pay ore.

BASE RANGE.—Owing to the stopping of Gov. Matteson's works there is little to report. Most of the mines are nevertheless taking out ore, so as to be able to supply the furnaces as soon as they start up again, which it is expected will be shortly.

MILLS AND FURNACES.—The battery at the International mill is being put in place, and the mortars for 30 stamps are fixed. Tee pans and settlers, with their machinery, are in place. The engine heds are nearly finished. Work on the wire tram-way has been commenced. Its length will be two miles and 1,000 feet. It is to be finished in 30 days. Stanford mill, in Eberhardt, is running steadily on South Aurora ore. Oasis is working ore from the Eberhardt. Sheba has Ward Beecher rock. Metropolitan is running on ore from Chloride Flat. Big Smoky is running, and work has been commenced on the new roasting furnace. Swansea mill is crushing ore from the Original Hidden Treasure. Monte Christo has just finished a run on ore from the Maryland mine, in Pinto District, which gave great satisfaction. Powers' Furnace is shipping large quantities of base bullion. Hamilton Furnaces are both smelting Jennie A ore.

OUTSIDE DISTRICTS.—Eureka Consolidated Co. has declared a dividend of \$50,000. Parties are said to be negotiating for the Waller mines, in Robinson district.

ELY.—The *Record* says that the Burke mine, which averages eight feet in width from the surface to the 200-foot level, yields daily 50 tons of ore averaging \$300 per ton. Another mine, which belongs to Messrs. Rutherford and Hanchett, has an incline 200 feet deep, at which point the lode is six feet thick, the ore of which averages \$300 per ton.

MINERAL HILL.—*Eureka Sentinel*, Nov. 26th: There is not a more lively camp in Eastern Nevada than Mineral Hill—52 miles north of Eureka. Their new mill has been running for some time. The rock is the richest in the state, and the machinery perfect. A considerable amount of the ore worked has produced as high as \$1,500 per ton, and they now have in the mill 500 tons that will average \$500 per ton. The company that bought out the original owners have 29 mines, all of which are producing ore of high grade. The Grass Valley Tunnel Co. has been incorporated with a capital stock of \$600,000. The tunnel has been run 320 feet. Several spurs have been reached that assay \$10 to \$20. They are now within 250 feet of the Silver Queen, one of the best mines of the company.

BULLION.—From Palisade, the new town on the railroad, 85 miles north-west from Eureka, was shipped, for the week ending Nov. 24th, 132,255 pounds of crude bullion, and refined bullion of the value of \$61,715.85.

Colorado.

NEVADA DISTRICT.—*Central City Herald*, Nov. 19th: Work has ceased on a number of mines on Quartz Hill. Still rich ore is being taken from the Roderick Dhn, Kansas, Flack, Gardner, and California. The Kent County has a busy look, and several claims are being steadily worked. Bradley & Cree have put up a steam engine on this, and Collins & Co. one on No. 4 of the California. The latter claim, and Stalker's near, continue to yield 11 oz. ore. Bennett & Guy Bros., on the Kansas, have been taking out ore running from 10 to 13 ounces in stamp mill. P. M. Willingham, agent for the Rotary Stamp Mill Co., of Chicago, is putting up a ten stamp mill of that kind at the Flack lode.

DR. RAE is said to have obtained good results from his Electrical process at the Myers mill. We are told he obtained \$258 in gold by his process from ore that assayed \$271 per ton.

OHIO.—This mine, two miles south of Cariboo, already takes rank among the best lodes of Grand Island District. John Ba-

ker has a force of men working it, and also the Indiana, Eva, and other lodes. The assays have given from \$1,400 to \$500 per ton, the last considered an average.

(GEORGETOWN.—Cor of same: Stewart's old works are silent; the new, in full blast. The price of reduction has fallen from \$60 to \$35 per ton. At the Washington Co.'s mill, Mr. Bement is working Terrible 3d class ore and using Krom's Ore Dressers. The Georgetown smelting works are deserted. Burleigh tunnel goes ahead. The Brown lode has produced more rich ore this summer than ever before. The Terrible ships 500-ounce ore to England every month. Good ore comes out of the Mendota every where. The Helmick tunnel is in 400 feet. The Marshall, 900 feet.

(TREMS.—Register, Nov. 23d: Capt. Hall, of Elkhorn Gulch, has struck ore the first load of which assayed 500 ounces silver per ton. The Boston and Colorado smelting works will be ready for work by January 1st. Mr. Thatch has been working the Anoka County lode. He has thirty or forty tons piled up at the mill, which is worth \$50 per ton in gold. B. C. Waterman has sent five tons of first quality Flack ore to Swansva. He has also sold eighteen tons to Hill's smelting works and has quite a pile on the dump. In company with A. M. Jones he is also working on the Cooper. On this they are down 80 or 90 feet, and have a fine crevice. About ten cords are lying on the dump waiting for reduction in Whitcomb's new mill, which will soon be in operation. The Whale mine, at Spanish Bar, is looking better than ever before since '60 and '61. Quartz Hill Tunnel is in 545 feet, without having struck any lode of good pay. They have first-rate indications of cutting another vein soon. The Polar Star mill is putting in eight more stamps, making 32 in all. More ore is offered than ever before.

(GEORGETOWN.—Miner, Nov. 24th: On Saturday last the International Co. shipped a silver brick weighing 1,210 oz., coin value, \$1,100. Since last report the Stewart Co. have shipped silver bullion \$4,600, coin. The Cashier lode continues to turn out good ore. The Ocean Wave, is now furnishing good ore from the breast of the tunnel. On Tuesday the Brown Co. shipped a button of silver weighing 4,426 troy ounces, coin value, \$5,532. Since October 1st, 169 sacks of first-class Terrible ore has been shipped to England and a further shipment of 200 sacks leaves to-day. Last week the owners of the Correct lode received a bar of silver bullion weighing 105.20 ounces, valued at \$128.67, coin. We learn that a new discovery, called the Raymond, has been made in Spanish Bar District. One pan of dirt gave \$25 in coarse gold. The Rockefeller lode, Leavenworth mountain, is now in mineral. The Sterling is yielding very rich ore. The Silver Plume is yielding \$800 ore. Drifting continues with good results on the Snow-Drift. Eight men are employed. Work on the Magnet has been commenced. This ore in the 3d level of the Terrible is now worth 600 ounces per ton. Ore from the Bismark lately assayed \$1,600 a ton.

British Columbia

PEACE RIVER.—A letter appears in the Bulletin of Nov. 29th, from which we quote: The scene of the last discovery is a large creek, called Germansen Creek, 75 miles northeast of Vital Creek. It empties into Omineca river, a branch of the Findlay. A well defined trail exists between the landing on Lake Tahla and Hoganville, sixty miles. Lake Tahla landing is the junction of the two routes from the lower country, one by way of the Fraser river valley, and the other via Skeena river. The miners of Vital and Silver Creeks, with the exception of three on each, decamped for the new diggings immediately upon receiving information of their discovery. These diggings have the reputation of being shallow and rich. About four miles of the creek has been taken up, and it all proves of a similar character, ranging from three to six feet in depth. The miners who have communicated with their friends give flattering reports, but those who have temporarily returned to Cariboo, are reticent. According to statements from reliable sources, many of the companies are making \$25 to \$50 per day, per man. Provisions command \$1 per pound for every variety. The Cariboo mines are in a more prosperous condition than for years. William Creek, continues to yield largely. Several companies have taken out an average of one hundred ounces each per week, throughout the season. The attention of the mining community, appears to be centered on Lightning Creek, on which new developments are being continually made. The "Lightning Company" has yielded regularly throughout the summer from 200 to 500 ounces per week.

Idaho.

(TREMS.—Avalanche, Nov. 10th: The shaft on the Belgium mine is down about 12 feet, showing a good looking ledge 20 inches wide. Mr. Johnson is getting along finely with rebuilding the quartz mill below Fairview. It will probably be ready to run in two weeks. They have commenced taking ore out of the Oro Fino. In the Golden Chariot, the vein in the bottom of the winze south of the shaft from fifth to sixth levels, is over four feet wide, and the ore is as rich as ever. During November, up to last Wednesday, 700 tons of ore had been taken out, and as much more will be taken out during the remainder of the month.

WILLOW CREEK.—Boise News, 10th: A Chicago Co. are completing a ditch bringing in Burnt river; the ditch will be 80 miles long, 8½ feet wide on top, 5½ on the bottom, and three feet deep. They have four hundred men at work. The Co. have also projected another ditch which will bring in water from the Malheur; there are 700 men already there, and three towns: Malheur, Amelia and El Dorado. Mr. Green White, our informant, says the mines are first-class, that he got as good prospects as ever got in the Basin, and there is room for five thousand men.

Montana.

ARGENTA.—Helena Gazette, Nov. 21st: The Tootle Co., G. W. Stapleton, Supt., have been running their furnace day and night all the season, and shipping regularly buttons varying from 100 to 250 pounds every two weeks, and have this summer and fall shipped over a ton of pure silver. Mr. S. has run ores from Argenta and vicinity only.

PHILLIPSBURG.—From Mr. Hauser we learn that the St. Louis Co.'s mill has been leased to Captain Plaisted, and is now running. They have 300 tons of good ore to commence with. Cole Saunders' furnaces are also in operation.

TUNNEL.—The Miners' and Mechanics' Tunnel Co., at Cable City, have run their tunnel 900 feet into the hill, having been three years in the work, and will probably have to run 300 feet farther before striking quartz.

SURVEY.—Engineers are surveying the line of the grand canal from the Jefferson river to the Prickly Pear valley.

UNIONVILLE.—The Whitlatch Co., composed of the McClure brothers, Tom Argyle, N. N. Sensesderfer and J. W. Whitlatch, have leased the Whitlatch Park Co.'s mill, and are crushing quartz from the Parkinson lode. They employ 30 men, and have upon the dump 300 tons of quartz. A new incline is down 100 feet, and shows a body of rich ore three to five feet thick. The Columbia Co., of Philadelphia, own No. 3 west, on the Whitlatch Union lode, and employ now 40 men. The Co.'s magnificent thirty-stamp mill is running night and day on the rich ore, 4,000 tons now on dump. The incline is down 560 feet. No. 2 west, owned by the National Co. of New York, is putting up an enormous Cornish force pump, which has nine-inch lift and a five-foot plunge. The iron pipe is nine inches in diameter. Everything will be ready in a week.

RADESBURG.—Keating & Blacker, having made enough hullion for present use, have shut down for repair. Sample's mill was crushing Dunn's rock from his shaft on the Iron Clad at the rate of fifteen tons a day. The run would be at least \$40 to the ton. Three other shafts are worked on this lead. At least 300 men are employed in and about the quartz lodes here.

JEFFERSON GULCH.—New North West, Nov. 18th: Messrs Ruhl and Gregory, inform us there is only three hours water in the gulch, and only 15 or 25 men are washing. The Gregory Co. cleaned up \$1,000 for the last two weeks' run. A number of men have commenced drifting for the winter on the "back streak."

LINCOLN GULCH.—A. P. Rose writes that "only the Upper Drain Co. and two or three others are sluicing. The prospects on Sour Kraut Gulch are very flattering. The Discovery Co. is making \$15 per day to the hand. The Keep Cool Drain Co. will start up again in a few days."

EMMETTSBURGH.—We learn that a rich har was opened on the gulch, three-quarters of a mile above town, last week. It was purchased some time since with gulch claims, by Warren and Henderson. Last week they prospected it, and on Saturday, with 20 inches of water, two men took out in one hour and a half \$65. The bar is 2 to 4 feet deep and pays all the way. It is only 1,500 feet long.

The Independent says that Deer Lodge County has yielded not less than \$3,000,000 in gold during the past six months.

CEDAR CREEK.—The Missoula Pioneer of Nov. 17th says the Miners at Forest City

will keep at work during the Winter, and are covering the mouths of shafts and tunnels. There was three feet of snow there already.

New Mexico.

RALSTON.—Cor. of Press and Telegraph, Nov. 19th: Much has been said about what the California Co., intend to do, but as yet they have done nothing but comply with the District laws. Messrs. Harpending, Arnold & Cooper, three of the solid (?) men of this Co., arrived here, via Santa Fe, from San Francisco three weeks ago. They thought the quartz extraordinarily rich, said they must have a rail-road; talked of letting contracts for ties, grading, &c., but they lacked faith or had not the money. Mr. Harpending with a John Bull, who came with the party—started for New York to raise capital. Messrs. Arnold & Cooper remain, and have succeeded in getting several thousand feet hauled to them, for one dollar per foot. Many of the lodes are rich enough to pay a respectable dividend on all necessary out-lays, if properly managed. But I believe the time is yet far distant, when this will be done. Chloride District in this county has rich rock, timber and water in abundance. Men too, who although poor, possess more energy than the majority here, and by the time you receive this, they will have smelting works in operation. But alas for Ralston!

Mining Stocks.

SAN FRANCISCO, Thursday Eve., Dec. 1.

The mining share market has been somewhat irregular this week, with a little falling off in sales from the preceding. We notice quite a number of sales of Amador, which commenced at 242½ and rose to 245. Belcher was steady until yesterday when it took an upward turn, and to-day sold at 5.

Chollar-Potosi has varied considerably, from 67 to 79. On the 29th ult., \$62,135 were shipped from the mine to this city. Crown Point sold, on Saturday, for 3. Last week 400 tons of ore were raised, valued at \$10,431. On Monday a delinquent assessment of \$3.50 was added, and the stock rose to 6. On Wednesday it varied from 6 to 8, and to-day there were large sales between 8 and 12, the shares finally reaching 13.

Golden Chariot has ranged from 68 to 73. The company reports \$52,826 received on November account. Gould & Curry has sold from 72 to 77½, but the sales have been very light. The report for the last week show 475 tons of ore extracted, of an average value of \$49.36. Hale & Norcross has had light sales at 101 to 106½. From this mine, 830 tons were raised last week. Mammoth sold last Friday at 30 cents, but has since come down to 25 cents. Meadow Valley has been in good demand, selling from 22 to 24½, closing at 24½. The company report receipts for November amounting to \$104,463. Ophir has varied from 2½ to 3½. Savage has sold, in larger amounts than any other stock, from 35½ to 39½; and Yellow Jacket from 29 to 35½. The Savage mine reported 715 tons of ore raised last week, of an approximate value of \$14,300, on which the profit is stated to be less than \$900.

Dividends were paid by the following mining companies last month: Black Diamond Coal, \$25,000; Natoma Water and M. Co., \$3,000; Chollar-Potosi, \$112,000; Eureka, \$40,000; Golden Chariot, \$30,000; Hale & Norcross, \$40,000; Meadow Valley, \$60,000; North Star, \$4,500; Sierra Nevada, \$7,500. Total, \$322,000. Total dividends October, \$270,300. Total dividends November of other local companies, not mining, \$199,658. Dividends in November of 1869, 1868 and 1867 were \$99,200, \$184,000 and \$185,000 from mining companies.

The total shipments of treasure from this city since January 1st amount to \$31,763,579, of which \$12,719,888 was sent by railroad.

The coinage of the Branch Mint, for November, was \$1,860,000 in double eagles, \$40,000 in half eagles, \$25,000 in quarter eagles, \$35,000 in half dollars and \$5,000 in dimes, the last not having been coined here for a long time before. Total coinage, \$1,965,000. Deposits at the Mint were \$112,404 ounces gold and 40,836 ounces silver.

The Narrow Gauge Railroad Company offered their stock upon the market. Subscriptions will be received until December 26th:

Latest Mining Stock Prices.

[S. F. Stock and Exchange Board.]

BID.	ASKED.	BID.	ASKED.
Alpha Cons.....	6	Ida Elmore.....	11 13
Amador.....	5	Imperial.....	17 18
Belcher.....	5 6½	Kentuck.....	40 41
Chollar-Potosi.....	75	Occidental.....	—
Confidence.....	16	Ophir.....	3 3½
Crown Point.....	12½	Orig. Hid. Treas.	7 7½
Eureka.....	350	Overman.....	6½
Golden Chariot.....	72	Savage.....	30 32½
Gould & Curry.....	77	Silver Wave.....	—
Hale-Norcross.....	102	Sierra Nevada.....	18½ 19
		Yellow Jacket.....	34½ 35

Mining Shareholders' Directory—Meetings, Assessments and Dividends.

[Compiled weekly from advertisements in the SCIENTIFIC PRESS and other San Francisco Journals.]

NAME, LOCATION, AMOUNT AND DATE OF ASSESSMENT	DAY	DAY
	DELINQUENT.	OF SALE.
Anchor Cons., W. P., Nov. 12, 25c.....	Dec. 16—Jan. 4	
Columbia, Cape Dist., Sept. 24, 25c.....	Oct. 29—Nov. 22	
Columbia, Placer co., Sept. 28, 75c.....	2—Nov. 19*	
Cons. Virginia, Storey, Sept. 19, \$1.....	Oct. 10—Nov. 24*	
Crown Point, Gold Hill, Oct. 28, \$3.50.....	Dec. 1—Dec. 20	
El Dorado, Va. City, Oct. 24, \$3.....	Nov. 28—Dec. 17	
Empire, G. H., Oct. 18, \$4.....	Nov. 22—Dec. 13	
Imperial, G. H., Nov. 21, \$10.....	Dec. 27—Jan. 13	
L. X. L. Alpine Co., Oct. 18, \$2.....	Nov. 19—Dec. 7*	
Kincaid Flat, Tuolumne co., Oct. 20, \$2.50.....	Nov. 12—Dec. 3*	
Matagony, Idaho, Nov. 2, \$2.....	Dec. 5—Dec. 27*	
Mammoth, W. P., Oct. 6, 10c.....	Nov. 11—Dec. 9	
Maxwell, Amador co., Oct. 4, \$2.....	Nov. 10—Dec. 9	
Morning Star, Alpine co., Oct. 17, 50c.....	Nov. 24—Dec. 12	
Mountain City, Elko co., Sept. 29, 50c.....	Nov. 7—Nov. 28*	
Meadow Valley Ex., Sept. 19, 60c.....	Oct. 19—Dec. 30	
Ophir, Virginia City, Nov. 8, \$3.....	Dec. 13—Jan. 4	
Seg. Belcher, G. H., Nov. 18, \$1.....	Dec. 21—Jan. 10	
Silver Sprout, Inyo Co., Aug. 29, 25c.....	Oct. 18—Dec. 1*	
San Marcial, Mex., Oct. 13, \$2.50.....	Nov. 19—Dec. 5	
Tallulah, Nev., Oct. 14, \$1.50.....	Nov. 22—Dec. 20	
Trinidad & San Jose, Oct. 24, \$5.....	Nov. 28—Dec. 19	
MEETINGS		
Cole.....	Annual Meeting, Dec. 14	
Hope Gravel.....	Special Meeting, Dec. 8	
LATEST DIVIDENDS—(Within Three Months)		
Black Diamond, ¼ per ct.....	Payable Dec. 5	
Chollar-Potosi, \$4.....	Payable Nov. 10	
Eureka, div., \$10.00.....	Payable November	
Golden Chariot, div., \$13.....	Payable November	
Hale & Norcross, div., \$5.....	Payable Nov. 10	
Meadow Valley, \$1.....	Payable Nov. 8	
North Star, \$1.50.....	Payable Nov. 10	
Sierra Nevada, div., 50c.....	Payable Nov. 10	
Union, div., \$1.....	Payable Aug. 5	

*Advertised in this Journal

Exaggerating.

It seems to be the almost universal custom in America, for a writer to give an exaggerated picture in describing any locality. But few really true accounts appear in our papers of to-day. A state or territory is either the finest or the worst in the world, a medium condition being impossible, apparently. We are getting used to the habit, and rarely believe all that is narrated in such accounts; but people at a distance are very often deceived. Probably not one man in ten at the east has a correct idea of this coast; certainly not one description in ten gives a correct idea. We refer to the descriptions given by travelers.

One of the daily papers of this city lately published a letter written by a gentleman who has "lately arrived" here. The writer mixes up truth and fiction in the usual manner. While he says much that is true, he also says much which is not sustained by facts. Thus he dilates on the cheapness and excellence of our restaurants. We agree with the general statement that the restaurants are cheaper and better here than in any other part of the United States, as far as we know or can learn. We have been in restaurants in very many of the large cities in the North and East, and have, among our personal acquaintances here, people who have been in probably every large city from Maine to Louisiana. Our practical experience tallies with the above assertion. But when out late arrival talks of the possibility of obtaining "in excellent eating houses, where everything is cooked in the French style, * * * a plate of roast wild duck, a pot of splendid chocolate, coffee or tea, a piece of pie or a pudding, bread and butter—the latter of excellent quality—ad libitum, and a cigar, all for twenty-five cents; or a cup of coffee, two eggs, and all necessary accompaniments, including bread and butter, for fifteen cents; or any kind of a roast and a dessert for the same price," we feel strongly inclined to ask where such restaurants are to be found. If there are any such above the third or fourth class places, and which can with any justice be denominated "excellent," we should like to patronize them. As we board at restaurants, we are interested in the reply.

We have picked out this statement principally because it appeared in one of our leading city papers and relates directly to the city in which we reside. We have a due appreciation of the good points of San Francisco; but to spread abroad such statements is to show a spirit not cosmopolitan (a term we are very fond of here) but intensely provincial. We ought to state, perhaps, in justice to the paper alluded to, that it does not really endorse all that is said. Nor does it take the trouble to correct anything.

Farming in Montana.

[Written for the Scientific Press.]

City of Boseman.

Boseman, the last settlement going east, is situated in a fine, flourishing farming region and is the county seat of Gallatin county. Many new buildings are going up here, and among others a fine brick hotel. I stopped at the Guy House, one of the best hotels for rest and accommodation in this region. Fort Ellis is only three miles distant, where some 500 U. S. soldiers are stationed, with little to do, however, as the Indians in this neighborhood are very peaceable.

At the time of my visit the wheat crop was exceedingly promising; and although there is much land already under cultivation, many thousand acres are still laying idle in this valley, which might be taken up and successfully cultivated. There is a fine stream of water, the Gallatin river, flowing down from the mountain which may be extensively utilized for irrigation. There is good reason to believe that the Northern Pacific Railroad will pass through this valley and within about a mile of this town.

Boseman is probably to-day the most progressive town in Montana. Its advancement seems to be healthy, substantial and fully justified by surrounding developments. Unlike most other commercial points of the territory, it is independent of business fluctuations in the mines, and has for the foundation of its prosperity the sure and steady development of agricultural interests. It is the center of trade for

The Gallatin Valley,

About 10 by 30 miles in extent, which all admit to be the most extensive and productive farming district of the territory. The first settlements in this valley were made in the spring and summer of 1868. Alder gulch, or the great mines of Virginia City, having been discovered in the previous year.

Interesting Experience in Mountain Farming.

The first farm sites were located low down on the water-courses; the locators, wholly inexperienced in mountain farming, deceived themselves into the belief that they would there find the soil warmer, and consequently more productive. Failures were so frequent in 1864-5-6 that many of these pioneer cultivators concluded that only partial success was to be expected in Montana farming, and all parties settled down to a sort of slipshod management, which only looked to temporary residence in the country. Finally, experiments were tried back on the foot-hills, or table-lands, which proved abundantly successful. It was found that the frost did not linger there so late in the spring, nor appear so early in the fall; consequently the upland soil returned the cultivator large and well matured yields of every production ordinarily cultivated in these latitudes on the Pacific and in the states of the northwest.

All former ideas of cultivation were thereupon abandoned, and a complete revolution was thus inaugurated. Thenceforth the low-land farms—for the first three years esteemed the best—were only considered desirable for stock raising. The cultivation of the soil is now mainly confined to the table-lands.

[The experience of the Gallatin Valley farmers is but a repetition of that of many in this state, especially in the Santa Clara valley, in the cultivation of semi-tropical fruits. It is found that such fruits do better on the hill or low mountain slopes than in the valley below, and for the very same reason as observed in Montana. Cold air always descends, while warm air rises. Hence, within slight elevations, the air will always be found warmer on the hill-slopes than in the valleys. This rule fails when we get above the general level of the hills, because we then encounter large and cold upper currents of more permanent temperature, which interfere with, or rather pass over and keep down as it were, the local currents. Fogs, which

are due to sudden chills in the atmosphere, never form on the tops of hills, but always in the valleys.—EDS. PRESS.]

Productions, Etc.

The Gallatin valley is now famous, far and near, for its yield of small grains, while it produces all manner of excellent vegetables of first-class quality, such as potatoes, turnips, radishes, cabbages, squashes, and the like, and some young apple orchards are thriving and very promising. Experiments in the cultivation of forest trees also promise well. The editor of the *Pick and Plover* has quite a grove of black walnut trees now flourishing six miles south of Boseman.

Thus the agricultural development of Gallatin valley, which was at first inaugurated to supply the miners of Alder Gulch, is steadily advancing while mining camps are being established on all sides, until this valley has now become the grainery of the Territory. It has now, according to the last returns of the County Assessor, a little over 48,000 acres of improved land, and the aggregate grain yield this year is estimated at near one million bushels; there are three large grist-mills in the valley, running night and day, and a fourth is projected. There are over 5,000 head of cattle, in the county, and a large number of swine; and the population and fixed capital are represented to be doubling every six months.

Boseman is not only the trade-center of the valley, but it is also the key to the great valley of the Yellowstone and all the splendid country bordering to the eastward—supposed to be rich in mineral wealth and undeveloped agricultural resources.

In this connection, I cannot forbear paying an especial tribute to H. N. Maguire, editor of the *Pick and Plover*, for his untiring efforts in calling attention to, and his active and direct labors in building up Eastern Montana. His vigorous journal was inaugurated last January, during a period of trade stagnation and general business despondency; but as a long residence on the Pacific slope and in the West, had given him correct ideas of what might be accomplished in the development of Eastern Montana, he was not discouraged by the prospect, and is now reaping a just reward for his efforts. I shall furnish you some further agricultural and other facts from this interesting region in my next.

W. H. M.

An Extraordinary Melon.

Our correspondent, "L. P. Mc." writes us that R. Marchella, proprietor of Marchella's saloon, Oroville, has raised a few of the *Turkish melons* this year, (the proper name is *Buciri*.) They are the only specimens of the kind in California, and probably in America. From the difficulty experienced in obtaining the seed, which I shall not attempt to explain in this letter, it cost Mr. M. \$50 to obtain 100 seeds. This melon does not differ very much either in size or shape from the ordinary Musk-melon, except that it is little darker in color. Its other peculiarities, however, are very distinct. The taste is slightly nutmeg-flavored, but much more solid and nutritious. If hung up in a dry cool place it will keep from 18 months to two years. In fact it tastes best (in February or March,) after being hung up six months. The opinion of your correspondent is, that it is the best tasting melon in America. The seed could not be purchased for love or money before another season.

ALKALI SOILS FOR ROOT CULTURE.—Persons in the mountains and elsewhere who have alkali soils on their farms will be interested in the following item from the *Sacramento Union*.

We have been shown by John A. Anthony of this city, some fine potatoes and turnips raised near Mill City, on the line of the C. P. railroad, and sent to him as samples of the crop that can be raised on the alkali ground in that vicinity. The potatoes were of a mammoth size, perfectly sound, and when boiled were as white and mealy as could be desired. The turnips were very large, one weighing 19½ pounds and five of them being large enough to fill a sack of moderate size.

A LONG SQUASH VINE.—At Worcester, Massachusetts, there was a squash vine 1,112 feet long, which produced this season 350 pounds of squashes.

Sugar and its Production.

At the present rate of increase but little time will elapse before the consumption of sugar in this country will reach an annual value of \$200,000,000. The chief part of the sugar now consumed here is grown abroad, and only refined in the United States. More than half the cost of sugar, in a condition for consumption, is involved in its production from the soil and conversion into "raw sugar," in which state we obtain it from abroad. How important then that we should save this great outlay of money, and produce the value from our own soil. It would be worth more to the country than all the gold of California.

The success of the beet sugar production in this state, is a most promising event in this connection. We look forward with much confidence to the time when California will not only produce her own sugar, but will raise and refine immense quantities for the supply of the interior portion of the continent, if not for the Atlantic seaboard. A thousand acres of land devoted to the production of sugar will benefit this state more than the cultivation of 30,000 acres of land devoted to wheat.

Change a Law in Agriculture.

We clip the following remarks on change of rotation in agriculture from *Forney's Press*: "The farmer grows a certain variety of potato year after year, until it fails to produce the same good crops it once did. He sends a few hundred miles for new seed of the same variety, and it will at once, and without adding anything to the soil, produce as good crops as it ever did. We have heard agriculturists deny the possibility of this, but we think that most practiced farmers know that this is really the case. Yet surely the same variety of potatoes require only the self-same elements. There has been no other difference but the change.

So also in the matter of manure. People sometimes find benefit from phosphates, or guano, or some other commercial fertilizer. But in a few years it turns out to be no better than brick dust; but any other kind of manure will have a wonderful effect. We knew a friend once who used to raise enormous crops in his vegetable garden, which was annually manured from his horse stable. It failed at last. Even weeds seemed to disperse it. He changed from horse to cow manure, and again wonderful crops awarded him. Chemically there was not much difference in the manure. The change was more than all.

It is well to remember that as a general principle, Nature loves change. There is a seeming contradiction, for we speak of the certainty of nature's laws. But those who know her best, know that she has laws which seem contradictory. The same elements that make fire, largely make water, which is the enemy of fire; and some of her most harmless elements will often unite to make the deadliest poisons. At any rate, constant as she generally is, we know she sometimes likes a change.

SWEET POTATO VINES FOR FODDER.—A correspondent of the *Farmer and Artisan*, writing from Barnwell, S. C., says: In our ordinary plantation system, the supply of long fodder for stock is generally made a secondary consideration, and, consequently, is never abundant. In the middle and lower counties of this state, where the sweet potato is largely planted, an addition of considerable value may be made to the fodder left with but little trouble. I have long been in the habit of going into my potatoe before frost—say about the 10th of October—pulling by hand the vines, and immediately putting them into compact cocks about twice the size of a flour barrel. They remain thus four or five days, when the cocks are thrown down for three or four hours' sun, and then hauled in and housed. It makes an excellent hay. Horses eat it with avidity. The greater facility with which the potatoes are dug, after the beds are cleansed of the vines, saves the expense of making the hay.

PRESERVING POTATOES IN SAND.—It is claimed that if sweet potatoes are carefully packed in perfectly dry sand so that they will neither touch each other nor the sides of the packing vessel or box, they may be thus kept for twelve to fourteen months as sound as when first taken from the earth.

TOMATOES FROM CUTTINGS.—George Henning, Saratoga, N. Y., informs the Farmers Club that he plants his tomato-seeds in January and February, and when the plants are five or six inches high, cuts off the tops just above the seed-leaves, and sets them out as cuttings in a properly prepared hot-bed, where they take root and grow. In April, they are transplanted to cold frames, and finally set out in the open ground. Mr. Henning claims that by this treatment the plants have better roots than when allowed to retain their original ones, and that they bear earlier and are more productive.

CASTOR BEANS.—The Pacific Oil Works of this city advertise that they will contract, at good prices for all the castor beans raised in the southern part of the State, and furnish seed on credit to reliable parties, if necessary. The same institution is also a large buyer of the same product in other parts of the State. Our farmers know or ought to know the peculiar adaptability of the soil of a large portion of this State for the culture of the castor bean, and they should also know that its cultivation promises large profits.

A GOOD WAY TO DESTROY STUMPS.—A little excavation is made under the stump, between two of the large roots, some combustible material put in, and then set on fire. Previous to this, however, some dry materials should be piled around the root, above the surface of the ground, and covered over with a compact layer of turf, forming a sort of coal pit. It has been found, upon experiment, that the stumps will burn in this way a number of days, with a sort of subterranean fire; and, when the turf falls in, nearly all of the root is found consumed below and above the face of the ground.

The hole left by the consumed stump will contain a quantity of ashes, charred wood, burnt earth, etc.,—all valuable fertilizers—a part of which may be thrown out for use elsewhere, and the crater or hole then filled up to the level, with fresh turf or earth.

DOWNING ON CALIFORNIA FRUITS.—Downing's standard work on the "Fruit and Fruit Trees of America," has just passed to another edition, which has been enlarged by several additional chapters on the fruits of California.

San Francisco Market Rates.

Wholesale Prices.			
THURSDAY EVENING Dec. 1st, 1870.			
Flour, Extra, 64 lbs.	6 00	6 00	6 00
Do, Superfine, 64 lbs.	5 50	5 50	5 50
Corn Meal, 40 lbs.	2 25	2 25	2 25
Wheat, 100 lbs.	1 25	1 25	1 25
Oats, 100 lbs.	1 25	1 25	1 25
Barley, 100 lbs.	1 25	1 25	1 25
Beef, 100 lbs.	1 00	1 00	1 00
Potatoes, 100 lbs.	1 00	1 00	1 00
Hay, 100 lbs.	1 00	1 00	1 00
Live Oak Wood, 100 lbs.	1 00	1 00	1 00
Beef, extra, dressed, 100 lbs.	7 00	7 00	7 00
Sheep, on foot, 100 lbs.	2 00	2 00	2 00
Hogs, on foot, 100 lbs.	6 00	6 00	6 00
Hogs, dressed, 100 lbs.	7 00	7 00	7 00
GROCERIES, ETC.			
Sugar, crushed, 100 lbs.	14 00	14 00	14 00
Do, Hawaiian, 100 lbs.	8 00	8 00	8 00
Coffee, Costa Rica, 100 lbs.	21 00	21 00	21 00
Do, Rio, 100 lbs.	21 00	21 00	21 00
Tea, Java, 100 lbs.	65 00	65 00	65 00
Do, Green, 100 lbs.	60 00	60 00	60 00
Hawaiian Rice, 100 lbs.	7 00	7 00	7 00
China Rice, 100 lbs.	4 00	4 00	4 00
Coal Oil, 100 lbs.	14 00	14 00	14 00
Candles, 100 lbs.	14 00	14 00	14 00
Overland Butter, 100 lbs.	30 00	30 00	30 00
Ranch Butter, 100 lbs.	35 00	35 00	35 00
Island Butter, 100 lbs.	35 00	35 00	35 00
Cheese, California, 100 lbs.	12 00	12 00	12 00
Eggs, 100 dozen	60 00	60 00	60 00
Lard, 100 lbs.	12 00	12 00	12 00
Ham and Bacon, 100 lbs.	12 00	12 00	12 00
Shoulders, 100 lbs.	9 00	9 00	9 00
Retail Prices.			
Butter, California, fresh, 100 lbs.	70 00	70 00	70 00
Do, pickled, 100 lbs.	40 00	40 00	40 00
Cheese, 100 lbs.	20 00	20 00	20 00
Honey, 100 lbs.	25 00	25 00	25 00
Eggs, 100 dozen	15 00	15 00	15 00
Lard, 100 lbs.	12 00	12 00	12 00
Hams and Bacon, 100 lbs.	22 00	22 00	22 00
Granberries, 100 lbs.	75 00	75 00	75 00
Potatoes, 100 lbs.	2 00	2 00	2 00
Potatoes, Sweet, 100 lbs.	2 00	2 00	2 00
Tomatoes, 100 lbs.	2 00	2 00	2 00
Onions, 100 lbs.	2 00	2 00	2 00
Apples, No. 1, 100 lbs.	4 00	4 00	4 00
Plums, dried, 100 lbs.	10 00	10 00	10 00
Peaches, dried, 100 lbs.	10 00	10 00	10 00
Oranges, 100 dozen	10 00	10 00	10 00
Lemons, 100 dozen	10 00	10 00	10 00
Chickens, 100 lbs.	75 00	75 00	75 00
Turkeys, 100 lbs.	75 00	75 00	75 00
Soap, Castile, 100 lbs.	13 00	13 00	13 00

VALUE OF FARM ACCOUNTS.—A correspondent of the *Boston Cultivator* writes that since he first began to keep careful farm accounts he has cleared double the money, which he had before—which increase he ascribes mainly to this practice named.

Household Reading.

How to buy Meat.

The following hints on buying meat for the table will be found worth hearing in mind. They should be read over and over until the facts are familiar. Then go to the butcher's and practice upon, and verify what has been learned. When once fairly fixed in the mind, by practical examination, they will never be erased:—

BEEF.—In buying beef, the finest grained is the best; the flesh should be light red, and the fat a light cream color, but not yellow—it should also be hard and firm. Ox beef is best, and the animal should be about five or six years old. Heifer and cow beef may generally be known by its being a little paler than that of the ox. The meat of an old animal is dark red, and the fat skinny and tough. If the meat rises quickly when indented with the finger it is good, otherwise not.

MUTTON.—The lean of good mutton is somewhat darker than that of beef, and the fat whiter. Old mutton is darker than young, and when fat and juicy is better—say up to four or six years of age.

LAMB should be pale red and fat.

VEAL should be of a light color, with plenty of fat, especially about the kidneys. The flesh should be drier than beef, and finer. If coarse grained, moist or clammy, reject it. Veal should not be over ten or twelve weeks old. It is less healthy than either beef or mutton.

PORK, if ever brought to the table, should come from an honest butcher, and should be examined by the buyer with close scrutiny. It is never a healthful meat. The skin of pork should be thin and smooth and white, and the flesh both lean and fat, should be firm. The lean should be a light red. If it feels flabby or clammy it is not good. Examine it close for kernels or hard bunches; if any such thing is found have nothing to do with it. There is more diseased pork sold than of all other meat together, and it is bad at the best.

Meat of any kind—flesh, fowl or fish, after being brought to the house should be wiped clean and dry with a dry cloth, and carefully examined for fly-blows, if in the season of flies. If a loin piece be purchased, take out the long, white, marrow-like string which is usually exposed by the side of the bone. It will become tainted in less than half the time required for other portions of the meat, and if allowed to remain, will effect the entire joint.

POULTRY.—A very correct judgment can be formed of the age of a fowl by the state of its legs. If the scales are rough it indicates age. If the under bill is so stiff that you cannot bend it down, or if the comb is rough, or the spurs hard, you certainly have hold of an old fowl. The legs of a young hen are smooth, glossy and fresh-colored, whatever the shade may be; the claws are also tender and short, the under-bill soft and comb thin and smooth.

An old hen turkey has rough scales on her legs, callosities on the bottom of her feet, and long, strong claws. A young one has the reverse of all this. In all kinds of poultry the breast should be broad and plump, the feet pliable, and the toes easily broken when bent back. Young and tender poultry may also be judged by pressing the lower end of the breast bone: if it yields readily to the pressure, it is not old.

A tender goose or duck may be determined by raising the wing; if the skin tears easily the fowl is tender. If you can easily insert the head of a pin into the flesh of a goose or duck it is tender and young. The strength of the joints of the legs and the coarseness of the skin generally is a good guide in buying a goose or duck. Such a test is also more or less applicable to all other fowls.

FISH.—In purchasing fish, care should always be taken to have them perfectly fresh. To know whether it is or not, aside from the smell, observe the eyes—if they have a bright, life-like appearance the fish is fresh; but if they are sunken and dark colored, or have lost their brilliancy, the fish is too old for a good fry or bake. If the dealer is honest, the buyer may judge by the redness of the gills; but some fish-mongers knowing this will color them to deceive their customers. But they can't paint the eyes—look at them.

Our readers, after carefully studying the above directions, need never be deceived in the character of the meat which they buy.

Don't Eat Without an Appetite.

It is wrong to eat without an appetite; for it shows there is no gastric juice in the stomach, and that nature does not need food; and, not heeding it, there being no fluid to receive and act upon it, it would remain there only to putrefy, the very thought of which should be sufficient to deter any man from eating without an appetite for the remainder of his life. If a tonic is taken to whet the appetite, it is a mistaken course; for its only result is to cause one to eat more, when already an amount has been eaten beyond what the gastric juice supply is able to prepare.

The object to be obtained is a larger supply of gastric juice, not a larger supply of food; and whatever fails to accomplish that essential object, fails to have any efficiency toward the cure of dyspeptic diseases. The formation of gastric juice is directly proportioned to the wear and waste of the system, which it is to be the means of supplying, and this wear and waste can only take place as the result of exercise. The efficient remedy for dyspepsia is work—out-door work—beneficial and successful in direct proportion as it is agreeable, interesting and profitable.—*Hall's Health by Good Living.*

Hints About Housekeeping.

We give to intelligence, to religious and to all virtues, the honor that belongs to them. And still it may be boldly affirmed that economy, taste, skill and neatness in the kitchen have a great deal to do in making life happy and prosperous.

Nor is it indispensably necessary that a house should be filled with luxuries. The qualifications for all good housekeeping can be displayed as well on a small scale as on a large one.

A small house can be more easily kept than a palace. Economy is most needed in the absence of abundance.

Taste is as well displayed in placing dishes on a pine table, as in arranging the folds of a damask curtain.

Skillful cooking is as readily discovered in a nicely baked potato, or a respectable Johnny cake, as in a nut brown sirloin or a brace of canvas-backs.

The charm of good housekeeping is in the order of economy, and taste displayed in attention to little things has a wonderful influence.

A dirty kitchen and bad cooking have driven many a one from home to seek comfort and happiness somewhere else.

Corrupt Blood.

The commonest scratch of a pin on the hand of a man whose blood is corrupt, will not get well for months; if the skin is abraded or scraped off by a misstep or other accident, a running sore is sometimes established for life, it is because the blood is bad; it is poor, too thick, and even poisonous.

Persons have poor blood when it is observed that scratches and cuts and bruises are a long time in healing, and this should be a friendly warning to correct that condition of things, because it shows there is but little vitality, little stamina, and disease of some kind is impending, especially of the typhoid type, and recovery will be slow, doubtful, and in many cases not possible.

The first step to be taken in all cases, to get rid of bad blood, is to spend a large portion of daylight out of doors in remunerative labor or agreeable employment, or in journeying, on horseback being the best; this helps nature to work the bad blood out of the body, and at the same time gets up a good appetite and a vigorous digestion, which makes pure blood supply the place of the bad, and the man is well without an atom of medicine or a dollar's expense.

HOW TO BOIL TOUGH MEAT TENDER.—Alexander Forsyth—who besides being an original genius, was once a pupil of Louis Philippe's head cook—says that while tough and lean meat is made tougher and leaner by being boiled in water, it may be made tender, and have the requisite fattiness applied, by being boiled in suet or other fat. He says that a thin lean strip of beef, of the toughest and cheapest character, may be rolled into a cylinder-shaped mass, bound with cords, and boiled in suet, in a small vessel of nearly its own size and shape (so that but a small quantity of the fat will be needed), and thus made fat, tender, delicious, and fit for an epicure. The experiment is simple, easily tried in any kitchen, and it looks promising. Fatty oils boil only at from 600° to 700° F.; while water boils at 212°. The same result is attained by boiling in oil that would be reached by boiling in water under great pressure, as in a steam-boiler.

Household Receipts.

SOUP WITHOUT MEAT.—Pare and slice four onions and eight potatoes, and put them in a kettle with six quarts of water. While they are boiling, toast a few slices of bread, which, when toasted, butter and lay in a soup dish. When the potatoes and onions are well cooked, season well with salt and pepper, pour over the toast and serve hot.

EGG CRACKERS.—Four eggs, one-half cup of butter, one coffee cup of sweet milk. Mix quite stiff. Pound the dough ten or fifteen minutes. Have all the ingredients cold. Bake three quarters of an hour in an oven nearly as hot as for bread. Cut them into small cakes one-half an inch thick.

RAISIN CAKE.—One pound of flour, one pound of sugar, one-half pound of butter, half-pint sour cream, five eggs, one and a half pounds of raisins, one nutmeg, and one heaping teaspoonful of soda.

CHOCOLATE CARAMELS.—Put in a saucepan, over the fire, one cup of ground or crushed chocolate, one cup of common molasses, one cup of milk, and a piece of butter as big as an ordinary hen's egg; stir all the time while boiling. Try it in cold water; if it hardens, it is done.

ANOTHER.—One cup of sugar, one cup of molasses, one cup of cream, one cake of chocolate, one tablespoon of flour, half bottle of vanilla. Boil half an hour.

ICING FOR CAKE.—For a large cake, sift a half pound of white sugar, with four spoonfuls rosewater, and the whites of two eggs beaten and mixed well, and when the cake is about cold, dip a feather in the icing and cover the cake. Set it away in some dry place.

Mechanical Items.

TO PREVENT ESCAPE OF GAS FROM INDIA-RUBBER TUBING.—India-rubber tubing is slightly permeable to gas. The amount which escapes through the walls of the tube is, however, very small, it may be advisable sometimes to render an escape impossible. This can be done by giving the tubing a thin coating of a varnish made by dissolving one part and a half of treacle and two parts gum arabic and seven parts of white wine and 3½ of strong alcohol. The treacle and gum must be first dissolved in the beer or wine, and the alcohol must be added very slowly, constantly stirring the strong mixture, or the gum will be thrown down.

PERMEABILITY OF CAST IRON BY GASES.—When stoves are red-hot, the gases of combustion leak through their pores like water through a sponge. This is one of the chief causes of the unhealthiness of rooms thus heated.

JAPANESE CARPENTERS are ingenious workmen, and their work is done with marvelous neatness. A curious feature of their houses is that they do not contain a single nail, all of their joints and timbers being dove-tailed together by many ingenious devices; and the whole work, even the rafters, is as smooth as if it had been polished down with sand paper.

The steam power employed in this country is equal to 130,000,000 of men, but that of Great Britain is superior, being equal to 400,000,000 of men.

DIAMONDS ON WINDOW GLASS.—Dissolve a sufficient quantity of dextrine in a concentrated solution of sulphate of Magnesia, sulph. of zinc, sulph. of copper, or any other salt; strain, paint over the panes quite thin, and let dry at common temperature (very slow), keeping the panes level. This coating can bear some rubbing. In order to protect it the better, varnish with any alcoholic varnish. The panes look like being incrustated with diamonds, sapphires, &c., according to the color of the salts.

HOW TO DEODORIZE TANNIN.—The peculiar odor given off by commercial tannin is caused by a greenish colored resin which it contains. This resin may be removed by the following process: Dissolve six parts of tannin in 12 parts of hot water; then add about one part of ether and shake vigorously. The mixture will appear cloudy and greenish; but after standing a few hours, the greenish matter separates into coagulated flakes. The fluid may then be filtered and evaporated to dryness, and the tannin thus produced will be perfectly odorless.

WOODEN CARPETS are now being used in preference to oil-cloths for the sake of greater neatness, cleanliness and its lower price.

ICE BOXES should always open at the top instead of from the side, as the passage of warm external air is facilitated by the latter mode.

Life Thoughts.

IDLENESS has no advocate, but many friends.

FANCY runs most furiously when a guilty conscience drives.

NEVER sigh over what might have been, but make the best of what is.

THERE is in this world no unmixed evil. **RELIGION** is not mere sentiment. It is a vital experience of the heart, a resolute exercise of the will, a heroic service of the life.

DAILY NOT WITH EVIL.—If you have been tempted to evil, fly from it; it is not falling into the water, but lying in it, that drowns.

HATRED AND LOVE.—The deadly weapons of hatred must be blunted and entirely changed by the mild, strong hand of love.

HOW TO WIN HAPPINESS.—To rejoice in the happiness of others, is to make it our own; to produce it, is to make it more than our own.

FORGIVENESS.—The brave only know how to forgive. Forgiveness is the most refined and generous pitch at which virtue can arrive. Cowards have done good and kind actions; cowards have fought, nay, sometimes even conquered; but a coward never forgives. It is not his nature.

POLITENESS may prevent the want of wit and talent from being observed; but wit and talent cannot prevent the discovery of the want of politeness.

THE HUMBLE SOUL is like the violet, that grows low, hangs the head downwards and hides itself with its own leaves; and were it not that the fragrance of his many virtues discovered him to the world, he would choose to live and die in secrecy.

A Golden Thought.

A more beautifully expressed thought than the following is rarely met with in the current literature of the day:—

Nature will be reported. All things are engaged in writing their own history. The planet and the pebble go attended by their shadow. The rolling rock leaves its scratches on the mountain side; the river its channels on the soil; the animal its bones on the stratum; the fern and leaf their modest epitaph in the coal. The falling drop makes its sepulchre in the sand or atone; not a foot steps into snow or along the ground, but prints, in characters more or less lasting, a map of its march—every act of the man inscribes itself on the memories of his fellows, and in his own face. The air is full of sound—the sky of tokens; the ground is all memoranda and signatures, and every object is covered over with hints that speak to the intelligent.

The Sexless Soul.

The following, which lately emanated from the pen of MacDonald, is one of the most beautiful thoughts which has been born of the newly inaugurated discussion upon the Women's suffrage question:—

Suffrage is not a question of color, but of sex. And what is sex? An ordination of nature for the perpetuation of the human race, relating only to the perishable body, and not to the immortal soul. The imperishable soul has no sex; the everlasting mind has no sex; the angels and arch-angels have no sex, and that distinction is unknown among the viewless throng that march the causeways of the air; for it is unnecessary where there is neither birth nor death, neither marrying nor giving in marriage, and where no soul was ever divorced from the bosom of its love. It is not a slave-like body that votes; it is not the piece of paper that bears the inscription; but it is the absolute human will, the great, the God-like, indestructible, sexless soul—that which is to live on and on after the last star shall have expired and departed from the desert heavens.

HOLD ON!—Hold on to your tongue when you are just ready to swear, lie, or speak harshly, or say improper words.

HOLD ON to your good name at all hazards for it is of more value to you than gold, high places, or fashionable attire.

HOLD ON to the truth; for it will serve you well, and do you good throughout eternity.

HOLD ON to your virtue; it is above all price to you in all times and all places.

HOLD ON to your good character; for it is, and always will be, your best wealth.

HOLD ON to your temper when you are angry, excited, or imposed upon.

Scientific Press.

W. B. EWER,..... SENIOR EDITOR.

DEWEY & CO., Publishers.

A. T. DEWEY,..... GEO. H. STRONG,
W. B. EWER,..... JNO. L. DOONE.

Office, No. 414 Clay St. below Sansome.

Two Editions.—We now issue a mining edition and a farming edition of the Press. The difference consists in changing the reading matter of the 6th and 7th pages [All advertisements appear in both issues, affording an immense circulation.] Subscribers will please notify us if they do not receive the edition they prefer. Both editions furnished to one address for \$7 per annum.

San Francisco:

Saturday Morning, Dec. 3, 1870.

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Gold and Legal Tender Rates.

San Francisco, Thursday, Dec. 1, 1870.—Legal Tenders buying @90%; selling @91%. Gold in New York to-day 110%.

NARROW GAUGE.—Mr. D'Aligny, one of the U. S. Commissioners to the Paris Exposition, writes to the *U. S. R. R. and M. Register* that we shall soon have a number of branch roads in the U. S., on the 2 ft. 6 in. gauge, for the general transportation of minerals, freight and passengers. The first one contemplated is to be built this winter to connect the Iron Hill mines with the Eastern Kentucky railroad. The U. S. Narrow Gauge R. R. Co. is being organized for the same purposes as the company lately incorporated in this State. At present the company expects to build branches or feeders to main trunk roads, but the writer is convinced that ere long many through single roads will adopt the narrow gauge. He says: The economy of the construction and equipment of a narrow gauge road, 2 feet 6 inches, is immense when compared with the cost of a road 4 feet 8½ inches. For a single track it is 50 per cent. over an ordinary flat country, but in mountainous or mining districts the proportion increases to 75 per cent. and more. In fact, a narrow gauge road can be established and will prove a paying concern in countries so rough that no attempt would be made to construct a road of the usual 4 foot 8½ inch gauge. I am aware that many arguments are now brought against the narrow gauge roads by people accustomed to a certain routine in railroading. But I close these hasty remarks by saying that within a very short time the standard narrow gauge roads will accomplish a revolution in our railroad system in the United States.

C. P. R. R.—During October, there passed over the Central Pacific Railroad 26,074 passengers bound east, and 28,450 bound west. The number of through passengers both ways was 5,175; of way passengers 48,875; free, 474; total, 54,524.

THE FIRST RAIL OF THE STOCKTON AND COPPERPOLE RAILROAD was laid at Stockton on the 29th ult.

TOANO.—The new road from Toano to Boise City, 130 miles long, is now completed.

Treating Silver Ores in Mexico.

Mr. E. B. Smith, who has had charge for seven years of the Pittsburg and Sonora M. Co., of Sonora, Mexico, has recently called on us, and from his account we are enabled to make some statements on the treatment of ores as there practiced, which will interest many.

The works are situated on the Yaqui River, about 140 miles back of Guaymas. The company work three mines,—the Ramona, La Dura and Grijola, and their lowest workings are some 250 feet below the surface. The average width of the ledges is about 12 inches. The gangue is quartz. The ore has given considerable difficulty, containing, besides the silver, large amounts of lead, copper and zinc. It will average about \$125 to the ton. The mill, of 8 stamps, is about a mile from the mines.

Amalgamation failed to give satisfactory results. Only about 50 or 60 per cent of the silver was extracted, and the hullion was very base. Next chlorination and lixiviation was tried, and after a number of experiments, in which several ways were given up, some merely on account of the great difficulty and expense of obtaining the necessary chemicals, the following process was adopted with success.

The ore is first crushed under the stamps. Crushing very fine has been found to give poor results besides costing more than is necessary. If the ore is very fine, the water filters through too slowly and the process is more objectionable in several respects than when the rock is coarse. That passed through a No. 30 screen chlorinates as well as the finer, and filters better. Even this seems too fine at times, and a No. 24 screen is to be tried hereafter.

The crushed ore is roasted with salt in a long reverberatory furnace with 3 hearths or floors, raised 4 inches higher than the next preceding. Plans of a similar furnace are given in the Press of July 2nd, of this year. The furnace has a total length of 30 feet and a width of 10 feet. It has been found necessary to have the arch at least 26 inches above the floor of the lowest hearth, in order to get sufficient heat in the upper without melting the ore on the lowest one. The roof may, perhaps, be inclined downwards as it extends over the higher hearths with advantage. A charge is 800 lbs for each hearth, and this amount is drawn out every two hours. From 8 to 12 per cent of salt is used according to the character of the ore; and 5 men are employed during each shift of 12 hours.

Brückner cylinders were tried here at a former day. They were very poorly constructed and were at first revolved too rapidly. Mr. Smith took them in hand, however, rebuilt them, ran them very slowly, from one revolution in one minute to one in five (and he thinks the last preferable), and obtained good results. But a flood, two years ago, destroyed the company's works and carried away the cylinders, which have never been replaced.

The roasted ore is cooled and dampened, so that it will "ball" in the hand. This causes it to swell and act better in the following process than if put in dry. It is then put, in charges of 3 tons, into tanks 9 feet long, 4 ½ feet wide, and 30 inches deep, with the bottoms sloping to a point to facilitate the exit of all the liquid. There is a false bottom of slats, covered with coarse cotton sheeting, which serves as a filter. Water is now put into the tanks and this dissolves the chlorides of the base metals, copper, lead, zinc, etc., without touching the chloride of silver. When a test shows that the base chlorides have been removed, a solution of hyposulphite of lime is added, in which the chloride of silver is soluble, until all the precious metal is removed.

The solution is now led into precipitating tanks where sulphide of calcium is added until all the silver is thrown down as a sulphide. In the mean time this reaction changes the sulphide of calcium into hyposulphite of lime, which is used over in the leaching tanks. The silver sulphide is

strained and pressed in canvas bags, and dried and roasted in a small reverberatory furnace. As some sulphur still remains, it is melted in crucibles with scrap iron, and now yields bullion from 900 to 950 fine.

The sulphide of calcium is manufactured by boiling, with steam, pulverized sulphur (40 per cent) with lime (60 per cent) in an (iron) vessel partly filled with water. The hyposulphite of lime is obtained, when it is required fresh, by precipitating the base chlorides from their solution by the sulphide.

By this treatment from 85 to 90 per cent of the silver is obtained from the ore, whether rich or poor. The cost of treatment, with 8 tons treated daily, is not over \$15 per ton. To one ton of rock about 20 lbs. of sulphur and 30 lbs of lime are used. In 24 hours, 10 men are employed at the furnaces, 4 on the tanks, 2 as battery-feeders and 2 as firemen, with 2 engineers, 2 foremen of the tanks and furnaces and 1 overseer. Wood costs about \$3 per cord.

The hullion is sent to the mint where the coinage charges amount to about 5 per cent and counting the duty of 8 per cent shipment etc., the charges from the time the bullion leaves the mill until it arrives in San Francisco, amounts to about 15 per cent. Mr. Smith has had complete charge of the works since they were started, and to his energy and ability their success is almost entirely due.

The Roberts' Ditching Machine.

The California Peat Company, owners of this machine, have been experimenting with the ditching portion (i. e. without the pulping apparatus) on Twitchell Island. A committee appointed to examine the working of the device, has lately made a report to the company, which, at our request, has been furnished us for publication. One of the committee, Mr. Bowers, whose name is signed to the report, is probably as well qualified as any one in the State to judge of the merits of such a machine, being himself an inventor and familiar with all the ditching, dredging and excavating apparatus now in use. Having two applications for patents for machinery intended for similar work now pending through our agency, he would not be likely to over-rate the merits of a rival machine:

To the Trustees of the California Peat Company:

GENTLEMEN:—The following unsolicited editorial notice of the ditching machine belonging to this company, appeared in the *Alta California* of the 22d instant:

"The Roberts' Ditching Machine, invented in Wisconsin, and improved here, has lately been used on Twitchell Island, where it cut a ditch six feet wide, three and a half feet deep and thirty-two feet long, in seven minutes. W. C. Walker who has superintended much of the tule reclamation, considers the machine a success, and thinks that with its aid, he can make tule embankments that shall not cost more than seven cents per cubic yard."

At about the same time, the company received notice from the owners of Twitchell Island, that their lands were sufficiently dry without further ditching. Thereupon, and in consequence of said editorial and notification, and at the request of Mr. Roberts, the undersigned were appointed a committee to examine and report upon the machine before its removal from the Island, and to make such suggestions as we might deem conducive to the welfare and success of the company.

Having obtained permission from the owners of the Island to run the machine for a short distance, we went there for the purpose of seeing it in actual operation.

We found the machine in ground of the most unfavorable description, consisting of a perfect net-work or matting of coarse, tough grass-roots, of unknown depth, but of undiminished toughness six feet from the surface. We learned from gentlemen of extensive experience in tule reclamation, that no more unfavorable ground could anywhere be found in the tule except in places covered with brushwood or timber, where it was never designed to operate the machine. This is the uniform testimony of persons of experience in the matter consulted by your committee, and accords with the personal knowledge of a portion of the committee familiar with nearly all the reclamation work in the State. The machine is so geared that each bucket cuts one inch in advance the whole width and depth of the ditch. Upon the side of each bucket, knives are so arranged as to cut this slice into narrow ribbons or strips. A slice (cut by one of the buckets from which the dividing knives had been removed) one

inch thick, six feet long, and about four feet wide, was raised by the edge without breaking, by one of your committee, which sufficiently illustrates the toughness of the ground. This slice presented very much the appearance of a heavy, wet door-mat or rug. Under circumstances so unfavorable, the machine ran an average of three feet five and one-seventh inches per minute, cutting a ditch six feet wide and four feet deep, depositing the dirt in an embankment some distance from the side of the ditch, and leaving it in a firmer and more compact form than that of the adjacent levee constructed by hand labor, and consolidated by the settling of more than a year; showing that levees constructed by the machine will be capable of greater resistance to the action of water, and much more valuable than those constructed by hand. The cutting apparatus is adjustable so as to cut a greater or less depth, and by repeating the cut any desired width may be given to the ditch, and any desired elevation to the embankment. The machine was originally much stronger than our heretofore constructed by Mr. Roberts, four of which have been put into successful operation, but when first put up, it proved inadequate for such heavy work, and constant breakage attended each firing up, until the requirements of the case were gradually ascertained and provided for; and the machine, as it now stands, is a fitting monument to the energy and perseverance of the inventor. Nevertheless, the experience of the past summer and the present workings of the machine have suggested to the inventor certain alterations and improvements, which your committee regard as of the utmost importance. They will cost from one to two thousand dollars, and, it is confidently believed, will more than double the working capacity of the machine. We therefore recommend that a portion of the unsold capital stock be disposed of for this purpose at double the original price,* and that when this has been done, that no more stock be sold except to the men employed by Mr. Roberts, who are anxious to receive stock instead of cash in payment for their labor; and that any further expenditures for machines, peat beds, etc., be met from the earnings of the machine. We also recommend the Trustees to advertise for contracts, and in view of the early income reasonably to be expected from the earnings of the machine, we recommend that steps be taken to secure desirable peat beds and to construct peat machines to be put in operation as early next spring as the weather will permit, believing this, the legitimate business of the company, to promise even better results and profits than that of ditching and diking.

A. B. BOWERS, C. E.
H. J. FAINE,
E. R. HAWLEY.

San Francisco, Nov. 25, 1870.

*This recommendation arose from a misunderstanding on the part of the committee. The capital stock can be disposed of only at par, payable in instalments, no one of which shall exceed five per cent. on the par value; and no second instalment can be called for until the whole stock has paid the first five per cent. A large portion of the stock now offered has already been engaged by the purchasers of the first stock sold.

SALT LAKE EXCHANGE.—We are indebted to Mr. B. Fabian, Secretary of the institution, for a copy of the by-laws of the Salt Lake Exchange and Reading Rooms. The object of the Association are those of News and Reading Rooms, receiving the latest despatches and news, providing periodicals and other publications, collecting ores, etc., and adopting other measures and resources for the benefit of the community. To visitors the institution will prove a very pleasant place of resort, and to residents a most valuable one.

STOOD THE TEST.—Passing by the California Tool Works, on Beale street, our attention was called by Mr. Weichhart, the proprietor, to a fire-proof safe blackened and damaged on the outside, but well preserved internally. We were informed that this safe was owned by Messrs. Miller & Haley, and had preserved their books and papers in good order during the great fire on Fremont street, last October. The safe was built by Mr. Weichhart, at his works in this city.

OAKLAND is to have a foundry.

Patents and Inventions.

Full List of U. S. Patents Issued to Pacific Coast Inventors.

(FROM OFFICIAL REPORTS TO DEWEY & CO., U. S. AND FOREIGN PATENT AGENTS, AND PUBLISHERS OF THE SCIENTIFIC PRESS.)

FOR THE WEEK ENDING NOVEMBER 22d.

ROPE HOLDER.—Cornelius Weygant Huson, French Corral, Cal.

SEWING THIMBLE.—Albert H. Law, San Francisco, Cal.

HALTER FOR HORSES.—Augustus Le Plongeon, San Francisco, Cal.

GENERATING GAS FROM HYDRO-CARBONS.—James R. Smedburg, San Francisco, Cal.

DEVICE FOR EXHIBITING PHOTOGRAPHIC PICTURES.—Albert G. Walton, San Francisco, Cal.

APPARATUS FOR COLLECTING PRECIOUS METALS.—James T. McDougall, San Francisco, Cal.

YERBA SANTA.—A. McDermott, Oroville, and Redington, Hostetter & Co., San Francisco, Cal.

NOTE.—Copies of U. S. and Foreign Patents furnished by DEWEY & CO., in the shortest time possible (by telegraph or otherwise) at the lowest rates. All patent business for Pacific coast inventors transacted with greater security and in much less time than by any other agency.

Notices of Recent Patents.

Among the patents recently obtained through Dewey & Co.'s Scientific Press American and Foreign Patent Agency, the following are worthy of mention:

STAMP BATTERY.—F. D. Crocker, Virginia City, Nevada. Hitherto the common stamp battery has enjoyed a higher reputation among mill-men than any other. There have been very many improvements made in the details of construction, which are very evident from an inspection of those made a number of years ago, and those now turned out by our foundries. But the general features, the form, manner of raising the stamps etc., remains about the same. Mr. Crocker, however, after studying this matter in its practical bearings for years, and after having held positions which gave him the best opportunities for viewing the subject in all its bearings, has adopted an entirely new style of stamp. His method consists, briefly described, in constructing his stamps so that they can be operated on the principle of the trip-hammer. Tappets on a horizontal cam-shaft in their revolutions strike, and depress, the short arms of levers, thus raising the stamps attached to the end of the long arms; and as these tappets leave the lever arm, the weight of the stamps causes these last to fall on and crush the ore. The force of the blow is increased by springs which tend to throw up the short lever-arms, under whose extremities they are placed. Thus is obtained, it is claimed, a greater crushing capacity with the important item of a less expenditure of power, than is accomplished in the usual methods.

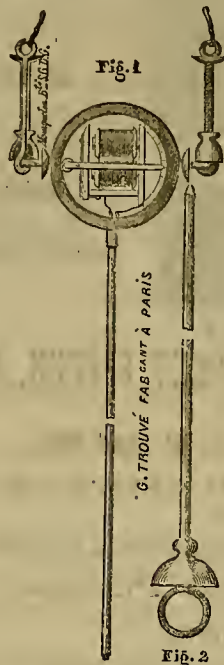
HYDRAULIC NOZZLE.—T. Watson, Nevada City, Cal. The improvement in hydraulic mining is partly due to improved apparatus and is partly the cause of the improvement of such apparatus. The latest device in this direction is the invention here spoken of. The claims here are two in number, viz: the improved manner in uniting the two sections of a hall and socket joint so that the pressure of the water will tend to separate rather than close the joints; and the devices here used for retaining these sections in position. The arrangement is such that the pressure is transferred from the joint to slides, and to an inverted plane on which the slides move, and the invention has been highly praised by a number of parties who have tested it. The nozzle is manufactured by the Nevada Foundry.

SHOE FASTENING.—H. T. Lee, Marysville Cal. Those who are fond of getting up estimated statistics, may, perhaps, derive some amusement from calculating the amount of time annually lost in tying shoe-strings, and the amount of power wasted in uttering expletives when these strings break, as they will persist in doing at just the wrong moment. They can then possibly express, in hours and foot-pounds, the gun which would inure to the world if Mr. Lee's invention were universally adopted. This invention consists in riveting to one leaf of the shoe (over the instep) a set of spring studs, which are forced into corresponding eyelet holes in the overlapping leaf, and which thus hold the two leaves firmly together. The device is most simple and ingenious, and we recommend it to the attention not only of lovers of computed statistics, but also to those of a more purely practical turn of mind,—to the attention, in short, of everybody.

The Electric Probe.

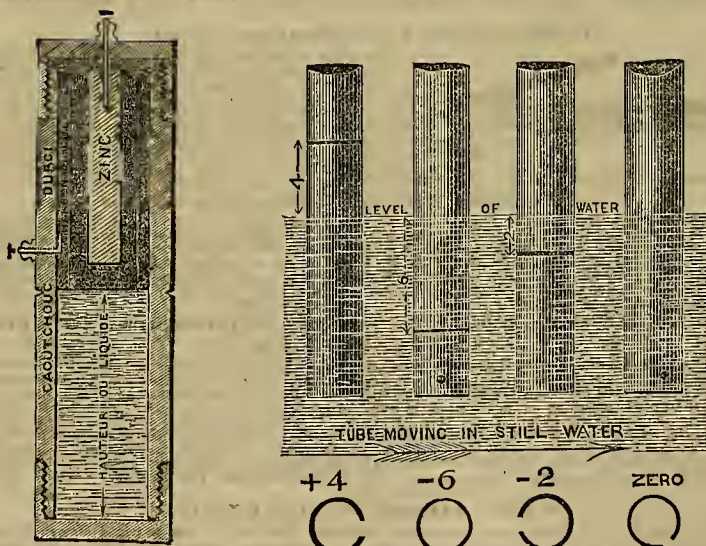
We have previously alluded to an ingenious method, invented by M. Trouvé, of Paris, to discover the locality of a bullet or other metallic substance in a wound,—often a matter of considerable difficulty. The *Am. Artisan* having illustrated the apparatus, we make use of the figures and matter in the present article.

Employing electricity in this way had been previously tried by Prof. Favre, of Marseilles, but not always with satisfactory



results. M. Trouvé then took up the matter, and is said to have rendered it capable of practical use. He bases his method on the principle that when water is subjected to a current sufficient to decompose it, it will not move the indicator of an induction apparatus, as it will not constitute a sufficiently good conductor.

Fig. 3.



The probe consists of two stylets of steel, silver, or platina, that are varnished to insulate them from each other, and are enclosed in a silver case so arranged as to permit only their points to project, and which is itself furnished with a pipe resembling the nozzle of a syringe. The two stylets are in communication with the poles of a battery of sulphate of mercury, so that the circuit is formed whenever a metallic conductor is interposed and in contact with the two points of the stylets. This sets in motion the indicator, which is so arranged in connection with suitable mechanism as to sound or make an audible noise when thus acted upon. As the indicator is inclosed only by glass so that it may be seen, there are three distinct indications given when the bullet or the like is touched, viz: that given by the sense of touch and those afforded by the indicator to the eye and ear.

The pile or battery employed is shown in Fig. 3. The casing is made of hard rubber

lined with carbon. The zinc element is suspended in the top of this case, and is of such length that when the battery is in a vertical position, as when not in use, the zinc will be kept out of contact with the exciting liquid. This latter consists of bisulphate of mercury dissolved in four or five times its weight of water. When the apparatus is to be put in operation, the case is simply laid in a horizontal position, which, by bringing the liquid in contact with the zinc, produces the requisite current.

In order to avoid the non-working of the device, which in some cases might result from the oxydation of the surface of the bullet or other body, or the interposition between the same and the stylets of muscular or other tissue, either of which would act as a non-conductor, the points of the stylets are made sufficiently sharp to pierce such interposing material, and thereby secure the completion of the circuit and consequently the operation of the probe. In some instances, where the wounds are of a sinuous character, the stylets are made flexible and inclosed within an india-rubber instead of a metallic sheath.

The engravings, as well as the description, are taken from our excellent French contemporary, *La Propagation Industrielle*.

The Berthon Log.

One of the most interesting of the varied apparatus for measuring the velocity of ships is the Berthon Log, a device which is said to have successfully stood the test of twenty years' hard service, which is different from all other means employed, and which involves a unique application of obscure scientific principles.

In its earliest form, this consisted essentially in a small tube, passed through the keel of the ship at or about midship. At a distance of a few inches from the keel a small aperture is made in one side of this tube. The tube is carried up into the captain's cabin, or any other convenient place; there it is turned over and united to one leg of a siphon tube inverted, and containing mercury. A motion of about $1\frac{3}{4}$ inches in the column of water will cause a motion of about 1 inch in the column of mercury. When the ship goes ahead, the water forces its way into the tube, and affects the gauge, marking the speed of the ship as in the former case; and through this

scale could be set to this, and then, on the pipe being returned to bring the side aperture ahead, a correct reading would be at once obtained of the speed of the ship. It was concluded that the neutral position would be that in which the aperture was turned exactly at right angles to the keel of the ship.

In actual trial, however, the following results occurred: "With the aperture directly ahead, the column of mercury actuated by the column of water stands 4 inches above zero. When the aperture is turned directly astern, the column of mercury falls 2 inches below zero, or 6 inches lower than when the tube is in the first position. When the aperture is turned to the side, that is to say, into just the position where we would expect to find the motion of the ship powerless to affect the height of the column of mercury, there is absolutely the maximum effect produced, the column being lowered not less than 6 inches below zero, or 10 inches lower than when the aperture is right ahead. But the most extraordinary circumstance of all is that the zero angle is apparently constant for all circular tubes, and all shapes of aperture and all speeds, being invariably 41 deg. 30 min."

Why this is so is a subject for discussion, and to illustrate the nature of the problem *The Engineer* has published the engraving which we have here transferred from the *American Artisan*, and invites consideration upon several points in the following language:—"Why should the figures given bear to each other the relation of 2, 4, 6? Why should the action be more powerful while the orifice is turned abreast of the current than in any other direction? And why should the angle of 41 deg. 30 min. be the zero position? Those who address themselves to these excessively interesting questions—questions which are intimately connected with the laws of induced currents—will do well to bear in mind that the laws we have laid down are stated to have been ascertained and confirmed by many thousand experiments conducted on board Channel steamers and her Majesty's ship *Danvers*. They are not the result of theoretical deduction, but of practical tests. We are not aware that any attempt to explain the relations existing between a column of water within a tube and an outside current—communication being established by suitable orifices—has ever been made; but we think these relations deserve the attention of those interested in ejection-condensers, injectors, induced-current dredgers, hydraulic propulsion, etc."

MONTANA MINERALS.—The following is from the *Missionary Pioneer*, in reference to the existence of quicksilver in the Coeur d'Alene mountains, and is of interest, but we wish the paper had not added the assertion of Gen. Meagher, which is about the tallest story we have met with lately: Father De Smeth, whose name is familiar to most of our readers, seemed to be positive, at the time the assertion was made, of the existence of cinnabar, in the Coeur d'Alene mountains; and Lieutenant Lander, while passing through the same mountains, found cinnabar croppings, and located the precise spot on a map. Researches made afterwards, by parties now in Missoula, were without result; but as Lieutenant Lander is well known as a scientific man, and a mistake with him not likely to occur, we hope that future investigations will prove more successful. In the year 1866, General Thomas Francis Meagher traveled through the Coeur d'Alene mountains, and on his return assured us that he had seen great quantities of lead ore (galena), and some places where even the mountain sides were covered with metallic lead, which the reducing blast of forest fires had produced from the outcroppings.

A RICH PLACER.—According to the *New Northwest*, Pilgrim Bar, Montana, has yielded during the season \$100,000 to Roe, Beery & Co.; \$45,000, upper ground, and \$85,000, lower ground, to Catching, Kohrs & Co.; \$20,000 to Timberlake, Hagan & Co.; and \$75,000 to other parties; making a grand total of \$342,000. The paper adds: The lower Bar, where mining has been vigorously done for the past two years, is not over one-fourth worked, while Gold Hill (upper bar) is yet practically unopened. It is believed to be fully as good as the lower bar. There are therefore good diggings for the next six years.

THE DEEPEST excavation in the United States is a copper mine near Lake Superior. It is 1,300 feet deep.

Our Agents.

OUR FRIENDS can do much in aid of our paper and the cause of practical knowledge and science, by assisting agents in their labors of canvassing, by lending their influence and encouraging favors. We intend to send none but worthy men.

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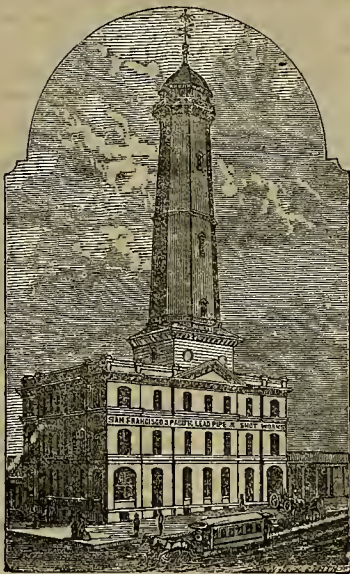
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Mechanic Arts College Lectures.

Prof. Le Conte, in his third lecture, commenced with an eloquent introduction concerning the relations and dependencies of sciences, and their method of progression from the simple to the complex, showing the application of his remarks to the reconstruction of the coal flora in its fullness from the broken fragments presented to the geologist. He then turned more directly to the subject for the evening.

The Flora of Coal.

Of the 2,000 species of terrestrial plants known, about 700 are found in the coal measures. These are found as fronds, as trunks or fragments of trunks, often flattened out as thin as one's hand, between the black shale and the coal seams; often as stumps with bark blackened and turned to coal and the inside filled with what was once mud, now hardened to stone; often as roots in the clay below. In the black slate or roof above, leaves of ferns and other plants are found, frequently perfectly preserved, but often requiring a close examination to detect them, as the black lines in the black rock are not very conspicuous. But when the shale is gray, the black lines are clear and form most beautiful objects. We find these in great numbers, of large size and grotesque forms, as shown in the diagrams (which hung on the walls of the hall).

To give an idea of how nature has progressed always according to immutable laws, and to correct the impression existing among many that the coal period was merely a time of natural irregularities and monstrosities, it is necessary to enter into some of the details of the

Classification of Plants.

The following table gives a view at a glance of the classification of plants:

Plants	Phanogams	Angiosperms	{ Dicotyledons or Exogens Monocotyledons or Endogens
		Gymnosperms	{ Conifers Cycads
	Cryptogams	Vascular Cryptogams	{ Ferns Club mosses Equisets
		Cellular Cryptogams	{ Mosses Lichens Fungi Sea Weeds

The first division is into Phænogams and Cryptogams, or flowering and flowerless, or seed-bearing and spore-bearing plants. There is a great difference between a *spore* and a *seed*. Every one is familiar with the common "puff-ball," which, on being pressed, throws out a cloud of dust. This dust is composed of minute *spores*, or microscopic cells, each of which has the power of reproducing others. But the seed consists not of a single cell, but of thousands of cells aggregated into organs, and each seed contains all the organs of the grown plant, which require only development, not reproduction.

Cryptogams are divided into cellular cryptogams, which consist entirely of cellular tissue, or tissue which when cut shows under the microscope a collection of little cells, and into vascular cryptogams, which consist principally of long tubes, beautifully marked. Phænogams are divided into gymnosperms or naked-seeded plants, where the seeds have no protection, no pods; and angiosperms or covered-seeded plants, where the seeds are inclosed and protected in pods. Angiosperms, again, are divided into dicotyledons, where the embryo has two cotyledons or seed leaves (as the common forest trees); and into monocotyledons, with only one seed-leaf (as palms, bananas, corn).

Determining Fossil Plants.

Now, it will occur to one that this method of classification will not do for fossil plants, where, for instance, we have only a fragment of a trunk. We have here no seed or spore to tell us whether it is a phænogam or a cryptogam, etc. How can we then determine the class to which a specimen belongs? In two ways:—from the structure of the stem, and from the venation, or arrangement of veins, in the leaves.

STRUCTURE OF THE STEM.—Three kinds of tissue can be distinguished in plants:—the cellular, composed of little cells, more or less spherical or polygonal; the vascular, with long tubes, running generally in the direction of the length of the plant and marked with lines or spots; and the woody, consisting of small tubes with thick walls so as to be almost solid. Fig. 1 shows all three kinds, denoted respectively by a, b and c, this figure showing likewise how the three occur in a common hard-wood tree of the exogenous kind.

Now it has been found, as before remarked in part, that cellular cryptogams consist of cellular tissue, and vascular cryptogams principally of vascular, with a little cellular, tissue. In the other plants, the woody tissue predominates.

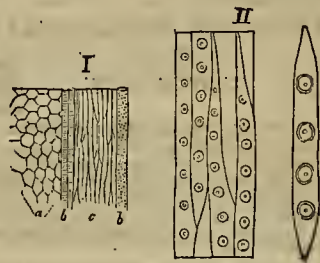
But in dicotyledons (every one has seen this in the case of common trees), a cross section shows always three parts: pith, wood and bark. Again, the wood shows concentric rings, defining the separate layers of wood, formed outside of the preceding, each year that the tree lives (hence the name "exogens," or outside-grow-

ing); it shows also radiating lines (of cellular tissue) extending from the pith to the bark, called pith-rays or medullary rays. From this we can always tell a dicotyledon from other kinds of plants.

A monocotyledon is distinguished, although like the preceding it has all three tissues, from the fact that it has no distinct pith, wood and bark, no concentric rings, no rays; but it has threads of wood distributed throughout the vascular tissue, without any particular order.

Lastly, we find that the gymnosperms have a peculiar tissue. This resembles very much that of the dicotyledons, so much that they are often classed with these. But a distinctive mark is found in the disks which we can see distinctly marked on a longitudinal section. Fig. 11. illustrates this.

VENATION OF THE LEAF.—We have here also three kinds: the reticulated, where from one rib, running along the middle line of the leaf, veins branch off at various points, and from these last, smaller ones run (as in our ordinary hard wood trees); the parallel-veined, where the frame-work consists of slender ribs or veins running nearly parallel with one another from the base to the point of the leaf without dividing or forming meshes (as above), except very minute veinlets (as in corn, grass, etc.); and radiated, where the veins branch off from three to nine ribs, which radiate from the top of the leaf-stalk. Now we find our various classes of plants characterized by the venation of the leaves, as follows:



Cellular cryptogams have no venation. Vascular cryptogams have the radiated venation (as ferns). Of angiosperms, the leaves of the monocotyledons are all parallel veined; those of the dicotyledons are reticulated. In gymnosperms it is rare that we can trace the venation, the leaves are so narrow; but some of the conifers (cone-bearers) which have quite broad leaves, show a radiated venation.

In regard to the gymnosperms, it may be well to say a word or two here, as they are examples of what are called *connecting types*, of which more will be said hereafter. They form a connecting link between higher and lower orders of plants. They are related to the highest, the dicotyledons, in the stem structure, as shown by the distinctness of pith, wood and bark; by the manner of growth indicated by the concentric rings; and by the medullary rays. But they differ in their tissue, which is related to the lower orders, is midway between the true vascular and the woody tissues. They are allied in the lower orders in their naked seeds; for protecting the seeds, like taking care of the young, is a characteristic of the delicacy and complexity of organization. In the venation of the leaves they resemble the lower vascular cryptogams. Hence we place them, not with the dicotyledons in the highest place, as many have done, but below, in the intermediate position in which they belong.

Plants of Coal.

The coal plants belong generally to the five principal families of Ferns, Pines, Lepidodendrids, Sigillariids and Calamites.

Of all these, the ferns occur in the greatest profusion. In the English coal beds alone, 250 to 300 species are found, a larger number than now grow on the British Isles. We distinguish them by the large fronds, the peculiar venation of the leaves and, in the case of tree ferns, (for they often grew up into veritable trees) by the large irregular marks on the trunks, the scars left where the fronds were attached. Ferns have certain characteristics alluding them to higher orders (conifers).

Pines are found as logs which have been drifted on the waters and imbedded in (what is now) the sandstones above the coal seams. Pines grew on the highlands of the carboniferous period. Their fruit is also found. This tree differs from our common pine but is nearly related to certain broad leaved varieties called the Araucariae. They almost always had a very large pith, while the present common pine has a very small one.

While the ferns formed the thick underbrush and the pines the highland plants of the period, the other three families were the huge swamp trees which, by their great number and size, contributed more than all others to form the actual coal seams. And these families were entirely different from any now found.

The Lepidodendrids, "scaly trees," grew up to 4 or 5 feet in diameter, and 40, 50 and 60 feet high. Their trunks were covered with rhomboidal, scale-like markings (whence the name) where the leaves fell off, branched sparingly and had hairy arms with scales, as of the club-mosses, and terminating in club-like shapes. These ends were not cones, as has been thought, but bare spores. The trunks have a ring, a mass of cellular tissue, then bundles of vascular tissue, no wood fibre, but a central pith. They are therefore a connecting type, related to

the higher pines and to the lower mosses.

The Sigillariids grew in tall columns, sometimes with a few large cylindrical branches, sometimes with none, 5 to 6 feet in diameter, 70 to 100 feet high, fluted or grooved from top to bottom, and marked between the grooves with seal-like impressions (whence the name, from *Sigillum*, a seal), in regular rows. Their tops were clothed with long narrow leaves (as in the Lepidodendroids). Their roots, which have been wrongly taken to form a separate class, the Stigmariæ, were large, spread out in all directions, and covered an immense area with their small rootlets, being adapted to hold the tree firmly in the loose swampy soil. In the internal structure they show a great mass of cellular tissue, with cylinders running through the center, but divided into wooden wedges. The microscope shows also a true woody tissue. There is but one tree now growing which resembles them, the cycad, or sago-palm as it is wrongly called. The sigillariids are allied then on the one side with the club-mosses and lepidodendroids (from which last indeed, they sometimes cannot be distinguished), and on the other side with the cycads. They are a connecting type.

The Calamites (from *Calamus*, a reed) have long, slender stems, six inches to a foot or more in diameter, jointed, ribbed and hollow, with leaves at every joint like the equisetum. A section shows true woody tissue. This is then another example of a connecting type.

General Picture—Conclusions.

A general picture of the coal period would show us none of our ordinary hard-wood forest trees, no grasses or palms, no flowering plants, but huge sigillariids with fluted columns and hairy-armed lepidodendroids and the like, while the most graceful plant was the fern; we should see no men, no quadrupeds, no birds, no reptiles except a few of the lowest orders, but great grotesque fishes enveloped in a mail of bony armor and a few insects. No flowers or grassy slopes would enchant the eye, no song of birds charm the ear, no fragrance perfume the air; only the wild wilderness without voice and almost without sound.

The most important philosophical conclusion to be drawn is that all our coal plants are connecting types of classes now entirely different. And this is shown to be general in all things. Nature never introduces at first a typical feature, but always a connecting type. The first fishes were reptilian fishes, often hardly to be distinguished from reptiles. The first great Samarian reptiles were monsters allied to birds and mammals. We find reptiles with two legs and birds with jointed tails. And numberless other examples could be given. Thus nature expresses her thoughts at first in general terms, and afterwards amplifies; first draws the outlines and then fills in the details.

The lecturer proceeded to develop more fully and to illustrate this subject of the universal law of development, the law of differentiation, of increasing difference, of growing diversity. He showed how in the history of animals, of plants, of human society, the first forms were simple and representative of many, and how afterwards there was a gradual process of development and division, leading to greater perfection and to organic unity. Thus, for instance, at first the same temperature prevailed over the whole globe. Gradually the climates of different localities have been changing until the greatest diversity now exists; while such is the unity of the whole that the climate of no one place can be varied without producing a corresponding change in that of all others.

Life Insurance.

During the last quarter of a century, and more especially during the last ten years, the development of life insurance in our country has been wonderfully great. Its growth has been so rapid and so healthy, that this fact alone attests to its beneficial action and to the intelligence of our people. Our excellent cotemporary, the *Technologist*, has given a few figures illustrating the progress made during the last decade in New York. It appears that, in 1859, there were but eight life companies incorporated under the laws of New York; now there are thirty-five. Six companies from other States were then, and twenty-four are now, transacting business there. The gross assets of the New York Companies were \$12,090,815; premiums received, \$2,013,376; losses paid, \$3,591,426; for 1859. In 1868 these were, respectively, \$89,063,961; \$35,691,951; and \$5,553,840. A brief biennial table, compiled from the Massachusetts department reports, gives a view of the growth throughout the Union, among the sound companies making annual returns. The table (which, it should be stated, does not represent a considerable number of companies which do not report at the East) gives the number of companies in 1858 as 14, in 1868, 56; the number of outstanding policies in 1858 as 42,502, in 1868, 548,280; the amount insured in 1858 as \$116,482,156, in 1868, \$1,566,901,509.

These numbers show an astonishing growth. But when we consider the great anxiety of men, exposed so often in our country to great vicissitudes of business, for the future welfare of those dependent on them, and the loss of peace of mind (resulting in diminution of power) occasioned by such anxiety, we can no longer wonder at this growth, nor be blind to the beneficial effect exercised by life insurance. A man who knows that his dearest ones have nothing to fear from want to come, can work with redoubled power. Life insurance, says the journal spoken of above, must be regarded as adding to the wealth of a community, and consequently to the wealth of an individual, to an extent greater than that of stored up treasures; it adds during long years to our power of attaining wealth, and consequently to our wealth itself. It has been said with truth that he who has a family has given hostages to fortune; it may be said with equal truth that he who has effected an insurance on his life has taken hostages from fate.

In California life insurance has had a growth more remarkable, we are tempted to say, than in most any other place. Indeed, there has been some trouble in overdoing the thing, and several companies have come to grief; not so many, however, comparatively as in other branches of business. This fact does not militate at all against the system nor against its benefits, which are undeniable. It only serves as a warning to insure in sound companies.

A reference to our advertising columns will show the strong points of a good company, the Connecticut Mutual Life Insurance. This a *purely mutual*. There are no stockholders, to absorb any part of its funds, and its surplus of \$10,000,000 belongs wholly to its members. Its management appears to have conducted its business at a lower average of expenses than any other, the ratio of expense to total income for the last year being only 8.89. It seeks no loose business, is careful in the selection of lives, invests with intelligence, at the highest rates of interest that can be obtained consistent with security, and not in fancy stocks. A long experience and careful management result in the greatest benefits to those who insure in it, and it announces dividends amounting to \$2,300,000 for 1870, and a total amount insured of over \$177,000,000.

LIGHTNING IN A CHURCH.—During the severe thunderstorm which prevailed on Thursday, the Universalist Church at Mount Vernon, Westchester county, was struck by lightning, which, in addition to the damage inflicted, shook the structure to its foundation. The electric substance first came in contact with the wooden spire, instantly stripping its exterior and scattering the debris in every direction. Descending into the edifice, marking a path of destruction, the fiery element crashed through the floor into the basement, and escaping through the granite foundation rolled upon the ground outside for a short distance, and then exploded with a tremendous report. Its appearance, before exploding, as seen by a couple of citizens, resembled a ball of fire about the size of a hen's egg, and when bursting emitted a shower of sparks which impregnated the surrounding atmosphere with a sulphurous odor. The occurrence caused quite a panic in the neighborhood.—*N. Y. Herald.*

AN EASTERN BANKER, whose name is very familiar to the public, in early life resolved to take the Patriarch Jacob's pledge, "Of all thou shalt give unto me, I will surely give the tenth unto Thee." He directed his clerk to open an account with O. P. J. (Old Patriarch Jacob), and to credit it one-tenth of all the commissions that came into the office. For years this banker has been one of the largest operators in the country, and the thousands placed to the credit of O. P. J. have been faithfully applied to benevolent and charitable objects.

LADY—A telegram from Havana, of the 25th, announces the successful laying of the cable between Aspinwall and Jamaica.

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Valuable and Timely Hints,

will be given weekly to lessen the labors of the farm, the household and the shop, and add to the health, the wealth and the wisdom of every patron of industry.

How to Farm in the Pacific States.

As the conditions and circumstances of soil and climate and seasons on this coast are so peculiar that many of the approved methods of eastern agriculture are not at all applicable on our side of the Continent,—special attention will be given to considering the need, extent and character of the modifications necessary. This will alone render the paper of great practical value to our home readers and more essential to them than all the distant publications obtainable, without such auxiliary and modifying instructions.

The following are among the specialties upon which the PACIFIC RURAL PRESS will treat:

Silk, Cotton and Sugar Beet Culture; Nurseries, Orchards, Tropical and small Fruits; Steam-plowing, seeding and harvesting for large tracts; Reclamation of swamp and unproductive lands; Hill and mountain farming; Grape growing; Fig, Raisin and Fruit drying; Irrigation; Lessons and Lectures on the chemistry of growing crops and on fertilizing lands; Practical Farming vs. Speculation; Taxation of unimproved lands; Railroads and improved transportation for crops and the better class of immigrants; Farmer's Clubs, lectures and associations; Co-operation in farming, mechanism, manufacturing and other industries; Government lands for settlers whether sold by R. R. operators or the U. S.; Reliable wholesale and retail market reports; Brief notices of Mechanical and Scientific Progress; Instructions for regular and farmer mechanics; Household Reading; Health and domestic receipts; a sprinkling of sprightly reading; Life thoughts; Poetry, condensed stories, items of news, etc., will be given.

A Plain and Simple Style

Of writing will be our endeavor. Necessarily dealing largely in researches for facts we believe it desirable to present them in an inviting shape and in so comprehensive language that our special journalism shall advance in popularity and common relish.

No editorials or selections of unchaste or doubtful influence; or lottery, quack or other disreputable advertisements, will be admitted into its columns.

Arrangement of Matter.

Our reports of agricultural, horticultural and other fairs, lectures, farmers' clubs and social literary meetings [the improvement and increase of which we shall especially advocate] will be carefully prepared in a valuable form for preservation; and the matter of our entire columns will be so classified as to be convenient to readers of various minds and individual tastes for ready perusal and future reference.

Interesting Illustrations of Pacific States and Eastern Inventions and Machinery, Fine Arts, Science, Fruits, Rare Stock and Natural Scenery,

Of special or peculiar interest to our readers will be published weekly in liberal variety. No pains or reasonable expense will be spared to furnish a

Large and Richly Filled Journal

Nicely printed on fine paper, which will favorably compare with the long established class journals of more populous fields and older communities. Although the latter have less opportunities than new communities to be benefited by printed information of discoveries,

And Neighborly Experiences,

the reading of agricultural newspapers and books is lately increasing with a rapidity quite astonishing, and with the most profitable results.

We enter the field after a careful consideration and consultation with many of our leading agriculturists, with the strong conviction that such a journal on this coast is greatly needed and earnestly desired by the most prospectively flourishing and rapidly progressing community in the Union if not in the world. We know the task before us,—two of the proprietors and editors having experienced respectively 18 and 13 years of successful journalism in this state.

Five Thousand Subscribers.

We shall print 5,000 copies of the issue of January 7th. That is the number of subscribers we hope to start with, having half that list already.

Subscription in Advance.

One copy one year.....\$4 00
One copy six months.....2 25
One copy three months.....1 25
Single copies.....10

CLUB RATES.

Ten copies or more, first year, each.....\$3 00
[A free copy or premium sent to getter up of club.]

ADVERTISING RATES.

	1 week.	1 month.	3 months.	1 year.
One-half inch.....	\$1 00	\$3 00	\$6 00	\$20 00
One inch.....	2 00	6 00	10 00	36 00
Two inches.....	3 75	8 00	18 00	70 00
Three inches.....	5 25	12 50	27 00	105 00
Four inches.....	6 75	15 00	30 00	140 00
One-fourth column.....	6 00	12 00	28 00	100 00
Half column.....	12 00	20 00	54 00	200 00
One column.....	20 00	40 00	100 00	400 00

Advertising Rates Favorable

A select variety of advertisements only will be inserted. Circulated widely among the most thrifty of our population, the P. R. P. will be the cheapest and most effective medium for a large range of first class advertisements in the Pacific States.

Correspondence is respectfully solicited from every worthy source.

Parties desiring to get up clubs or act as agents, will be furnished sample copies and prospectus free.

DEWEY & Co.,

Publishers Patent Agents and Engravers, No. 414 Clay st., San Francisco. Nov. 21, 1870.

[Being also publishers of the SCIENTIFIC PRESS, we would say here that no change will be made in that paper except to improve it in its present character. Each journal will be published entirely distinct from the other.—D. & Co.]

SCIENTIFIC PRESS.—This paper comes to us this week with a full double sheet extra. It contains a full map of California, a map of the San Joaquin valley, with a brief description and statement of the productions of each county, besides the usual mining, agricultural and scientific intelligence. It is a paper that should be in the hands of every farmer, miner and manufacturer on this coast.—*Nev. Transcript.*

Mining and Company Advt's.

Every Advertisement in this journal is published throughout its entire Mining, Agricultural, Monthly and Quarterly Editions.

Kincaid Flat Mining Company, Tuolumne County, California.

Notice.—There are delinquent upon the following described stock on account of assessment levied on the 20th day of Oct. 1870, the several amounts set opposite the names of the respective share-holders, as follows:—

Names.	No. Certificates	No Shares.	Amount.
S. Card.....	10	10	25 00
G. Card.....	10	10	12 50
Wm. A. Quarles.....	15	10	25 00
Wm. A. Quarles.....	15	10	25 00
Ira P. Rankin.....	33	10	25 00
Ira P. Rankin.....	34	10	25 00
Ira P. Rankin.....	65	5	12 50
Ira P. Rankin.....	59	5	12 50
Wm. H. Sharp.....	35	10	25 00
Wm. H. Sharp.....	36	10	25 00

And in accordance with law, and an order of the Board of Trustees, made on the 20th day of Oct. 1870, so many shares of each parcel of said Stock as may be necessary will be sold at public auction at the salesroom of J. C. Merrill & Co., 204 and 206 California Street, S. F., on the 3rd day of December 1870 at the hour of 12 o'clock M., of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

D. H. CROWE, Secretary.
Office 220 Clay street, San Francisco.

no28

Mahogany G. & S. M. Company.—Location

of Works, Silver City, Owyhee County, Idaho Territory.
Notice is hereby given, that at a meeting of the Trustees of said Company, held on the second day of Nov. 1870, an assessment (No. 1) of \$2.00 per share in United States Gold coin, was levied, payable immediately to the Secretary at the office of the Company, Room No. 2, Express Building, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on Monday Dec. 5, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, on Dec. 10, 1870, and unless payment shall be made before, will be sold on Tuesday December 27, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of the sale.

G. M. RICHARDSON, Secy.
Office No. 2, Express Building, San Francisco, Cal.
Nov. 5

Nevada Land and Mining Company.—Location

of Works: Steptoe, Johnson & Latham, Antelope and Clifton Districts, Elko County, State of Nevada.
Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the sixteenth day of November, 1870, an assessment of four (4) cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary, at his office, Room 5, 202 Montgomery street, San Francisco, Cal.

Any stock upon which said assessment shall remain unpaid on the seventeenth day of December, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Saturday, the seventh day of January, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

W. H. WATSON, Secretary.
Office, Room 5, No. 302 Montgomery street, San Francisco, California. nov19

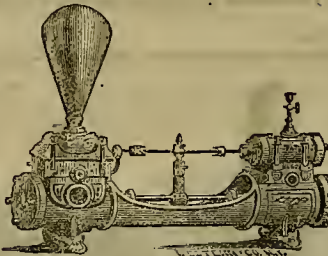
Providence Gold and Silver Mining Company.—Nevada County, California.

Notice is hereby given that at a meeting of the Board of Trustees of said Company, held on the 12th day of November 1870, an assessment of one dollar per share was levied upon the capital stock of said Company, payable immediately in United States gold and silver coin, to the Secretary.

Any stock upon which said assessment shall remain unpaid on the 21st day of December 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before will be sold on Thursday the 5th day of Jan. 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

J. M. BUFFINGTON, Secretary.
Office, No. 37 New Merchants Exchange, San Francisco California. nov19

New Advertisements.

A. L. FISH, Agent.
KNOWLE'S PATENT STEAM PUMPS.

Seldon's Steam Packing for Stuffing Boxes. All kinds new and second-hand Machinery in stock and supplied. No. 9, First Street, near Market, San Francisco, Cal. 23v21-3q51p

Baltimore Copper Company.

Highest Price paid for Copper, Ore. 1500-0

Regular, and Bars.

DANIEL MEYER, 210 Pine Street,

23v21-3m SAN FRANCISCO.

Swamp Land Reclamation.

—THE—

California Peat Company,

OWNERS OF THE

Roberts' Steam Ditching Machine,

are now ready to take contracts. They are prepared to construct

Ditches and Sewers,

of any desired dimensions. Terms easy. Address,

H. J. PAINE, Sec. Cal. Peat Co.,

225 Bush Street, San Francisco,

23v21-1m

EUREKA FILE WORKS.

311



Ret. Fremont and

Beac,

MISSION ST.,

SAN FRANCISCO,

T. G. DURNING, Superintendent.

New Files of every description made to order. File recut and warranted equal to new. Reaper and Mower sections, bars, etc., made to order at short notice. Orders from the country promptly attended to. 22v22f

The Scientific Press is devoted specially to matters of machinery, inventions and processes pertaining to the development of mines, and gives free and full discussions of such matters. Terms, \$4 per year.—*White Pine News, May 4th.*

SUCCESS IN BUSINESS.—Success in the business world usually depends upon being thoroughly prepared for its duties. Young men! if you would succeed in your business career, secure a good practical business education. This question being settled, the next is where to go. Why, go to the best, of course. Go to HEALD'S BUSINESS COLLEGE, located in the new College Building, 24, Post Street, San Francisco. This is the only school upon the Pacific coast where you can depend upon being thoroughly fitted for Bankers, Merchants, Clerks, and Bookkeepers. This school is connected with the International Business College Association, or Bryant & Stratton chain. Its scholars are good for tuition in any of the forty colleges located in all the leading commercial cities of the United States and Canada. There are many interesting features about the school which can not be discussed here. Call at the College and examine its workings. If unable send for circulars and HEALD'S COLLEGE JOURNAL, which will be sent free upon application. Address, E. P. HEALD, President, Business College, San Francisco, Cal. 23v22 3mb

FROM ALEX. N. DOUGHERTY, M. D., late of the Medical Directors U. S. A., Newark, N. J. "Having been made acquainted with the composition of the preparation known as SOZONOR, I have some time past permitted its use in my family, where it has given entire satisfaction. It is an elegant toilet article well worthy of the encomiums it has received."

"SPAUDINO'S PREPARED GLUE."

PHOTOGRAPHY.—FOR CABINET PHOTOGRAPHS, OR ENAMELED CARDS, of the very best quality, you must go to the NEW YORK GALLERY, Nos. 23 and 27 Third street, San Francisco. Every picture warranted to give satisfaction. 0v15 6m B. F. HOWLAND.

BLOK TIN AND SOLDER WIRE, broom wire, piano covering wire, etc., manufactured by Joshua Orty, 437 Brannan street. 7v11 3m

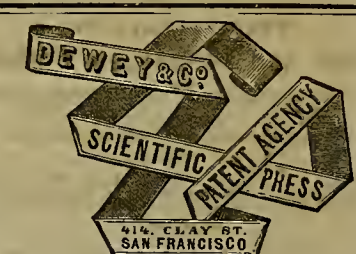
THOMAS O'NEIL Ornamental Glass Cutter, No. 10 St. Vedron street, up stairs. Stained, Ground and Ornamental Cut Glass to order on reasonable terms. 14v20

FROM A READER.—Duncan's Mill, Sonoma Co., Oct. 10, 1870.—Messrs Dewey & Co: Don't stop my paper. Your journal is very valuable. No better investment for \$4. Respt. B. C. B.

ROSE PEARL AND PROLYLINE.—A new base and gum superior to any other material in use for artificial teeth. I have recently introduced it in my practice. Call and examine it at my office, 235 Bush street. H. J. PAINE, Dentist.

CONTINENTAL Life Insurance Co., 302 Montgomery street, corner of Pine.

DEWELL'S COCOA.—For Breakfast.—The Globe says: "Various importers and manufacturers have attempted to attain a reputation for their prepared Cocoa, but we doubt whether any thorough success has been achieved until Messrs. Taylor Brothers discovered the extraordinary qualities of 'Maravilla' Cocoa. Adapting their perfect system of preparation to this finest of all species of the Theobroma, they have produced an article which supercedes every other Cocoa in the market. Entire solubility, a delicate aroma, and a rare concentration of the purest elements of nutrition, distinguish the Maravilla Cocoa above all others. For homeopaths and invalids we could not recommend a more agreeable or valuable beverage." Sold in packets only by all Grocers, of whom also may be had Taylor Brothers' Original Homoeopathic Cocoa and Soluble Chocolate. Steam Mills Brick Lane, London. 6v20-17



Patents Obtained Promptly. Caveats Filed Expeditiously. Patent Reissues Taken Out. Patents Secured in Foreign Lands. Assignments Made and Recorded in Legal Form. Copies of Patents and Assignments Procured. Examinations of Patents made here and at Washington.

Examinations made of Assignments Recorded in Washington.

Examinations Ordered and Reported by TELEGRAPH.

Rejected Cases taken up and Patents Obtained. Interferences Presented.

Opinions Rendered regarding the Validity of Patents and Assignments.

Every Legitimate Branch of Patent Agency Business promptly and thoroughly conducted. ILLUSTRATED CIRCULARS FREE.

DEWEY & CO.,

Publishers and Patent Agents, No. 414 Clay street below Sansome, San Francisco.

THE PRESS is just such a journal as the people of this valley should patronize—it ought to go to every residence. It is devoted to the agricultural and mining interests, mechanic arts and general industrial progress. The subscription price is \$4, which, considering that the PRESS is one of the largest and ablest journals of its class in the Union, we consider very reasonable.—Every business man of Bozeman, will we are satisfied, give Mr. Murray his name, and we hope such of our country friends as he interviews will be equally liberal. PICK & FLOW, MONTANA.

TO MINERS, MILLMEN AND METALLURGISTS. Kustel's new work on the Concentration of all kinds of Ores, and the Chlorination Process, for Gold-bearing Sulphurets, Arseniurets, and Gold and Silver Ores generally, is the best and most complete work issued. It contains 120 diagrams, illustrating machinery, etc., which alone are of the greatest value. Price, \$7.50, postage paid. Published by Dewey & Co., publishers of the Scientific Press, San Francisco.

SCIENTIFIC PRESS.—three numbers—terms \$4 per annum.—San Francisco. Constant improvements are being made in this publication. Illustrated machinery devoted liberal attention. Of late, an edition exclusively devoted to agricultural matters is issued simultaneously with that devoted to mining and scientific affairs generally. The growth of the paper and multiplicity of subjects embraced in the table of contents give evidence of an increased patronage and a corresponding industry to maintain its high character.—*Colorado Herald.*

San Francisco Metal Market.

PRIORITIES FOR INVOICES

Jobbing prices rule from ten to fifteen per cent. higher than the following quotations.

TUESDAY, Dec. 1, 1870.	
IRON.—Duty: Pig, \$9 per ton; Railroad, 60c per 100 lbs.; Bar, 1@1½¢ per lb; Sheet, polished, 3c per lb; common, 1½¢@1¾¢ per lb; Plate, 1½¢ per lb; Pipe, 1½¢ per lb; Galvanized, 2½¢ per lb.	
Scotch and Eng. Pig Iron, per ton.....	@ \$35 36
White Pig, per ton.....	@ 32 33
Refined Bar, had assortment, per lb.....	— 03 @ —
Refined Bar, good assortment, per lb.....	— 04 @ —
Boiler, No. 1 to 4.....	— 04½ @ —
Plate, No. 5 to 9.....	— 04 @ —
Sheet, No. 10 to 13.....	— 04½ @ —
Sheet, No. 14 to 20.....	— 05 @ —
Sheet, No. 24 to 27.....	— 05 @ —
COPPER.—Duty: Sheathing, 3½¢ per lb; Pig and Bar, 2½¢ per lb.	
Sheathing, per lb.....	— @ — 28
Sheathing, Yellow.....	— 20 @ — 21
Sheathing, Old Yellow.....	— 10 @ — 11
Composition Nails.....	— 21 @ — 22
Composition Bolts.....	— 21 @ — 22
TRY PLATES.—Duty: 25¢ cent. ad valorem.	
Plates, Charcoal, IX, per box.....	12 00 @ —
Plates, I O Charcoal.....	10 00 @ 10 50
Roofing Plates.....	10 00 @ 10 50
Banca Tin, Slabs, per lb.....	— @ — 42
STEEL.—English Cast Steel, per lb.....	— @ — 16
QUICKSILVER.—per lb.....	— @ — 73
LEAD.—Pig, per lb.....	6 @ — 7
Sheet.....	9 @ — 11
Pipe.....	10 @ — 11
Bar.....	8 @ — 9
ZINC.—Sheets, per lb.....	10½ @ — 11
BORAX.....	35 @ — 28

Machinists and Foundries.

FULTON
Foundry and Iron Works.

HINKLEY & CO.,

MANUFACTURERS OF

STEAM ENGINES,

Quartz, Flour and Saw Mills,

Hayer's Improved Steam Pump, Brodie's Improved Crusher, Mining Pumps, Amalgamators, and all kinds of Machinery.

N. E. corner of Tehama and Fremont streets, above How street, San Francisco. 3-4y

THE RISDON
Iron and Locomotive Works.INCORPORATED.....APRIL 30, 1868.
CAPITAL.....\$1,000,000.Corner of Beale and Howard Streets,
SAN FRANCISCO.

Steam Engine Builders, Boiler Makers, Machinists, Foundrymen, and Manufacturers of Car Wheels equal to the best imported, and guaranteed equal to Eastern Wheels.

Directors:

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John N. Risdon, John N. Risdon.JOHN N. RISDON.....President.
JOSEPH MOORE.....Vice President and Superintendent.
LEWIS R. MEAD.....Secretary.
2147-0yUNION IRON WORKS,
Sacramento.

WILLIAMS, ROOT & NELSON,

MANUFACTURERS OF

STEAM ENGINES, BOILERS,

CROSS' PATENT BOILER FEEDER AND SEDIMENT

COLLECTOR,

WILCOX'S PATENT WATER LIFTERS,

Dunbar's Patent Self-Adjusting Steam Piston

PACKING, for new and old Cylinders.

And all kinds of Mining Machinery.

Front Street, between N and O streets,
14141 SACRAMENTO CITY

ESTABLISHED 1851.

PACIFIC IRON WORKS,

First and Fremont streets, |

SAN FRANCISCO

IRA P. RANKIN, A. P. BRAYTON,
GEO. W. FOGG, Superintendent.

Steam Engines and Boilers,

MARINE AND STATIONARY,

IRON AND BRASS CASTINGS

Mining Machinery of Every Description,

And all other classes of work generally done at first-class establishments, manufactured by us at the lowest prices, and of the best quality.

Particular attention paid to Jobbing Work and Repairs.

N. B.—Sole Agents for sale of HUNTOON'S CELEBRATED PATENT GOVERNOR.

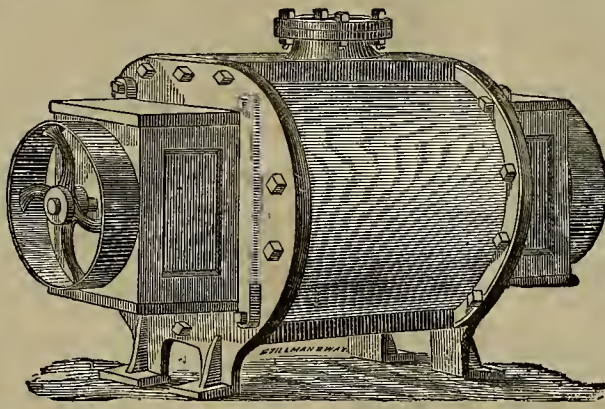
1870-3m GODDARD & CO

ROOT'S PATENT FORCE BLAST ROTARY BLOWER.

MANUFACTURED BY KEEP & BARGION,

At the Globe Iron Works, Stockton, California.

Awarded the First Premium at the Paris Exposition.



Patented Nov. 1st, 1864; July 21, 1866; and Oct. 9, 1866.

ADAPTED

FOR
Smelting,

Foundry,

Mining

and

Steamships.

REQUIRES

Fifty Per Cent.

LESS POWER

Than any Blower

Now in use.

One of these Blowers may be seen on exhibition at W. T. Garratt's Brass Foundry, corner of Mission and Fremont street. They are also in use at the Almaden Quicksilver Mine; Gridley's Foundry, Gold Hill, Nevada; Aetna Iron Works, San Francisco, and many other places.

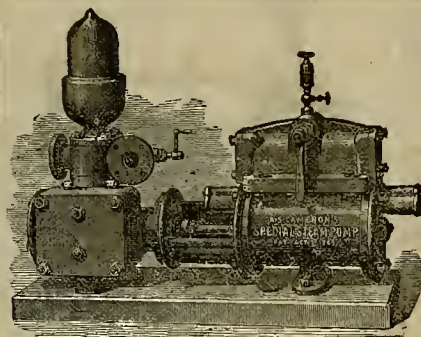
CAUTION.—Purchasers will find it to their advantage to apply direct to the Stockton Agency, as certain parties, not authorized to manufacture the Blower, have put in the market machines of inferior construction, which do not answer all the requirement of the genuine article.

Quartz, Saw and Grist Mill Irons, Steam Engines, Horse Powers, High and Low Pressure Steam Engines, Steamboats and Propellers, made at short notice.

For circulars and further information address

KEEP & BARGION,
Globe Iron Works, Stockton, Cal.

4v16-3m

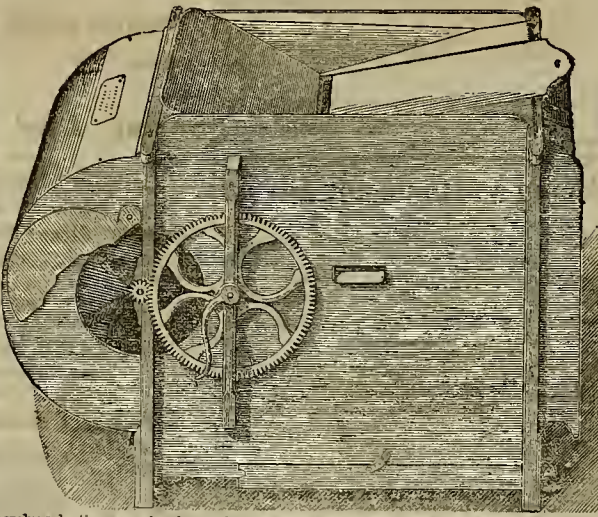
CAMERON'S
STEAM PUMPS.
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Engine Regulators.
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INJECTORS.
BARTOL'S
STEAM TRAP.
SURFACE
CONDENSERS.
DAVID STODDART,
114 BEALE STREET.

NOVELTY MILL AND GRAIN SEPEARATOR.

THE undersigned having purchased of the Patentee, WIRTS & SWIFT, of Hudson, Michigan, their right to this mill, Patented June 23d, 1869, for California, Oregon, Washington Territory, Montana, Utah, New Mexico and Arizona, wishes to call the attention of FARMERS, MILLERS AND GRAIN DEALERS to one of THE GREATEST IMPROVEMENTS OF THE AGE for cleaning and separating grain. While it combines all the essential qualities of a first class FARMING MILL, it also far exceeds anything that has ever been invented for the separation of grain. It has been thoroughly tested on all the different kinds of mixed grain, separating all the different seeds in almost a magical manner, placing them in their different compartments in the mill arranged for their reception, at the same time taking out all the Mustard, Grass Seed, Barley and Oats, and making two distinct qualities of wheat if desired, thereby selecting superior, large plump and perfect kernels for SEED WHEAT, and all the small and cut kernels, such as merchantable wheat, is deposited in another compartment. By the use of this Mill a great quantity of wheat usually sown that has been cleaned in the common mills will be saved to the farmer, as the cut or shrunken kernels will never germinate.

The above mentioned Novelty Mill is the only mill known to possess all these superior qualifications, and was exhibited and tested at the last Michigan State Fair held at Jackson, Michigan, September 21, 22, and 23, 1869, and bore away the palm over some thirty other different mills from all parts of the United States, including the famous Dickey Mill of Racine, Wisconsin. All who have witnessed here the operations of the NOVELTY MILL, declare it perfection, and the most beneficial invention to the Farmers, Millers, and Grain Dealers ever introduced on the Pacific Coast. The farmers in Santa Clara County, are loud in its praise, and also in other parts of the State where it is being introduced. No. 1 Mill, complete, is capable of cleaning 25 tons of grain per day; No. 2 Mill, 15 tons; No. 3 Mill, 8 tons. A large number of recommendations and certificates of the practical working of the mill will be furnished. Circulars containing references sent free by mail N. B. Town, County, or State Rights for sale on favorable terms. For further particulars apply to

K. STONE, 422 Battery Street, San Francisco.

GEO. T. PRACY'S
MACHINE WORKS,109 and 111 MISSION STREET,
SAN FRANCISCO.

MANUFACTURER OF

PRACY'S IMPROVED
PATENT STEAM ENGINE

These Governors are the most sensitive built, running at a high velocity and maintaining a uniform speed.

SOLE AGENT FOR

L. W. POND'S CELEBRATED TOO S,

— SUCH AS —

Lathes, Planers, Drills, Boring Mills, Milling Machines, Etc.,

Which I will offer at very low rates. Also,
MORSE'S TWIST DRILLS,
AND CHUCKS OF ALL KINDS.

MANUFACTURER OF

Steam Engines, and Mill Work Generally.

Sole Agent for TAFT'S PATENT SHEARS AND PUNCHES. 3v21

MACHINERY

GREATLY REDUCED RATES.

Miners' Foundry & Machine Works,

235 TO 245 FIRST STREET,
SAN FRANCISCO.

This Establishment is now working upon the

CO-OPERATIVE PLAN,

And are thereby enabled to manufacture

MACHINERY, CASTINGS & BOILERS

AT EASTERN PRICES.

And better adapted to the wants of the Pacific States

Ascertain our prices before purchasing. 8v20q

CALIFORNIA BRASS FOUNDRY,

No. 125 First street, opposite Miann,
SAN FRANCISCO.

All kinds of Brass, Composition Zinc, and Babbitt Metal Castings, Brass Ship Work of all kinds, Spikes, Sheathing Nails, Rudder Braces, Hinges, Ship and Steamboat Belts and Gongs of superior tone. All kinds of Cocks and Valves, Hydraulic Pipes and Nozzles, and Hose Couplings and Connections of all sizes and patterns, furnished with dispatch. PRICES MODERATE. J. H. WEED, V. KINGWELL.

California File Manuf'g Co.

437 BRANNAN STREET, bet. Third and Fourth.

W. WUATHOFF, L. KEAMER, M. HARRIS, J. BURKE.

REAPER AND MOWER SECTIONS, BARS

AND ALL KINDS COMPLETE.

At a saving of 50 per cent. New Files of every description on hand and made to order. Old Files re-cut, and warranted equal to new. Orders from the country promptly attended to. 4v19-qy

McAFEE, SPIERS & CO.,
BOILER MAKERS'S
AND GENERAL MACHINISTS,

Howard st, between Fremont and Beale, San Francisco.

Flue or Tubular Boilers, with plain circular or spiral courses. Upright Flue or Tubular Boilers, Locomotive and Marine Boilers, and Wrought Iron Tanks of every description.

Hydraulic Pipe supplied at reasonable rates. In ordering, give the quantity of water to be supplied, height of the fall, and total length of pipe, so as to enable the firm to determine the diameter of the pipe and thickness of iron to be used.

Repairs.—Boilers, Smoke Stacks, Pipes, etc., put in repair with promptness.

To Boiler Makers and Machinists in the Interior.—The firm is prepared to furnish estimates of Boilers, and put new Heads, drilled and punched, and attend to the selection and forwarding of Iron for Boilers, Pipes and other purposes.

Plans, Drawings and Specifications.—The firm is prepared to make out Plans and Specifications, receive estimates, and superintend the Erection of any Machinery that may be entrusted to their care.

To Inventors.—The firm is prepared to assist in developing the plans of those who have the ideas but not the practical experience necessary to put the same in form, by making Drawings of their Inventions, giving them the benefit of their practical knowledge of the construction of Machinery, and attending to the manufacture and introduction of their Inventions. 1v161f

NELSON & DOBLE,

AGENTS FOR

Thomas Firth & Sons' Cast Steel.

Sledge, Hammers, Stone Cutters', Blacksmiths' and Horse-Sheers' Tools.
13 and 15 Fremont street, near Market, San Francisco.
10v15q

[ESTABLISHED 1820.]

WILLIAM J. YOUNG & SONS,
Mathematical Instrument Makers,

No. 43, North Seventh St. Philadelphia Pa.

Having increased their facilities, expect in future to keep on hand a full supply of Transits, Levels, Compasses, Solar Compasses &c. Manufacturers of Young's celebrated Shifting Tripod for Transits. Original manufacturers of Burt's Solar Compass. 14v21-2m

Thursday Evening.

Owing to the time necessary to mail the present large edition of the SCIENTIFIC PRESS, we are obliged to go to press on Thursday evening—which is the very latest hour we can receive advertisements.

John G. Hodge & Co.,

IMPORTERS AND WHOLESALE

STATIONERS.

KEEP A LARGE STOCK OF

Blank Books, Stationery, Wrapping and
Cartridge Papers, &c., &cBlank Books made to order from Carey
Ex. Fine Ledger Paper.Mining Companies, and Counting Houses, supplied.
Agents for A. W. Fubers genuine Lead Pencils.
327, 329 & 331 Sansome St. San Francisco.
19v2leomly**Giant Powder.**

Proof of its Superiority for Blasting purposes.

GOLDEN CHARIOT MINING COMPANY,
SILVER CITY, IDAHO TER., Oct. 18, 1870.Messrs. Randmann, Nelson & Co., Agents
Giant Powder Co., San Francisco, Cal.

DEAR SIR: In reply to your late favor, I give you the following result of my working here—the cost of drifting, which cost under the old system of mining here, \$40 per foot, with the single hand system of working and Giant Powder I have reduced to a cost of \$22 per foot, and when under the old system but one foot per day was given, my men are easily making one and a half feet.

Under the old system wining (5 feet square) cost \$35 per foot, same is now costing me \$24 75 per foot with the same difference in time as shown in drifting.

Under the old system, our mine could never be made to yield exceeding 400 tons per month; with Giant Powder and single hand drilling, I am now furnishing monthly 1,000 tons at a reduced cost of at least 33½ per cent, less per ton than under the old system.

In conclusion, will state that the neighboring mines Ida Elmore and Oro Fino, influenced by results in the Golden Chariot Mine, have adopted single hand drilling and Giant Powder to the utter exclusion of double hand work, large drills and common blasting powder. In corroboration of results in Golden Chariot Mine, I refer you to the President and Board of Trustees, resident in your city. Yours, respectfully,

JOHN F. CASSELS,
Superintendent G. C. M. CO.

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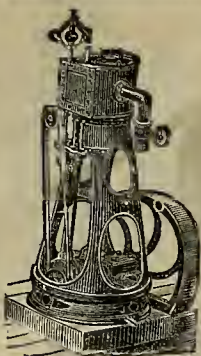
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Literary and Family Newspaper,

AS WELL AS THE

Organ of the Masonic Fraternity on the Pacific Coast.**ENDORSEMENT OF THE GRAND LODGE.**

The following resolution was unanimously adopted by the M. W. Grand Lodge, P. A. M., of the State of California, at its Annual Communication, October, 1870.

Whereas, In the opinion of this Grand Lodge, a well conducted Masonic Journal is of great benefit to the craft, in disseminating Masonic information among the fraternity, as well as furnishing a medium for general Masonic intelligence. Therefore,

Resolved, That this Grand Lodge, recognizing in the MASONIC MIRROR, edited by Brothers Amasa W. Bishop and Edwin A. Sherman, and published by the Masonic Publishing Company of San Francisco, a Masonic Journal of the character above set forth, do hereby recommend the said MASONIC MIRROR to the craft generally, as worthy of their most favorable consideration and support.

ENDORSEMENT OF THE GRAND CONSISTORY.

At the communication of the M. P. Grand Consistory, Ancient and Accepted Scottish Rite of Freemasonry in and for the State of California, held October, 1870 at San Francisco, the following resolution was unanimously adopted: Resolved, That the MASONIC MIRROR, published in this city be the official organ of this Grand Consistory.

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References on application. E. E. ROBERTS & CO.,
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San Francisco, Saturday, December 10, 1870.

VOLUME XXI.
Number 24.

Mining Edition.

Drying Foundry Molds by Hot Air.

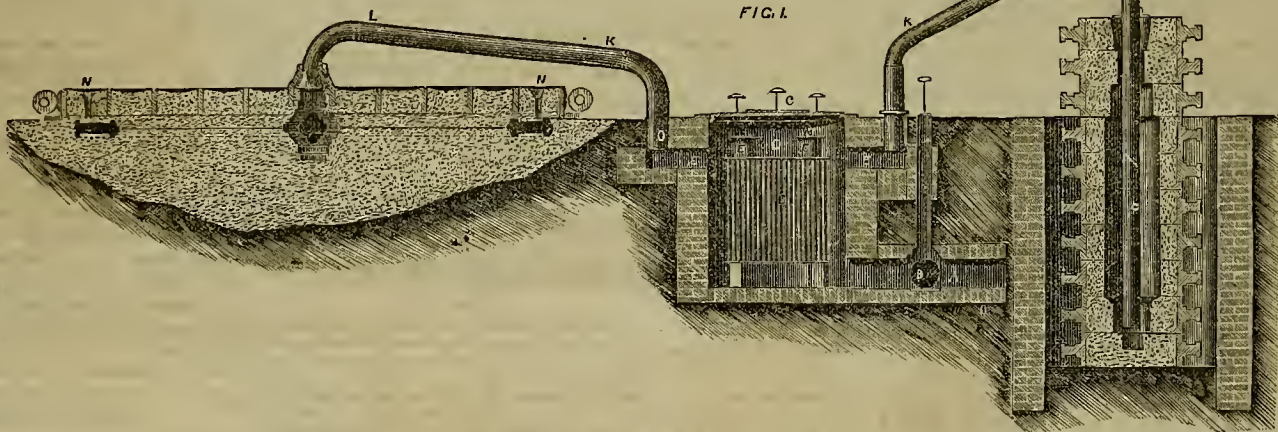
Drying molds for castings in the ordinary way by extemporized fires is a method long, costly and imperfect. The heat is transmitted to the mold only by radiation, and very imperfectly, almost always some parts remaining damp while others are burnt. Pieces of cinder and unconsumed fuel often fall into the mold, and the blast employed to remove them is apt to blow away also the edges of the sand. The cost of fuel is considerable, especially when the mold is large and a number of fires is required.

The method of drying by stoves is doubtless more economical, but is also unsatisfactory. If the molds do not fill the drying chamber, the economy of fuel is lost. The molds being placed one above the other, are not exposed to an equal temperature, and the moisture from the upper is constantly precipitated upon the lower ones. Hence some must often be subjected to a second baking. The consequence of this irregularity, especially when the molds are large, is that fragments are apt to break away, a danger augmented by the unavoidable handling. This method, moreover, involves the necessity of flask moulding and the constant removal of heavy weights.

In order to obviate these inconveniences, a valuable method was introduced some time ago in France in the foundries of Rive-de-Gier by the managers, the MM. Brunnon. Through the kindness of our excellent cotemporary, the *American Artisan*, we are enabled to reproduce the description and illustrations of the method as originally given in the *London Engineering*.

From the section, Fig. 1, it will be seen that in a walled pit, D, is placed an iron grate proportioned to the size of the molds which have to be dried. Openings, O, O, are made around the circumference of a cast-iron plate, situated above the grate, as seen in the section, and in Fig. 2, which is a plan of the pit and its plate and openings. An upper plate, H, arranged as shown, covers the grate, and can be removed for the introduction of fuel. When not in operation, the openings, O, are closed by dampers; but when at work they are opened, and give passage to a current of hot air, which is led by means of pipes, L, L, to the center of the mold, and which enters it in the middle, as shown in the section, whence it spreads over the whole of the mold and escapes through the air-openings at the

edges. The passage of the hot air is regulated by a damper placed in each of the openings, O, and by the air-holes, which are stopped readily by a little sand, if desired. A thorough control is thus maintained throughout the arrangement, and there is no possibility of burning or unequally drying the mold. This simple operation can be employed with still greater convenience when a rapid drying is not absolutely necessary. By passing a hot blast into the mold, and then closing the air-opening, the heat is sufficient slowly to dry the sand.



DRYING FOUNDRY MOLDS BY HOT AIR.

It will be seen by Fig. 1 that the fireplace is nothing more than a stove on a small scale, in which the loss of heat is reduced to a minimum, and the supply of warm air variable and entirely under control. The greater portion of the air forced in by the fan envelops the outside of the fireplace, and is heated by contact and radiation. This offers another means of regulating the heat, and at the same time prevents any cinders from being drawn off in the mold through the pipes. The heat moreover, is better applied than in the ordinary drying stove, as the warm air acts equally on every side, and is not obliged to penetrate the whole thickness of a mold before reaching the opposite side.

The system which we describe has been in successful operation in the foundry of MM. Brunnon for more than a year, and has satisfactorily proved its economy in fuel, as well as its advantages in saving of time and reliability of action.

AN OLD LANDMARK GONE.—The winds, on Wednesday morning, destroyed the old telegraph station on Telegraph Hill, the point toward which so many eyes were wont to be directed in our earlier days.

Work at the City Foundries.

The foundries are having another season of comparative quiet, although there is enough work to keep a fair number of men employed. The Pacific Works have a considerable job for the Bazada mine in Mexico. For this they have made the castings for three large water-wheels, for eight German amalgamating barrels, the shafting for a pulverizing mill, the iron work for dump cars, retorts, etc. For the Palmarejo mine, also in Mexico, they are building the pumping machinery, including a Cornish pump,

long. For the San Francisco Refining Works they are making two large evaporating pans, 7 feet long. They are building a 5-stamp mill for White Pine, and a Hepburn roller pan and a large settler for a newly opened mine at Auburn.

The Golden State Iron Works are building a 20-stamp mill for the Oneida company, Amador. In this they introduce a cast iron apron in front of the battery to prevent the water from being splashed around. This is the design of Mr. W. H. Patten, Chief Engineer of the company. Pans, settlers, rock-breaker, etc., are being

made for the Nevada Metallurgical Works, which are about to commence operations in a few days. Messrs. E. N. Riotte and C. Luckhardt, both well known gentlemen, are interested in this new institution. The iron works are also building retorts etc., for the Ida Elmore mine, shafting, pulleys, and casting generally for a flour mill in

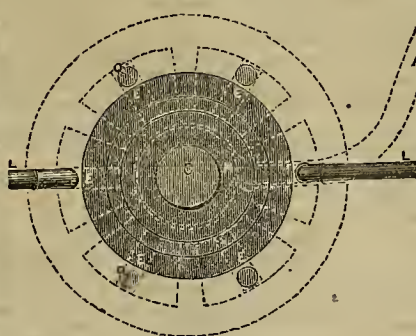
Secramento; and a large amount of white-iron castings for California and Washoe. They are receiving quite extensive orders for Stevenson's Mold-Board Pan, which is said to be successfully competing with other pans and to be introduced generally in Washoe where a new pan is put in.

The Risdon Works are busy on various jobs, some of which have been mentioned before. They are now making a large lot of car wheels for the various roads of the State, in which they are driving the Eastern article out of the market.

The Fulton Foundry are engaged on large tunnel drills of the Diamond Drill Co. The machine is made to drive four drills at once. The engines for driving the drills have two 7½-inch cylinders. For driving the 16-inch air compressors there are two 6-inch engines. The works continue to build Brodie crushers, being engaged now on one of small size and one of large size, the latter being for the Sierra Butte M. Co. They have a considerable amount of general work on hand, sufficient to keep their hands busy all the time.

TELEGRAPHIC MONEY ORDERS.—The Western Union Telegraph Co. has inaugurated a new system of telegraphic money orders, extending this to every office on the coast, and then doing the community a great service. The money orders are limited to sums up to \$50. The company is crowded with orders although they commenced on this system only on the 1st inst.

FIG 2



East.

The Vulcan Works have been making some large retorts, 7 feet in diameter and 5 feet high, for the Pacific Wood Preserving Co.; also 10 retorts for the bone-black furnaces of the California Sugar Refinery. They are just finishing a number of columns for the new Mint, and likewise an extensive lot of machinery for the State Prison at San Quentin. They are busily engaged in turning out a large amount of machinery for the San Francisco and Pacific Sugar Refinery, including a large steam engine, 20x30 in., with two air pumps, 20x24 in., and two tubular boilers, 22½ feet long, 6½ feet in diameter, with 77 tubes, 4 inches in diameter and 16 feet

Communications.

IN THIS DEPARTMENT we invite the FREE DISCUSSION of all proper subjects—correspondents alone being responsible for the ideas they advance.

All About Montana.

[Continued from page 373.]

Silver Star District.

[We here give the missing letter from Silver Star, to which we alluded last week.—Ens. PRESS.]

Silver Star is located on the Jefferson river, 45 miles from Virginia City and 75 miles from Helena. The town is a small place, has a quartz mill, a few stores, etc.

The mill is that of the EVERETT GREEN CAMPBELL Co., and Mr. T. J. Johns, the foreman, kindly showed me through it. There are 10 stamps, of 650 pounds each, with a drop of 7 inches, working at the rate of 65 drops per minute. Four Horn pans are used. The steam engine is of 33-horse power, and the whole of the machinery is of good quality. The capacity of the mill is 18 tons daily, and they work night and day.

In the mine, the company started their lower tunnel in August, 1869, to penetrate the Wick lode (the east extension of the Green Campbell), at a depth of 104 feet and 500 feet east of the Green-Campbell ground; to be carried along the Wick lode west for the development of the Green-Campbell; and to reach a depth at the main shaft of the latter of over 230 feet. It is in now 550 feet, with as yet no positive development. Work on it is temporarily suspended, to be prosecuted again however, at an early day. A large body of water has already been drained by this tunnel, and still continues in considerable quantity. At one point of Green-Campbell, the lead was some 20 feet wide and its width throughout is from 6 to 15 feet. It displays some exceedingly rich streaks of ore, and when carefully assorted yields a handsome revenue.

The mine certainly promises well and both mine and mill are yielding handsome profits. I see a notice in the PRESS from Mr. Everett, to the effect that he was sorry that the agent of the PRESS did not visit his district. He did call, but the superintendent was away, and he failed to see him.

Iron Rod.

THE IRON ROD LODE is about four miles from Silver Star, and up on a high mountain. The ledge is from 1 to 3 feet wide, runs east and west, and dips 52 deg. to the south. It has a main shaft, 340 feet deep, and five others ranging from 60 to 340 feet in depth. Trivett & Co. (John Trivett, T. C. Stevens and others) have run several tunnels, one to the main shaft being 160 feet long, and have drifted 162 feet west from the shaft. The tunnels drain the mine. Mr. L. Rowley is foreman. The ore contains a considerable amount of iron and copper sulphurets. It is hauled to the company's mill, near by, and yields on the average (so I am told) \$60 per ton, sometimes running as high as \$100. The mine looks excellently well. The mill is a fine affair, which the owners have been repairing and remodeling, introducing all necessary improvements. The engine is of 25-horse power, with two tubular boilers, is known as the Little Giant, and uses only two cords of wood in 24 hours. The stamps drop 50 times per minute.

Hollman & Co. own another mine near by on the HARLEM ledge. This they claim to be a distinct vein; others say that it is a spur of the Iron Rod, while some affirm that it is the same as the Iron Rod.

THE CLIFFER MINE is located above the Iron Rod, is owned by H. Lehmer & Co., and promises to become one of the leading mines of the district. The ledge runs east and west. The shaft is 140 feet deep. The ore resembles that of the Iron Rod.

Argenta—Bannock.

Argenta is a small place on the road from Ryan's Junction to Bannock. Here is the T. E. TOOLE M. Co.'s property. Their mine is being worked and is paying well. The ore is galena and is smelted. The furnaces have given considerable trouble formerly, but Mr. George W. Stapleton has succeeded in running them profitably, and deserves the highest credit for his proven ability. Formerly the bullion was all shipped to New York, but Mr. Stapleton informed me that the advertisement of Selby's works in the SCIENTIFIC PRESS led him to write for information as to shipments to San Francisco, and very likely your city may receive bullion from this side of the mountains.

Bannock, the county seat of Beaverhead county, 75 miles west of Virginia City, is the place where mining was first carried on successfully in this territory, although not the place where gold was first discovered. At an early day rich returns were obtained here and many miners came hither. When Virginia City rose into prominence, large numbers left this camp for that place. Mining is at a low ebb here now. I noticed a smelting furnace, a few quartz mills and a large number of lodes, as the Dakota, St. Paul, Wadham, Springfield, Cherokee, True Flag, etc. These are gold lodes, containing a low grade ore, which many are inclined to think might be worked to the best profit by the arrastra process, not guaranteeing the expense of costly machinery.

W. H. M.

[TO BE CONTINUED.]

To and Through Lake County.

[WRITTEN FOR THE SCIENTIFIC PRESS.]

On the Road.

Ens. PRESS:—Thinking that perhaps you might some time like to take a pleasure trip for the benefit of your health, and also to see some of the most beautiful scenery and sights of this county, I herewith send you a slight description of what is to be seen here, and also on the way hither.

Starting from San Francisco, we take the steamer New World, at 4 o'clock P. M., to Vallejo. This is a flourishing town of about 5,000 inhabitants, situated on a good harbor, three miles long by half a mile wide, which separates it from Mare Island, where the U. S. Navy Yard is located. The climate here is fine, being free from ocean winds and fog and the excessive valley heat. We now take the cars for Calistoga, passing through the beautiful Napa valley and stopping a few minutes at Napa City. This is a thrifty village of about 3,500 inhabitants, situated in about the center of Napa valley, and surrounded by one of the finest agricultural regions in the State. Fruits of all kinds abound in great luxuriance. The climate is beautiful. The well known Napa Soda Springs are situated a few miles east of the town. We now leave here, follow up the valley, passing a few small stopping places here and there, and finally reach Calistoga, the terminus of the Napa Valley R. R. It is in the center of a valley about a mile in width, surrounded by hills and mountains. The town is handsomely laid out, with villa residences, two hotels, two or three stores, stables, etc., besides the well known Calistoga Springs, attached to which is a warm swimming bath, forty feet square, an attractive feature of the place. The surrounding scenery is beautiful, the wild grandeur of rugged mountains, covered with oaks, pines, ash, maple and madrona, besides a great variety of shrubbery, mingling in the same view with cultivated fields. It is the center of considerable teaming business, the various routes connecting it with Russian River valley, Lake county and other points. Leaving this beautiful valley we now take the stage, and commence to wind our way up over rugged, steep mountains (but yet over a good graded road), from the top of these mountains having a fine view of the valley below us. We soon reach

Lake County.

This county is bounded on the north by Colusa and Mendocino, on the south by Napa and Sonoma, on the east by Colusa and Yolo, and on the west by Mendocino and Sonoma. It is about sixty miles in length by about twenty miles in average width. The whole of it is embraced within two branches of the Coast Mountains, running nearly north and south, covered with timber of various kinds, underbrush, wild-oats and grapes; also all kinds of wild game are in abundance. We pass numerous places such as Siles saw mill, Bradfords, Soconoma valley and Cayote valley, in the two latter of which are situated some very fine ranches. In this county are numerous hot and cold springs of all qualities, colors and temperatures, besides vast deposits of sulphur, quicksilver and various other minerals. One of the most valuable springs is the well known Harbinger Springs, situated in a very pleasant location surrounded on all sides by mountains which are thickly covered with numerous varieties of trees and wild shrubbery and in the spring of the year with thousands of wild flowers. Then there is the Sigler valley, a few miles south-west of Lower Lake, a very fine little vale surrounded by mountains of the most picturesque form. One of these mountains, from which the valley receives its name, contains a large number of springs, ranging in temperature from icy coldness to boiling heat, of different colors and flavors, including one of cold soda water. At both these localities there are good hotel accommodations for visitors. Leaving this interesting locality, we now reach the town of

Lower Lake.

This is a pleasant healthy town, situated near the outlet of Clear Lake, about 35 miles from Calistoga. It contains one good hotel, one or two restaurants, three stores and a few other places of business, also numerous dwelling houses, one large public school house, sometimes used for a church, one young ladies' seminary, and supporting one newspaper, the Lower Lake Bulletin, (a live journal). Ascending the mountains just back of the town, we get a good view of Clear Lake and the surrounding valley and mountains for miles and miles. About one

mile west of town near the margin of the lake, is a very cold soda spring, besides numerous others of different kinds. On our way to the upper end of the lake, we pass fine ranches, here and there, for miles. We now go over vast deposits of obsidian or volcanic glass, near the base of what is known as Uncle Sam mountain, which has an altitude of about 4,000 feet above the level of the sea. We ascend this mountain, which rises almost perpendicularly from the waters of Clear Lake to an altitude of about two thousand five hundred feet, and from here get one of the finest views of

Clear Lake

That is to be found. This beautiful sheet of water is about 1,500 feet above the level of the sea. It is about 30 miles long and from two to ten miles wide. Its waters are as clear as crystal, cool and, in some places, quite deep, from one end to the other full of fish of different varieties, and unbroken by a single island. The narrow portion of the lake, however, contains several beautiful little isles, inhabited by Indians, who live on roots, fish and game, which are abundant. This lake and vicinity afford fine amusement for all persons who are fond of fishing and hunting. North-west from here is a belt of fine bottom-land, known as Big Valley, which rises gradually from the border of the lake, extending to the head of the main valley, nearly two miles wide, thickly sprinkled with oak and willow, and traversed by numerous small streams which empty into the lake. The eastern shore is quite mountainous; but towards the north the range is much broken, and several creeks flow into the lake. Along the banks of these creeks, and at bottom places near the shore, are considerable patches of rich grazing land.

Kelsey Creek.

We now pass along the valley and finally come to the village of Kelsey Creek, a thriving little village, which contains one hotel, two or three stores, one good school house, one church, and a number of dwelling houses. In the immediate vicinity are quite a number of fine farms. A little south of the town is a somewhat singular place of about two acres, where you can dig a hole almost any where 3 or 4 feet in the ground and find gas springs, which, when lighted, will burn for hours with a strong blue flame; and if you put an old stove pipe in the hole and bank it up, it will burn for months, sometimes at night blazing up two or three feet, showing that there must be vast quantities some where below. Perhaps at some future day it may be made useful. Leaving here we now follow along the valley, passing numerous fine ranches here and there, until we come to

Lake Port.

The county seat of Lake county is situated on the shore of Clear Lake, about 100 miles north of San Francisco. This town commands a good view of the lake, and is a place of frequent resort for persons who are fond of fishing and hunting. It contains the county court house, one fine hotel, three or four stores, one fine school house, one church and quite a number of dwelling houses. It also supports one good newspaper. Good agricultural and timber land is found in the vicinity, a large number of fine farms extending along the margin of the lake for miles. In summer the winds blow mostly from the north and west, in winter from the south and east. It is said that the rainfall of this locality equals, if it does not exceed, that of any other place in the State. After taking a fine sail on this lake, and having a good time fishing, we cross to the opposite side and come down to the Sulphur Works refinery, situated on the margin of the lake. Here the crude sulphur is refined for market, hundreds of tons being prepared in the course of the year. Near these works are numerous hot boiling springs, which contain large quantities of soda. A short distance from this is quite an extensive deposit of

Sulphur.

Which is well worth visiting, where the solfataric acid is yet apparent. The volcanic rocks have been extensively fissured, and through the orifices and seams, steam and sulphurous vapors are constantly issuing. A large amount of sulphur has been deposited, the extent of which is uncertain and can only be demonstrated by the pick and shovel, though it is known to occur over an area of several acres. One of the most interesting facts in connection with these deposits is the association of cinnabar with the sulphur, sometimes distinctly separated from it in quartz, evidently deposited from solution, but often thoroughly intermixed with it. On this are also deposited some very beautiful straw-colored crystals of native sulphur. In working these banks, they frequently break into small caverns which are filled with beautiful stalactites of native sulphur, in all forms imaginable. There appears to be enough sulphur here to last for a hundred years to come.

Some time ago I was reading in one of the scientific journals, of a vast deposit of solid sulphur. The recent boring of artesian wells, on the Calcasien river, in Louisiana, has brought to light the existence of an immense deposit of solid, pure, crystallized sulphur at a depth of 400 feet, and more than 100 feet in thickness,—a stratum which, perhaps, has scarcely its parallel in geological history. The commercial value of such a bed of sulphur is enormous, and we shall doubtless soon hear of

a shaft being sunk and the mineral taken out in large quantities. If such is the case, why may we not suppose that these are as vast a deposit in the Clear Lake sulphur banks? Perhaps one of these days we will see this tested.

Borax Lake—Quicksilver Mines.

Going about two miles north-west of here, over a small range of hills, we come to the well known Borax Lake. This is a sheet of shallow water, the average depth of which is from three to six feet, comprising generally about one hundred acres in superficial area, but varying greatly in size with the seasons, as the shores are low, and their slope towards the center is very gradual. The water of the lake is highly impregnated with borax. The principal deposit of crystals is in a layer of blue mud of varying thickness, beneath which is mud free from borax. At present they are not working in this lake, but intend to do so soon.

Leaving here, on our road back to San Francisco by way of Knoxville, we pass the extensive quicksilver mines of Knox & Co., known as the Manhattan mine, where a large number of hands are employed. They have quite large furnaces erected here for the extraction of the metal. We next pass the well known Redington quicksilver mines, where there are also quite a large number of hands employed and also large furnaces. As these mines are so well known to the public it will hardly be necessary to give a description here, especially as that would occupy so much of your space. But I may give one in some future letter.

The town of Knoxville is situated on a hillside and in a canyon. It contains quite a number of small dwelling houses, one hotel, one store and one school house. There is also quite a number of work shops of different kinds connected with the mines. Stages connect here with Napa. From here we pass by the Zem Zem Sulphur Springs, which are said to be very valuable for various complaints. Passing various ranches here and there, we come to the town of Monticella, quite a flourishing place, situated right in the midst of a very fine farming country, containing numerous stores and shops, one or two hotels, one school house, one church, etc. Leaving here and passing numerous ranches on our way and enjoying some fine scenery, we finally get back to where we started from.

From Cerro Gordo.

[WRITTEN FOR THE SCIENTIFIC PRESS.]

EDITORS PRESS:—I suppose you have begun to think that I had "chopped" on you, as the Californianism would have it, but such is not the case. I have simply been waiting until something of moment should transpire which might interest the "outside world." On this side of the Sierra, this season has been an eventful one. The Cerro Gordo mines have proven fully as good as the most sanguine have anticipated, the furnaces have been as fully successful in reducing the ores. Cheap transportation is all that is required now to place this section as the *ne plus ultra* of mining enterprises in California.

Cheap Transportation.

While touching upon the subject of cheap transportation to and from this valley and adjacent mines, I may remark that, in my opinion, there is the greatest chance for a profitable investment in a railroad (that would pass through this valley from the Central Pacific to Los Angeles,) that there is on the continent of America at the present day. And for these three reasons: First, the grading would cost only a nominal sum, and ties could be furnished at a small expense for the whole route from the Sierra Nevada. Second, the road would pass through seven hundred miles of as rich a mineral region as there is upon the face of the globe, and it certainly is a very fair agricultural section, which would materially augment the traffic. Third, if the Pacific Railroad companies had this proposed connection or branch road, passengers, in place of being exposed to the inclemencies and dangers, of the passage across the Sierra in winter time, could pass through a temperate and almost tropical climate over the whole route, and entirely free from the dangers of avalanches, blockades of snow, and other dangers too horrible to think of.

Mines.

As a sample of what this country is beginning to be thought of, I will state that the Kearsarge mine, situated about 12 miles west of this town, under the supervision of a Mr. Pierce, for the first time in its existence has this season cleared all expenses of improvements, mining, milling, etc., and left a heavy margin for further improvements. Gen. J. B. Winters, Chas. Van Gorder and Col. Avery, of Gold Hill, Nevada, the largest owners of the above mine, paid a visit to the mine and were so well pleased with the prospects, that new improvements have been ordered, and would have been under good headway by this time, if the late storm had not taken place. As it is, I suppose they will be delayed until next spring, when it is the intention of the corporation to erect a large Stetefeldt furnace, build a tramway from the mine to the mill, and put in a 30-inch turbine wheel, to drive the mill, in place of using the steam engine now in use for that purpose. Mr. Van Gorder is expected down again in about two weeks, when I may obtain some other items of interest to your general readers. Gen. John B. Winters will be the future superintendent.

CROWQUILL.

Independence, Inyo Co., Nov. 21, 1870.

Mechanical Progress.

NEW METHOD OF LAYING RAILWAY TRACKS.—A. Platte, Superintendent of the Austrian Crown Prince's Railway, suggests a new plan in the *Journal of Austrian Engineers*. He proposes the use of the best steel rails, of such shape that they can be used on one side until worn out, when the rail is reversed. This is enabled to accomplish by the use of a rolled-iron longitudinal support, which forms a continuous iron box, in which the rail is laid. This trough or box, with a base from six to ten inches broad, is laid directly upon the carefully prepared road-bed, and provided at suitable intervals with lugs on each side, through which bolts are passed, which secure the box to the iron cross-pieces used in place of wooden ties. Thus the cross-pieces or ties are firmly secured to both the inner and outer sides of both boxes. The sides of this box are of different heights, the outer being two or three inches the higher, and to this side the rail is bolted, a piece of hard wood being interposed between the rail and the side of the box. The ordinary fish-bars are used to complete the connection of the ends of the rails. When the rail has thus been bolted to the side of the box, its under side is two or three inches from the bottom, and its sides about the same distance from the sides of the longitudinal box. The space thus left Mr. Platte proposes to fill with melted vulcanized rubber, or with some other substance possessed of considerable tenacity and elasticity.

A NEW JOURNAL BOX.—Murphy's journal box and lubricating material is thus described in the *American Artisan* for Nov. 16th: "In preparing the lubricating material, the surface of a sheet of paper, leather or chamois skin is so operated on by a fine picker, as to separate or raise the fibers, so as to produce a flocky surface upon a stiff, strong and unyielding backing. This is done by subjecting the paper to the action of a series of circular saws having teeth of such shape as to penetrate but not pass through the material. Thus provided, the surface is covered with powdered plumbago or similar lubricant sifted upon it, and then passed between pressure-rollers. In some cases, before the application of the plumbago, the surface is treated with a solution of india-rubber and paraffine. A sheet of lubricating material thus prepared, with a backing of felt or leather, may be used either for packing or bearings. After the material is placed in the bearing, the surface should be rubbed with a suitable tool, so as to provide a polished surface."

THE HOOSAC TUNNEL.—A colossal transit instrument has been constructed at the expense of the State of Massachusetts to facilitate the work. A line twenty-seven feet in length, has to be marked at the bottom of the dark, wet central shaft, 1,030 feet deep, so that when prolonged, it shall pass through the terminal points of the eastern and western approaches, each being 12,000 feet distant. The external line of the tunnel has to be surveyed over the surface of a rugged mountain, and across points from 1,500 to 1,800 feet above the grade at the termini. By means of this instrument the most accurately verified lines have been run over the Hoosac mountain, and have been extended for many miles in both directions.

NEW HAMPSHIRE LOCOMOTIVE WORKS.—The *Iron Age* says At the locomotive works in Manchester during the year ending October 1st, the castings amounted to 2,200,000 pounds. It is said to be a day's work for a man, with an assistant, to make a driving wheel, the weight of which is 1,500 pounds, sometimes ranging as high as 1,800. At these works, one man has turned out his wheel a day for 774 successive working days.

IRISH HOD-CARRIERS SUPERSEDED.—We see described an arrangement, consisting of an endless chain ladder, by means of which two men at the cranks can raise to the top of a building seven hods of brick or mortar per minute. The ordinary hod is furnished with a hook, and the laborer has only to hang it on the ladder, from which it is taken by another laborer at the top of the building. A dozen hods may be going up and down at once.

PEAT FUEL FOR LOCOMOTIVES.—The managers of the peat-works near Meriden, Conn., have published an article upon this subject in the *Iron Age*, setting forth the advantages claimed for this fuel, as observed during practical tests continued for several weeks. "No destructive agent, such as sulphur, phosphorus, or arsenic, exists to corrode the grate bars, sheets, or flues; there is no accumulation or deposit of clinker or unburned peat upon or between the grate-bars; no incrustation of soot along the flues; no deposit of ash in the smoke-box; nor is there any emission of heavy sparks, lighted coals, or smoke from the top of the stack. * * * Under fair condition of track and good weather, a result was obtained of 7.75 lbs. of water for 1 lb. of peat burned. The above, if calculated by size of cylinders, diameter of driver, speed, and pressure for distance run, will prove the statement, showing, say, 139,890 cubic feet of steam, by consuming 2,620 lbs. of peat fuel. No doubt exists that, by better knowledge of the way of firing, the above result can be exceeded, which, if it shall be the case, will place peat fuel above coal or wood, at one-half the price, throughout the United States; for the deposits of peat are everywhere generously distributed. The duty of the bituminous coal, as used in the United States, is found to be from 7 to 10 lbs. to evaporate 62½ lbs. of water. The above especial duty, under careful manipulation, shows peat at 9 lbs to 62½ lbs. of water—a result almost equivalent."

IMPROVEMENTS IN STREET CAR CONSTRUCTION.—We condense these items from the *Chicago Railroad Gazette* of November 5th, which describes a new car furnished with all the latest improvements: The brake consists of a shell or dish wheel made fast to the axle of the car wheel, fitted with an entering cone wheel which is loose on the axle, and which is forced into the dish wheel by straightening a knuckle-joint, one arm of which abuts against a shoulder on the axle. The journal bearing is formed by three steel interlapping friction rollers, resting upon the top of the journal. A swing motion is given to the car body by the following device: The body rests on eight rubber springs—the springs resting on projecting shoulders of the journal casing. Passing vertically through each spring and the shoulder of the casing is a bolt, extending from the car body to the stirrup brace below. The hole in the casing shoulder has twice the diameter of the bolt; and by this simple means ample lateral play is given to secure an easy and comfortable swing motion. A series of annular rubber springs on the follower is so arranged with reference to the form of the draw head, in combination with the journal bearing described, as to wholly avoid the violent jerking so disagreeable usually in starting.

THE BEUTHER AXLE-BOX.—Of this the *London Engineer* says: "The main features consist in drawing up the oil, by capillary attraction from below to cotton pads, so hinged against the journal as freely to adjust themselves to it by gravity; and the spent oil is led into a central receiver below, where it can deposit its abraded metal and grit. A cast iron cover is fitted to the box, which is cast with lugs to receive the hinges of the brass side pad holders. From four slits in the back of each holder there hang down as many syphon wicks, dipping into the main reservoir below. Any excess of spent oil drops from the axle into the central wrought iron cup, which only communicates with the main reservoir by holes at its upper end, so that it forms a separation of any impurities."

COPYING DRAWINGS BY THE AID OF THE INDUCTION COIL.—All draftsmen are acquainted with the device of puncturing holes through a drawing for the purpose of obtaining an outline and afterwards transferring the outline by sifting fine plumbago or other powder through the small holes. The fatigue of making the holes by hand is great, and M. Claudray, of Lausanne, proposes to employ the induction coil for this purpose. A table covered with tin-foil is connected with the negative pole, on it may be placed as many sheets of paper as the spark will pass through. The positive pole, consisting of a metal bar, insulated with gutta-percha, can serve as a pencil for copying the tracings. The metal point of the pencil being moved about on the contour and outline of the engraving, electric sparks spring across every time a connection is made, and puncture fine holes through the paper.—*Sci. American*.

Scientific Progress.

THE TENDENCY TO VARIATION UNDER LIES NATURAL SELECTION.—The following detached paragraphs are from a paper read before the British Association by Alfred W. Bennett:—"Every gardener knows how uncertain is the produce of seeds compared with the produce of buds or off-shoots from the same plant. The ordinary mode of obtaining new varieties of strawberries or other fruits is from seeds. An endless variety of the commonest florist's flowers is produced by sowing seeds from the same capsule. Of the laws of this variation we are, as Mr. Darwin says, 'profoundly ignorant'; but it does not follow that a patient interrogation of nature pursued in the true Darwinian spirit, may not reveal to us something of these laws. Of one thing we are certain, that natural selection here plays no part. If then we must admit that the first beginning of change takes place without the operation of this principle, why should we claim for it the main, almost the exclusive agency, in the changes which follow? Some other principle, at present unknown to us, originates these variations; what right have we to say that this principle, whatever it may be, then ceases to act, instead of being the main agent in all the other subsequent changes? * * * M. Claparede, one of the few genuine Darwinians among French writers, points out the dangerous and unscientific manner in which the theory of natural selection is made, in the hands of its too zealous advocates, to explain phenomena which are probably due to other causes. The discovery of this law marked an era in the history of natural science, and gave a wonderful impulse to original research. The danger now is that the law will be pressed into services which have no claim upon it; and that, in the hands of injudicious partisans, it will become a hindrance rather than an aid to science, by closing the door against further investigations into other laws which lie behind it. To claim for natural selection the main agency in the creation of the countless forms of organic life with which we are surrounded, is straining it beyond its strength. An era of equal importance will be marked by the discovery of the law which regulates the tendency to variation which must necessarily underlie natural selection. The argument of 'design' was undoubtedly pushed by pre-Darwinian writers to too great an extent. The most recent phase of Darwinianism, however, is a complete denial of the existence of design in Nature. It is the carrying into natural science of the Hobbesian principle of self-love. Every individual and every species exists for its own advantage only, and has no *raison d'être* except its own welfare. To my mind the beauties and wonders of Nature seem, on the other hand, to teach a different lesson; that there are laws, albeit almost unknown to us—not laws merely of external circumstance, but laws of internal growth and structure,—which actively modify each individual organism, not only for its own advantage in the struggle for life, but for the higher end of subordinating every individual existence to the good of the whole."

ENERGY OF POSITION.—"In a fire, we burn carbon, and make it unite with oxygen in order to form carbonic acid, and in so doing we change the energy of position derived from the separation of two substances having so great an attraction for each other, as oxygen and carbon, into the energy of heat. In a leaf, on the other hand, these two strongly attractive substances are forced asunder, the powerful agent which accomplishes this being the sun's rays, so that it is the energy of these rays which is transformed into the potential energy, or energy of position represented by the chemical separation of this oxygen and carbon. The carbon, or rather the woody fibre into which the carbon enters, is thus a source of potential energy, and when made to combine again with oxygen, either by direct combustion or otherwise, it will in the process give out energy. When we burn wood we convert this energy into heat, and when we eat vegetables we assimilate this energy into our systems, where it ultimately produces both heat and work."—*Bilfour Stewart*.

THE EASTERN EARTHQUAKE WAVE.—At the moment when the late earthquake was felt at Mimonski, Canada, the telegraph operator sent instantly to Quebec, a distance of 200 miles, to ask, "How do you feel?" While the operator was at his work the shock arrived. He at once sent to Montreal, about 200 miles further on, to ask if they had felt it. They had just time to say "No" before the earthquake came up.

MOTION NO PROOF OF LIFE.—The following is from an article by "C. S." in the *Boston Journal of Chemistry*: * * "Here is where I believe the great mistake of microscopists has often been made, probably in part owing to inferior instruments. They have assumed that a body with a 'jerking movement,' or any movement, must be an infusorium, or a germ, or some organic being. This is the important point now for the study of microscopists. In August, Mr. D. S. Holman, of Philadelphia, brought to me a slide. It was placed under the microscope with a good objective, and I saw the field filled with an immense number of minutespheres, all in lively motion. I at once saw that they were what have been called monads by some writers, germs by others, and 'oöplasm' by Beale. Mr. Holman then informed me that what I saw was white of eggs coagulated by carbolic acid; that it was prepared and sealed up in July, 1869; and that the lively movement had been going on constantly ever since. A few days since I prepared some white of egg myself, and have obtained the same results. The whole field of the microscope is filled with minute granules, all dancing together. Now here we have matter in which it is impossible that any animal or vegetable life can exist, and yet in which there is present that one evidence of life, motion. Nor is this all. I have prepared slides of inorganic matter,—e. g., minute particles of chalk and china clay, suspended in a solution of glycerine in alcohol; and these not only present the same movements, but an expert eye cannot distinguish a particle of organic from one of inorganic matter, with the same magnifying power."

DISEASE GERMS.—We quote a few sentences from an article in the *Microscopical Journal* by Dr. Lionel S. Beale, F. R. S.: "In vaccine lymph which has been kept for some time in glass tubes multitudes of very minute particles are observed, and these exhibit the most active molecular movements. These particles have often been termed *debris*, and have been regarded as quite unimportant elements of the lymph. To them, however, the active properties of the lymph are entirely and solely due. And I should be no more inclined to regard the fluid portion of the vaccine lymph as the active material, than I should be to assume that the fluid in which the spermatozoa were suspended was the fertilizing agent, and that the spermatozoa themselves were merely epithelial *debris*, and quite unimportant; or to infer that the fluid in which the yeast fungi or bacteria were growing was the active agent in exciting fermentation, while the actually growing, moving, and multiplying particles were perfectly passive. The germinal particles in all cases are, without doubt, the active agents, and it seems to me as much opposed to the facts of the case to maintain that the *materies morbi* of cattle plague and other contagious fevers is a material that can be dissolved in fluid, and precipitated and re-formed, or sublimed as a volatile substance, as it would be to look upon any living organism as the result of the concentration of an albuminous solution, and capable of resolution and precipitation. * * I consider it to be almost certain that the material of which these particles are composed has the power of forming matter like itself from pululum around it, which differs from it in properties and composition. Such living germs may pass from the organism on which they grew to another, and will grow and multiply there if they meet with the proper pululum. The only condition in which matter is known to exhibit these powers of self-multiplication is the living state."

OXY-CALCIUM LIGHT IN PHOTO-MICROGRAPHY.—We some time since noticed the report of Lieut. Col. Woodward on the use of the magnesium and electric lights in photo-micrography. Since that time he has made experiments with the oxy-calcium, or Hare's light, for the same purpose; and announces in the *American Journal of Science and Arts* that he has succeeded in obtaining excellent pictures with powers as high as a thousand diameters, that he finds the light steadier than either of the others mentioned, and that it is managed with less trouble.

Mining Summary.

The following information is gleaned mostly from journals published in the interior, in close proximity to the mines mentioned.

California.

ALPINE COUNTY.

EXCHEQUER MILL.—*Chronicle*, Nov. 26th: Yesterday the steam was turned on. The saw-mill portion is running, and it will not be long ere the stamps will be clattering. This is an eight-stamp mill, with a furnace for roasting ore. The amalgamating is carried on in six wooden barrels. The engine is of sufficient capacity to run the quartz and saw mills at the same time.

GLOBE.—*Miner*, Nov. 26th: Machinery to the amount of 20,000 pounds weight arrived at the works to-day. The carpenters will have the frame raised next week.

MONITOR No. 3.—Yesterday the workmen struck into a large pocket of soft ore of the Tarshish sulphuret variety. They are evidently coming into one of the regular pay-ore chimneys.

TARSHISH.—Besides the strike in Monitor No. 3, the Schenectady on the same lode has encouraging symptoms. The soft ore stored is being washed for shipment, and the shaft to connect the two levels is progressing at a favorable rate. The Silver Glance tunnel on the same lode is making good headway.

AMADOR COUNTY.

THE KENNEDY.—*Ledger*, Dec. 3d: The work on the new hoisting works are fast approaching completion. The boiler is in position. During the week a survey has been made for a ditch to supply water, and men set to work on it.

GOOD HOPE.—Mr. Charles Peters having bought out the partners in this mine, has commenced work in earnest. The mine is believed to be on the Hayward lode. Mr. P. has just completed new hoisting works, propelled by a mule. The shaft is down 70 feet.

The company of Chinamen in the bed of Jackson creek, are making from two to four dollars per day to the hand.

INYO COUNTY.

CERRO GORDO.—*Independent*, Nov. 28th: Beaudry's furnace started up Tuesday, and has been reducing ore to metal at the usual satisfactory rate. Belshaw's works are in full operation, having on hand sufficient supplies for a month's run.

GRANITE MOUNTAIN DISTRICT.—A miners' meeting at Darwin Springs, on Oct. 24th, organized a mining district with the above name.

NEVADA COUNTY.

OMEGA.—*Gazette*, Nov. 29th: Extensive preparations have been made for hydraulic mining. The Prescott claims, Kidd & Co., have their drifts run, and are ready to fire their blasts. They use 50 to 75 kegs of powder only, having proven that for their claims that amount does better than a greater. Their blasts are exploded 75 feet in from the face of the bank. Kidd & Co. will use in these claims 600 inches of water. They have 700 feet of pipe from eleven to thirteen inches in diameter. Their banks are 140 feet high, and their pressure is also about the same number of feet. The same own the Teeple claims, which are in complete order for working. In these they will use 600 inches of water, through 300 feet of 17-inch pipe. Two blasts of 39 kegs each were fired last week. Pease & Co. have their claim in order. They have 300 feet of 13-inch pipe and will require 400 inches of water. They work their ground by blasting. William Perry is opening a new set of diggings near town, and will use 250 inches of water. He has 500 feet of 11-inch pipe. M. McSorley will work his claims with 400 inches of water through 400 feet of 11-inch pipe. Amount of pressure 160 feet.

Moses Bates is making preparations for hydraulicing and will use 250 inches of water. The five companies we have mentioned will use 2,500 inches of water, while the total amount used at Omega, this season, will not fall short of 3,000 inches.

THE RAIN.—*Transcript*, Nov. 30: The first regular storm came on with a howl on Monday, and continued yesterday. The miners rejoice at the prospect of abundance of water.

NEW DITCH.—Same of Dec. 1st: Contracts have been made by the Eureka Lake Ditch Co., for the building of a ditch from Shady Creek to the Buckeye Hill diggings, near Sweetland, five miles. A large number of Chinamen have been employed.

GETTING READY.—Same of 3d: Very extensive preparations have been made throughout the county for working gravel claims, and there is every prospect of "big runs."

KATE HAYES' FLAT.—The Welsh Co. are taking out very high pay. Eddy & Co. and

Bell & Co. are about ready to commence operations, and in the claims of the former a blast of 1,500 pounds of giant powder was to be discharged yesterday.

ITEMS.—*Grass Valley Union*, Dec. 1st: The Hope Gravel Co. on Alta Hill is erecting an eight stamp crushing mill, and running two bed rock tunnels fifteen feet below the one now in use. The yield for the month has been over expenses. Wednesday very rich cement was struck in the west drift. This stratum is fully three feet in thickness, and is richer in gold than any dirt which has yet been found in any part of the east drifts. The gravel on Goshen Hill is on the same channel which runs through Alta Hill, Randolph Hill, Rich Flat, and down to Sucker Flat, in Yuba county, where it meets with the San Juan North, Sweetland and French Corral channel. On Goshen Hill Black & Landis are running a bed rock tunnel which is now in 609 feet, and through which they intend to commence washing in February. At Randolph Flat, McSorley & Co. have their tunnel into the gravel at the bed rock. The flume is completed, iron pipe is being laid, and washing will soon commence. The Picayune Co. have rich gravel, and will complete their drain this month. Alta No. 3 has a steam engine on the ground and will soon commence sinking for the channel. Webster & Co. are putting up steam machinery and expect to be taking out gold by February 1st. It is estimated that these claims will pay from \$30 to \$50 a day to the man. The Baltic is an incorporated Co. and has only to build a flume across the road to be ready for washing. This company has 800 feet of flume and 800 feet of iron pipe. The Red Jacket is near Mooney Flat, supposed to be on the same channel, and the company is running a prospecting tunnel. The Town Talk, east of Grass Valley, is washing cement. In quartz, the Eureka on Saturday, cleaned up \$57,000 for 24 working days, run, without cleaning up the batteries. Of the Empire mine, the pumping out has been going on for some weeks, and the water was reduced to a point about 30 feet below the 7th level. At this point the pump gave out and the water rose to near the 7th level, when a reserve pump was put in, which started to work yesterday. The mine will soon be free of water. Before Christmas the new mill will be completed. The Coe mine is worked in the first level on shares, and the second level of 270 feet is being opened. The rock shows much sulphurets. Perrin's mine is being opened at a lower level and crushing will be resumed in five weeks. The Idaho, North Star, Allison Ranch, Green Mountain, Greenhorn, Golden Gate, Wisconsin, Phoenix, Orleans and several other quartz mines have been worked during the month with good results.

PLACER COUNTY.

RICH MINE.—*Herald*, Dec. 3d: The claim known as the "Green Mine," a mile west of here, is a remarkable one. Wm. G. Green and partner have worked it two years, more in prospecting and putting it in shape for future working than for getting out gold; and yet the claim has yielded more money than could be profitably expended. The water being taken out of the ditch some weeks ago, their hoisting works were stopped and they had to suspend work on the lower level—128 feet. They then came up and ran in at 80 feet from the surface, and have within the past 10 days taken out ore enough to pay for all the work ever done on the mine, and erect a fine quartz mill besides.

THE ST. PATRICK.—Systematic work on this claim is pushing the shaft deeper, until now it has reached a depth of 180 feet. Near the surface the ledge only averaged from eight to 14 inches thick, but it has widened as they went down, until now, at the above depth, it is two and a half feet. The ledge shows good quartz—sometimes very rich—for the whole distance down.

SAN BERNARDINO COUNTY.

THE GREEN LODGE.—Cor. of *Guardian*, Nov. 26th: This has been opened by two shafts and a tunnel, that cuts the ledge at 200 feet, and levels run 200 feet on the ledge each way from the tunnel, and is now ready to commence stopping out ore that will pay \$60 per ton. The mill, with a crusher and six arastras, is nearly ready to run.

The same writer says that Gold and Silver District, nine miles distant, has a perfect net-work of ledges for seven miles by twelve, and abundance of timber, with water-power for a thousand stamps.

SAN DIEGO COUNTY.

A telegram of Dec. 5th says: Reports from the Julian Mining District are unfavorable. The mills are only making half time. Little or no rock is being taken out. The miners who own the ledges lack means

or energy to develop them. It is thought that the grant-holders will establish their claim to the whole district.

SIERRA COUNTY.

ITEMS.—*Messenger*, Dec. 3d: Wehe & Co. have 40 tons of rock at the Leonard Mill ready to crush. The Monte Christo Co., near Port Wine, have struck some very rich ground—the richest ever found in their claims. Cox & Williams have sold a four tenths interest in their claims at Seales', to a party from Cleveland, Ohio, for \$150,000. William Howell, Jesse Hughes, and two other partners, have sold their hydraulic claims at Council Hill for \$48,000. The Iowa Co., near Dutchman's Ranch, having run a tunnel 200 feet from the bottom of their shaft, and finding the bed rock pitching into the hill, have abandoned their old works and concluded to work through an incline.

SIERRA VALLEY.—Cor. of same: "Antelope District" was organized in 1862, and several shafts sunk alongside of ledges the croppings of which prospected well. But no effective prospecting was done, and since 1866, nothing. Last August W. R. Patten and others took up a ledge which they named the "Bullion," and as the records of the old district were missing, a new one was organized under the name of "Sierra Valley." Since that time, prospecting has been general, and 75 claims are now recorded. On the "Bullion," a ledge over a mile of which crops out often 100 feet high, and from 10 to 100 wide, six companies, comprising 6,800 feet, have been located. Three have commenced work. Five pounds of ore from the Bullion shaft, six feet down, was assayed with the following results: Copper, 42½ per cent.; silver, \$54.97 per ton. The Co. have a number of tons raised, which they intend shipping to the Reno mills. These mines are most favorably situated for access and for development. There is an abundance of timber and water. The ledges are grouped in two equal parts, one each side of the valley, half a mile apart, and affording between a beautiful site for a town, which has already been surveyed and is called Alten.

SISKIYOU COUNTY.

QUARTZ MILL.—*Yreka Union*, Nov. 30: A four-stamp mill arrived on Monday for Moses & Co. Messrs. Moses, Autenrieth, Warren and others, have obtained possession of the Shasta Butte claim.

ANOTHER IN THE SPRING.—We learn that the Siskiyou Quartz Co., whose claim is on the Middle Fork of Humboldt, intend building in the spring a large mill to be run by steam. This claim is a continuation of the Shasta Butte. Mr. Moses will work both claims this winter, and will put up the mill.

BIG FLUME.—*Journal*, Nov. 30th: Messrs. Edgerton, Ketchum, and Stimmel, are building a flume on the flats above town, to be 1,200 feet long, for the purpose of sluicing off ground that has never been worked and some that has.

TRINITY COUNTY.

ITEMS.—*Journal*, Dec. 3d: Everybody is ready for water, with everything rigged in the best possible shape for work. At North Fork, Schlomer & Hobbe, at work in the bar above the bridge, find first-rate pay. Indian Creek mill is approaching completion. There are two companies looking for the ledge on each side of the creek. Carson, Hansen & Goering have their bulkhead completed, and it will carry all the waters of the creek. Their flume passes under the bulkhead, and a gate admits the necessary water and no more.

Nevada.

COPE DISTRICT.

ITEMS.—*Elko Chronicle*, Nov. 26th: Cave Creek, 50 miles south of Elko, has large ledges, plenty of wood and water, and a fine agricultural country near. An English Co. have offered \$25,000 for the Blue Jacket ledge at Bull Run, which the owners have refused. Vance's mill has not stopped as reported.

HUMBOLDT.

GOLCONDA.—*Silver State*, Dec. 3d: A correspondent informs us that the mine of L. D. Webb is accounted one of the most valuable in the county. Two men, in thirty-seven days, have taken out at least 200 tons of ore that will work up to \$40 per ton. The ledge is improving both in size and quality of ore.

GALENA.—*Register*, Dec. 3d: The Butte Co. have struck in their lower shaft, 150 feet from the surface, a rich body of ore, assaying, \$1,477.26 per ton. The White claim is troubled with water. The Avalanche Co. have been offered \$8,000 for their claim.

REESE RIVER.

A New District.—*Reveille*, Nov. 28th: Sam. Collier, called on us last Saturday with specimens of ore from a new district

on the east range of the Humboldt mountains, eighty miles from here. Two samples were given to the assayer of the Manhattan mill, who returned \$72.26 in silver for one, and \$1,030.49 for the other, which was decomposed. The district was named the "National."

BULLION.—Same of Dec. 18th: Wells, Fargo & Co. have just completed a shipment of silver bullion to New York, consisting of 67 bars, weighing 5,605 pounds, of the value of \$86,869.55. It was all produced by the Manhattan mill, with the exception of \$667.44.

WHITE PINE.

ITEMS.—*News*, Dec. 3d: South Aurora resembles more a military establishment than a mine. Everything goes as regular as clockwork. Large quantities of good ore are being hauled to the Stanford mill daily. In North Aurora Con. the two shafts are being pushed down as fast as three shifts can do it, and the lower one is yielding good ore. In Eberhardt the working force has been increased, and new developments are made all the time. Large quantities of the very best ore are taken out, and the quantity of low grade ore in sight is immense. Ward Beecher has 400 tons of good ore on the dumps, which is being hauled to mill as fast as teams can get it away. The first-class ore is worked in the Oasis mill, Shermantown. Original Hidden Treasure is taking out 50 tons of ore per day, of which 20 tons are first, and 30 second-class, that yields \$29 per ton. Nearly 40 men are employed. Silver Wave is working its usual force, and has lately struck better ore. Silver Wedge is sinking a shaft and prospecting the mine. Mammoth is driving the tunnel ahead, and it is expected the ledge will be struck shortly. Summit is putting the mine in shape for extensive working. Iceberg is being worked by the Treasure Hill M. and M. Co. Anchor is shipping good ore to mill constantly, and work will be kept going during the whole winter. In Noonday good ore continues to be taken out. Sagebrush has some very fair rock. Industry and Nevada are both in good ore.

BASE METAL.—A little business is being done in base metal ores. There seems to be trouble about the hauling of the ore. It costs too much to pack it from the dumps, and in some places the mines are hardly accessible. There is any quantity in sight and on the dumps at the base mines, and most are working yet, but the reduction facilities do not seem to be large enough.

MILLS AND FURNACES.—Work on the International progresses rapidly. Fifty men have been set to work on the wire tramway, who are clearing the route and places for the posts. Stanford Mill is working South Aurora ore. Oasis is working ore from the English Co.'s mines. Sheba is running on ore from the Ward Beecher. Big Smoky is running steadily. Work on the roasting furnace is progressing. It is a kind of inclined cylinder furnace in connection with a shaft furnace, similar to the Stetefeldt. Great results are expected from it. Swansea Mill is kept busy with ore from the Original Hidden Treasure. Monte Christo will start again in a few days on \$200 ore, of which a large quantity is being shipped to the mill. Hamilton Furnaces are running on Jennie A ore, and shipping large quantities of base bullion. Pennsylvania is running on ore from the Base Range. Also shipping a fair amount of bullion.

BULLION.—Wells, Fargo & Co. shipped during the last week, from this city, 46 bars of bullion, valued at \$65,778.25.

EUREKA.—*Sentinel*, Dec. 3d: On Wednesday Carpenter & Co. sent from their mill at Sierra, one bar of bullion of 911 ounces, of the value of \$1,061.21. This is the first bar made at the mill. The roasters are now complete, and the whole mill is in working order. Monroe & Collins' mine, a short distance below the Paige & Corwin, in Secret Cañon, now owned by J. H. Alderson & J. B. Osborne, is producing splendid ore. Thirty tons now on dump will work more than \$200 per ton. The returns of the Manhattan Mill, at Austin, to Paige & Corwin, for ores worked, show a yield of from \$405 to \$1,565 per ton. The X Y Z, of Helgeson & Jardin, has been sold to B. F. Bivins. Work is being done by three men, and there are 70 tons ore on dump. It is the intention to erect a furnace immediately. Robertson, Wilson & Co., dissatisfied with the working of their Water-Jacket furnace, are building a new one on the plan of the Jackson Co.'s furnaces.

Arizona.

JACKSON & CO.'S MILL.—*Prescott Miner*, Nov. 26th: This little five-stamp is, by this time, near its destination in Bradshaw District, and will soon be put up and run.

ning upon the rich ores.

The mining news of the past week is net worth relating. Water is scarce. The only mill running in this section is the Big Bug.

Colorado.

SEATON LODGE.—Mr. Womack has in his west 70 foot level, a solid vein of ore twelve to fifteen inches thick, worth 160 ozs. silver per ton. His receipts for the last 130 tons of first and second class ore sold, show an average value of 155 ozs. per ton.

VIRGINIA CANYON.—The success that has attended the working of the Seaton lode, has given a new stimulus to prospecting in this canyon, and led many to examine their old holes to see if silver is not to be found where they failed to find gold in paying quantities. The result is that several promising mines are being developed. Wm. Hobbs recently struck some rich ore in the Kangaroo, a lode that he struck in '60. At that time it failed to pay for gold, and as silver was not thought of it was abandoned. Jack Needham and others have struck a new lode above the Kangaroo, that is said to promise well.

GRAND ISLAND DISTRICT.—The Caribon main shaft is 105 feet deep. There are other shafts, and some 560 feet of drifts. Throughout the whole of this, the rich vein can be traced. The ore vein averages five and a half feet, the first-class ore about two and a half. The first work was done in '69, when 25 tons and 1,664 pounds were taken out and sold to Hill, assaying 2,451.1 ounces. Amount taken out and sold this year, up to Nov. 1st, 285 tons 1,543 lbs., assaying 31,893.3 ounces. Total, 34,863.4 ounces; coin value, \$44,678.92. Since Nov. 1st about sixty tons have been taken out. The figures are those by which Prof. Hill purchased the ore. This ore was from the two and a half feet of the vein mentioned as first-class, but from it had been selected three tons yielding an average assay of five thousand dollars per ton. Were this added to that sold, the average would be upwards of \$200 per ton. The Pride of the West, a 4½-foot vein, promises well. It is not worked at present. The Idaho, half a mile from the Caribon, has a shaft four and a half feet by ten, and thirty feet deep. From this shaft have been sold to Prof. Hill, about 16 tons of ore worth about \$4,000 in coin. The ore vein is five feet wide. The Jo. Thatcher is reported to assay \$230 per ton. The Trojan has a 54-foot shaft, and 22 inches of ore worth about \$90 per ton. By the side of this ore vein is a crevice ten inches wide of decomposed material which is sold to Hill at from \$96 to \$126 per ton, currency. This vein has been struck for over two thousand feet, and is perpendicular.

GEORGETOWN ITEMS.—*Miner*, Dec. 1st: The ore from the last lode cut by the Monticello Tunnel assays 72 ounces per ton.... The Ni-Wot is still furnishing as good ore as was first struck by the tunnel.... In the Cliff mine, connection between the shaft and tunnel will soon be made, and the mine placed in good working order. The old shaft was in good ore when the water drove them out last year. The present working undercuts that shaft.

Idaho.

OWYHEE.—*Avalanche*, Dec. 3d: The Golden Chariot mine looks better than ever. At the bottom of the sixth level, between the south winze and the shaft, the vein is nowhere less than three feet wide. The ore from the fifth level is being hoisted through the Elmore shaft. The machinery for the new works arrived this week. Both the Owyhee and Ida Elmore mill are kept busy crushing Chariot ore.... W. H. Clark has completed his contract for sinking the Ida Elmore shaft 50 feet. A contract to sink an additional 50 will be let.... Superintendent Pheby is fixing up the Mahogany for winter working. The Webfoot mill is running on Mahogany ore.... Cosmos mill will, in a short time, start up on Oro Fino ore.... Another batch of Red Mountain ore has been worked at the Cosmos mill, yielding satisfactory returns. The Red Mountain has this season paid all the expenses of working, besides leaving a nice margin.... Besides the mines mentioned, the Peck & Porter, Skookum, Chipmunk, Illinois Central, Belle Peck, Potosi, and perhaps others, will be worked this winter....

WAGONTOWN DIGGINGS.—Joe Cain reports plenty of water and 350 Chinamen at work.

ROCKY BAR.—Cor. of *Statesman*, Nov. 29th: At Atlanta City, John L. Tillman has commenced work on the "Stanley," formerly the "Lucy." This is the mine recently sold in London by Mattingly & Bishop. At Red Warrior, R. Thomas with a gang of miners will work the "Wide West." The Idaho mine is improving in richness and extent. The last run by Settle, De-

rick & Johnson, paid \$200 to the ton. There will not be an idle man in the county this winter.

BOISE COUNTY ITEMS.—*World*, Dec. 1st: The Gold Hill Co., on Granite Creek, are at work. Their tunnel penetrates the mountain 500 feet, and they intend to raise a shaft from the end, 250 feet to the surface and then stoop out the ledge; the ledge is rich in free gold, as well as sulphurets. The mill will run four or five weeks and then shut down until spring. Centerville is being rapidly rebuilt. The 20-stamp mill, lying up at the Gambrian lode, boxed up, just as it came from San Francisco, having never been put up, was sold, recently, by the owner, Col. Merritt, to Vantine & Co. It is surmised that they intend to erect it on the Banner ledge.

LOON CREEK.—*Boise News*, Nov. 26th: Fred Phillips, merchant at Leesburg and Ore Grande, reports mining still going on at Loon Creek, and that a very rich strike had been made just above town, on the opposite side of the creek; as high as \$70 to the pan had been got.

WARREN'S DIGGINGS.—Cor. of *Walla Walla Union*, Nov. 15th: Alexander McLane reports good diggings 10 miles south of Warrens. He says he thinks they will pay an ounce a day to the hand. Wood and water are plenty. Our quartz prospects look brighter than ever before. We have got a new "Richmond" in the field. Professor Eisenbeck, from Swansco, England, visited our mines last summer. The result was so very satisfactory to him that he has permanently located here. He declares this to be the richest camp that he has visited on the Pacific Coast. Rock which before yielded \$15 per ton, by his process yields \$40 to \$50. Messrs. Eisenbeck, Ball & Alexander have purchased the Rescue mine, and have leased the Pioneer Mill; they will commence crushing ore next week.

Montana.

ELK CREEK.—*Deer Lodge Independent*, Nov. 26th: We learn that there are seven companies still at work, all doing well. One company near the head of the creek have suspended for the season. One day last week a nugget was picked up on one of the claims that weighed eight ounces. Jones & Co. have struck gravel that pays \$10 per day to the hand. They have been working for four years with little pay, but have struck it at last.

PHILIPSBURG.—Capt. Plaisted, who has leased the Jas. Stewart mill, will soon have it in order, and being a "practical" man, will be sure to make a success of it.

Utah.

OPHIR DISTRICT.—*Salt Lake Tribune*, Dec. 3d: This district gives indication of fabulous wealth. Every day, fresh discoveries are made. Their are a number of clearly defined ledges already being worked, many of which are now shipping ore; among them are the Silveropolis, Silver Horn, Commodore Nutt and others, in which merchants of S. L. City, and Eastern capitalists are interested. We have before us an assay of four specimens from the "Great Eastern," owned by Reese, Cowen, Wells & Co., taken from the surface, as follows:—No. 1, horn silver, \$3,000; No. 2, black spar and chloride of silver, \$2,100; No. 3, black spar and chloride of silver, \$1,800; No. 4, \$500. These gentlemen state that one picked piece reached \$20,400.

New Mexico.

SILVER CITY.—Cor. of *Santa Fé Post*, Nov. 26th: "It is certain that here are deposits of silver ore, the richness of which is unquestionable, and the quantity of which, whether it lies in pockets or veins, is inexhaustible. The portion of the district in which the ore is most abundant extends over a space half a mile in width and running northeast and southwest for three miles. The work so far has been little more than prospecting. Shafts 10 or 12 feet in depth have been sunk, but no extensive operations undertaken. The ore assays \$1,600 to \$2,200 to the ton, and specimens have gone as high as \$3,500. Rich as it is, it sinks into insignificance beside a discovery made six months since in what is now known as the Chloride District, two miles from Silver City. We saw a specimen at Las Cruces which was pronounced by assayers to contain 90 per cent. of silver. A miner at Silver City took enough silver to make two large sleeve buttons from a piece of ore no bigger than a hen's egg. It is claimed that this chloride will average 85 per cent. of silver. One hundred pounds of ore, roughly reduced a few days ago by the old Mexican process, gave a plate of silver worth \$45. The gentleman who had it done has secured a mill site, and contracted with the miners in the vicinity to reduce 1,000 tons of ore for \$40

per ton. He will have a mill in full operation by next spring. Another party talks of erecting a 40-stamper. People are rushing hither from all directions, even from Ralston. Ore sells on the ground for one dollar per pound. Ten miles north of Silver City are the gold mines of Pinos Altos. These are said to have already yielded several hundred thousand dollars' worth. But little work is being done except in placer mining. The gold quartz is found in a range of hills one thousand feet above the level of Silver City. The richest is in the very tops of these hills. There are two mills at these mines, but they are not worked with regularity. A week or two ago a party of miners hired one of these mills for six days, and in that time took out eleven hundred and sixty dollars' worth of gold."

Mining Stocks.

SAN FRANCISCO, Thursday Eve., Dec. 8.

During the past week, the mining share market has been brisk and large sales have been effected, but there have been very considerable fluctuations in various descriptions of stock. Alpha has been sold from 8 down to 6. A number of shares of Amador have changed hands commencing at 245 and rising to 250. Belcher has been in brisk demand but has been very unsteady, ranging from 3¼ to 8¼. On the 2nd inst., the company levied an assessment of \$1 per share, delinquent January 5. Chollar-Potosi commenced at 76¼, fell to 69 and rose again to 78, with fair sales, and further to 91. The company received for November \$253,297; during the week ending last Saturday 1,940 tons of ore were raised from the mine, assaying an average of \$69.94. The company have declared a dividend of \$5 per share (amounting to \$140,000) payable on Saturday. Last July, and before then, the monthly dividends were at the rate of \$1 per share; in August they were \$2; in September, 2½; in October, \$3; in November, \$4; and this month they are at the rate of \$5. The stock has risen correspondingly from \$30-\$36 to \$70-\$80 last month. It is said that after paying the dividend for this month, there will remain a surplus of over half a million.

We noticed last week the rise in Crown Point from 3 up to 13. This week heavy sales have been effected. The rise continued from 13 to 16 on Friday last, but on Saturday there was a sudden drop to 9½. A telegram was received to the effect that there had been no strike in the mine to justify the excitement in the stock. On Monday and Tuesday the stock rallied up to 18, coming down to 13 on Wednesday, and selling to-day at 15½ to 16½. During November, the mine had 1,300 tons of ore crushed which yielded \$26,673.

Daney has been steadily rising from 4 to 5½. The new shaft is down nearly 300 feet, at which depth drifting is to be commenced in the direction of the old shaft, at the bottom of which very rich ore has been taken out. It is expected to strike the ledge 80 feet below the point where this ore was found. The shafts are about 200 feet apart. To these operations are ascribed the rise of the stock. On Thursday Empire Mill sold at 5. Golden Chariot has continued on the rise to 90 with fair sales. A telegram dated the 4th Dec., reports the discovery of exceedingly rich ore in the south end of the 3rd level. On November account \$61,950 have been received. Light sales of Gould & Curry and Hale & Norcross have been effected, the former at 75 to 80, the latter at 103½ to 105. On the 3rd inst., \$11,840 were shipped to this city from the Gould & Curry, which reports \$60,099 received on November account. The weekly report of the Hale & Norcross shows 1,128 tons of ore raised. This latter company have declared their regular monthly dividend of \$5 payable on the 10th.

The Eureka company have declared a dividend of \$10 per share, payable on the 10th, and are to hold a special meeting on the 3rd prox., to consider a plan of increasing the number of shares from 4,000 (at \$300 each) to 20,000 (at \$100), thus increasing the capital from \$1,200,000 to \$2,000,000. Ida Elmore sold on Tuesday at 12; the last sale was on the 19th ult. Ketchuck has sold from 41 to 35½. Quite a large number of shares of Mammoth have been sold at 25 to 33 cents. Meadow Valley has been brisk and steady at 24½ to 25½. The company pays their second monthly dividend of \$1½ per share (amounting to \$90,000) on Friday. North Star declared to-day a dividend of \$2 per share, payable on the 10th inst.

Ophir has been quite lively at 3¼ to 4¼. Original Hidden Treasure has been in good demand at 7½ to 9. In November, 280 tons ore were reduced, assaying \$36.72 per ton. The expenses during the month were \$13,300. Overman has sold from 5¼ to 6¼. The mine raised last week 525 tons of ore, most of it assaying \$30.65. On the 2nd, \$16,642 were shipped to this city. Savage reports 635 tons raised last week, averaging \$30.96 per ton. The stock was sold at 38 to 43. Silver Wave sold at 1 to 1½ on Tuesday, the first time it has been quoted for a long time. To-day shares were sold at 3. Compared with previous weeks, Yellow Jacket has been dull at 34 to 37¼. Sierra Nevada reached 20 this morning, the highest point for a long time.

Last month there were no sales of Bullion, Confidence or Gold Hill Quartz Mill, only one sale of Exchequer at \$5, and only a few sales of Occidental at 5 cents, on one occasion this last coming down to 1 cent, much below which point it is not very reasonable to suppose it would reach. Meadow Valley was one of the most popular stocks, advancing from 19 to 25. Chollar-Potosi also attracted considerable attention, rising from 71 to 84 and then ranging between 70 and 80. Golden Chariot commenced at 64 and closed at 72.

QUICKSILVER has advanced 33¼ per cent within six months, being now held at 80 cents. Concerning this the *Bulletin* says: It is to be regretted that an article of so much importance to the interests of this coast should be controlled by a powerful monopoly, able to put the price at any figure they choose to demand, as it must inevitably tend to reduce the yield of the precious metals. Many mines of low-grade ore, which could be profitably worked with quicksilver at 50 cents to 60 cents, cannot be worked without loss with the price at 80 cents. The reason given for this last advance is, that the product of the three principal mines (the New Almaden, the Redington and the New Idria) has so fallen off that the supply is not equal to the demand; and this to a certain extent, may be true. But it is generally understood that the product of at least one of these mines, which is capable of producing 1,000 flasks per month, is purposely kept down to about 300 flasks, because the owners are under a contract, which has still more than a year to run, to deliver their total product to the combination at 55 cents per pound.

Latest Mining Stock Prices.

[S. F. Stock and Exchange Board.]					
	BID.	ASKED.		BID.	ASKED.
Alpha Cons.....	7	7	Ida Elmore.....	—	—
Amador.....	255	—	for Capital.....	21	22
Belcher.....	6 7/8	7	Kent.....	35	36
Chollar-Potosi.....	90 3/4	91	Occidental.....	—	—
Confidence.....	—	—	Ophir.....	3 1/4	4
Crown Point.....	15	15 1/2	Orig. Hid. Treas.	10	10 1/2
Empire Mill.....	—	—	Overman.....	5 1/2	6
Eureka.....	34 1/2	—	Savage.....	42	42 1/2
Golden Chariot.....	87 1/2	90	Silver Wave.....	2 1/2	3
Gould & Curry.....	77	77 1/2	Sierra Nevada.....	20	20 1/2
Hale-Norcross.....	103 1/2	104	Yellow Jacket.....	36	36 1/2

Mining Shareholders' Directory—Meetings, Assessments and Dividends.

[Compiled weekly from advertisements in the *Scientific Press* and other San Francisco journals.]

ASSESSMENTS			
NAME, LOCATION, AMOUNT AND DATE OF ASSESSMENT.	DAY	DELINQUENT.	DATE OF SALE.
Altona, G. V., Dec. 2, 500.....	Jan. 9—Jan. 30	—	—
Anchor Cons., W. P., Nov. 12, 250.....	Dec. 16—Jan. 4	—	—
Belcher, G. H., Dec. 2, \$1.....	Jan. 5—Jan. 24	—	—
Crown Point, Gold Hill, Oct. 28, \$3.50.....	Dec. 1—Dec. 20	—	—
El Dorado, Va. City, Oct. 24, \$2.....	Nov. 28—Dec. 17	—	—
Empire, G. H., Oct. 13, \$1.....	Nov. 22—Dec. 13	—	—
Imperial, G. H., Nov. 22, \$10.....	Dec. 27—Jan. 18	—	—
I. X. L. Alpine Co., Oct. 18, \$2.....	Nov. 19—Dec. 7*	—	—
Kincaid Flat, Tuolumne co., Oct. 20, \$2.50.....	Nov. 21—Dec. 3*	—	—
Mahogany, Idaho, Nov. 2, \$2.....	Dec. 5—Dec. 27*	—	—
Mammoth, W. P., Oct. 6, 100.....	Nov. 11—Dec. 2	—	—
Maxwell, Amador co., Oct. 4, \$2.....	Nov. 10—Dec. 9	—	—
Black Diamond, Alpine co., Oct. 17, 500.....	Nov. 24—Dec. 12	—	—
Ophir, Virginia City, Nov. 8, \$2.....	Dec. 13—Jan. 4	—	—
Seg. Belcher, G. H., Nov. 18, \$1.....	Dec. 21—Jan. 10	—	—
Silver Sprout, Inyo Co., Aug. 29, 25 cts.....	Oct. 18—Dec. 1*	—	—
San Marcial, Mex., Oct. 13, \$2.50.....	Nov. 19—Dec. 5	—	—
Tallulah, Nov. Oct. 14, \$1.50.....	Nov. 22—Dec. 20	—	—
Trinidad & San Joé, Oct. 24, \$5.....	Nov. 28—Dec. 19	—	—
MEETINGS TO BE HELD.			
Cole.....	Annual Meeting, Dec. 14	—	—
Empire Mill.....	Annual Meeting, Dec. 21	—	—
Eureka.....	Special Meeting, Jan. 3	—	—
Hope Gravel.....	Special Meeting, Dec. 8	—	—
Ophir.....	Annual Meeting, Dec. 21	—	—
LATEST DIVIDENDS—(Within Three Months.)			
Black Diamond, \$5 per cent.....	Payable Dec. 6	—	—
Chollar-Potosi, \$5 per cent.....	Payable Dec. 8	—	—
Eureka, div. \$10.....	Payable Dec. 7	—	—
Golden Chariot, div. \$13.....	Payable November	—	—
Hale & Norcross, div. \$5.....	Payable Dec. 10	—	—
Meadow Valley, \$1.....	Payable Dec. 9	—	—
North Star, \$1.50.....	Payable Nov. 13	—	—
Sierra Nevada, div. \$50.....	Payable Nov. 10	—	—
Union, div. \$1.....	Payable Aug. 5.	—	—

*Advertised in this journal

The Date Paid to

By our subscribers is pasted on their wrappers, the last one or two figures represents the year. All are requested to send in the cash for a renewal of their subscriptions before their time expires. Don't wait to be notified.

After January 1st, THE SCIENTIFIC PRESS will be more specially devoted to MINING, MECHANICAL ARTS, INVENTIONS, AND HOME INDUSTRY.

Grapes and Fruit in the Upper Sierras

The dairy farmers in Sierra Valley, some 60 miles up the mountains, beyond Nevada City, and about 5,000 feet above the sea level, are making preparations to set out vines and trees in the valley the coming spring.

The first experiment at tree planting in that valley was made some five or six years ago by John Lipscomb. These trees have borne fruit for the past three years; but their cultivation has not been well attended to, and some of the trees have died.

The first vines were set out by Joseph Ence, about three years ago. These grapes ought to have borne the past season; but we have not heard whether they did or not.

The first regular orchard, containing a general variety of large and small fruit, was started by Mr. S. H. Herring, the agricultural correspondent of this paper, a year ago last spring. That orchard was set out upon Frank Lemmons' ranch, in the southern portion of the valley. This venture has also been very successful.

These repeated and successful experiments will no doubt operate to induce the general planting of trees and vines throughout this magnificent valley, which is about 35 miles in length by an average of six to eight in breadth. Three post offices have been established there, one near the southern, another in the center, and the third near the northern portion of the valley. These offices are named respectively, Sierra Valley, Loyaltown and Summit.

If proper care is taken in the selection of the right kind of varieties, this valley might be made the fruit garden of the mountains, and its orchards and vineyards become the most profitable investments of that kind in the State.

The kinds to be selected are such as ripen their wood and fruit early in the season, so as to be out of the way of the fall frosts. The wood of such trees readily endures the rigors of northern winters, while such varieties as ripen their fruit late, and continue to make wood until the near approach of winter, are not sufficiently hardy to resist the injurious influences of protracted and severe cold weather.

Probably some valuable selections of apple trees might be made from different varieties of Russian apples, elsewhere noticed, as now being distributed from the Agricultural Department at Washington. We have written to the Department to secure, if possible, a few of these to this coast, the result of which request we shall make known to our readers as soon as an answer is received.

The Best Kind of Cotton Seed.

EDITOR SCIENTIFIC PRESS:—Convinced from our pleasant interview of a recent date, that you are desirous of availing yourself of the most accurate and reliable sources of information related to anything that pertains to Cotton, and observing some errors in your issue of the 26th ult., in the statement of varieties of seed adapted to our soil, I have procured the enclosed letter from Maj. Jno. L. Strong, of Memphis, Tenn., now here. Major Strong is a planter on the Mississippi river bottom, who has done more for the true and scientific culture of the cotton plant than any other one Southern planter, Mr. Dickson excepted. He has secured land and plants one hundred acres, in this valley, the coming spring.

Yours,

J. M. STRONG.

Saelling, Merced Co., Dec. 21, 1870.

Col. J. M. STRONG.—DEAR SIR,—The variety of Cotton, of most value in the South for extensive planting, and adapted to every variety of soil and climate in the Atlantic Southern States, is the "Petit Gulf." There is no such thing as "Petit Gulf," as stated in the Report of the Cal. State Agricultural Society for 1865, and also in the SCIENTIFIC PRESS of Nov. 26, 1870. The Petit Gulf seed is an improve-

ment upon Mexican Seed. This improvement was effected by selections successfully made by the planters near Rodney, on the Mississippi River, in Mississippi. It derives its name from a small shipping point on the River, just below the town of Grand Gulf, known as Petit Gulf. This variety is the basis of all the improved varieties now in use, the most prominent of which are the "Dickson," "Palmer," "Moine" and "Johnson." The first (Dickson) is now the most popular improved variety in the South, deriving its name from the celebrated planter and writer on Cotton culture of that name. Mr. Dickson has produced stalks bearing 300 fully matured bolls. By careful selections for a series of years, any planter may improve his seed the method of selection you are fully apprized of.

In conclusion permit me to add, that I have never seen better developed nor more promising cotton, than that shown me to-day near Snelling. From the fact that visitors have rubbed the stalks of many limbs and bolls, it would be impossible to state what it will yield. I would safely say 100 pounds of lint cotton per acre.

Yours truly, JOHN L. STRONG.

Snelling, Cal., Dec. 21, 1870.

Eucalyptus, or Australian Gum Tree.

Wherever it has been introduced in this State, the Eucalyptus is surely becoming a universal favorite for forest, shade, street or ornamental planting. Its towering, upright habit and strength of growth; its nu-



merous branches and symmetrical bearing, and its magnificent foliage of deep evergreen, heavy, pendulous leaves elicits from all the highest meed of praise.

The accompanying engraving, furnished by E. E. Moore, nurseryman, 425 Washington street, shows a plant less than two years growth from seed, and presents a very perfect representation of a young tree. The third year a different set of leaves appear upon the new, upper branches, much larger and quite different in appearance from those of the previous growth as shown herewith. Thence and for years after, the curious feature is presented of two distinctly different sorts of leaves growing upon the same tree.

In Australia, its native country, the tree attains to the most magnificent proportions. We find it stated by the Government Director of the Botanic Gardens at Melbourne, that Mr. G. Kleim took the measurement of a Eucalyptus on the Black Spur, which was 490 feet high! That gentleman claims that to the Eucalyptus must be conceded the palm for height, though not for thickness, over the *Sequoia Gigantia* of California.

From hundreds of splendid specimens that we have seen in this State, we are constrained to believe that the Eucalyptus is at home in California, where it may yet rival the ancestral giants of its native Australian forests.

A Eucalyptus Forest in California.

Mr. J. T. Stratton has planted a forest of

some 40,000 of these trees on 50 acres of land, in Castro Valley, Alameda Co., consisting of the *E. Globulus* and *E. Gigantius* varieties. These trees are now about 10 feet high and very promising. Mr. S. designs to enlarge his forest planting until it includes all the standard American hard wood and nut trees. We believe that he is the pioneer forest planter on the Coast.

THE TIMBER OF THE EUCALYPTUS in Australia, is used for ship building, house building, fencing, and for agricultural implements, furniture, etc. Although it is very hard and strong, it can be easily split, while green, into clapboards, posts, rails, etc., and for fuel it is unsurpassed.

The bark of some varieties is said to be very rich in tannin, and is used for tanning hides in preference to other barks.

Medical Qualities.

We find the bark of the Eucalyptus highly spoken of as a medicine in fevers. As a preventive it is regarded as equal to quinine, without the injurious effects of that drug. It has been recommended as a desirable tree to plant in districts subject to the ague, as the peculiar, resinous effluvia exhaled by its leaves, is supposed to destroy the influence of miasma, in its immediate neighborhood. We are pleased to see so many planting this tree, as well as to notice the growing interest now felt in tree and forest planting generally.

Pruning the Eucalyptus—Seasonable Advice.

Unless planted in a very sheltered place, its towering growth soon exposes it to the winds so that it not unfrequently gets uprooted in winter, if not severely cut back. Its limbs and foliage also become more or less scattering, and its elegance disappears in a few years, if neglected in this respect. When the tree attains the height of 30 or 40 feet, if ornament and shade is desired, it should be thoroughly cut back in its top and leading branches. It will then throw out numerous fine branches and limbs, and present a dense and beautiful form. This advice will also apply equally well to the *Acacia*, another splendid Australia evergreen, which, when neglected, becomes straggling and sorry enough. With the proper training and treatment both these trees present an appearance unequalled for ornamental effect.

ADVANTAGES OF SECURING GOOD TITLES.

—The Nevada Gazette says:—When no man could get a title to a foot of land among these foothills, it was not worth while to embellish homes or plant trees, and men lived here as mere sojourners for a day, and talked of going home as soon as possible. They hardly acknowledged themselves in the United States, and to this day a horse of eastern parentage is called an American horse, as if California was part of Asia. But all this has changed. We now look upon California, not only as a home, but one of the most delightful on our Continent, and the day has arrived when they consider it necessary to plant vines and trees, and to embellish their homes. We shall soon have one railroad in our county, and before that is completed we shall have another. At an early day fruit will be in great demand among us, and we all feel that the day is not far distant, when the wine of California will be the wine of much of the world. All fruit is better as it climbs the hills, than it can be, when raised in the valleys; and nuts, one of the most profitable crops, can always find a market. Let homes be embellished by trees and shrubs and flowers, and home surroundings. Let vines and fruit and nut trees be planted as a rich inheritance for a future generation. Before they begin to yield a profit from the crop, they will double the value of lands, by their beauty and the prospective value of the crops to come. Those who plant now, will in two or three years be astonished to find with what little expense and trouble they have made a great moneyed speculation.

CHEAPENING BUTTER.—"Bone sweaters" is the name for men who gather up dead horses, and boil the carcasses to get the fat out of them, which is used to be sold to soap-boilers. The supply of this kind of fat seems to have so fallen off in New York that a committee was charged to investigate the cause. The report states that a better market is found for dead horses' fat among the cheap butter makers for New York.

CALIFORNIA QUAIL.—This beautiful specimen of the grouse family, which throughout our wooded hills, is now abundant, and, to use an eastern term, "as wild as a partridge," from fear and dread of the gunners art, is quite readily tamed and domesticated, when feeling no danger. In some of the private, sheltered grounds, about Oakland, where no shooting is ever allowed, they are so familiar as to feed with the chickens, and seem to expect their regular allowance of food. We could never find any pleasure in shooting these birds, compared to the satisfaction of seeing them seek the protection and friendship of men. The "noble sport" becomes wicked pastime when waged to the destruction of such innocent creatures.

ORNAMENTAL HEDGE.—THE LAURISTINUS

—On the beautiful private grounds of Mr. A. Campbell at Oakland, we were lately shown a young hedge of *Lauristinus*, two years old, which promises to be a fine thing. It was planted 2½ feet apart, and needs one year more of growth to become close, but is really pretty now. Mr. C. thinks—and so do we—that the *Lauristinus* will stand close clipping as well or better than any other shrub; indeed, it never shows to full advantage except under close training. It then presents a mass of fine foliage and flowers the year round unsurpassed for freshness and beauty in open ground.

TRADE OF SIERRA VALLEY.—The same

paper as quoted above in its issue of Nov. 23d, says: "Several of the farmers of Sierra Valley were in town to-day disposing of their dairy products, and purchasing supplies of groceries, fruit, and clothing of our merchants. Their butter sold readily at 45 cents a pound, and they expressed themselves well pleased with the price, and the reasonable rates at which they obtained such necessities as they wished to carry back with them. Besides groceries, fruit, etc., they have purchased quantities of grape cuttings, and small fruit trees which they intend to plant in their mountain valley, and try and see if they will flourish there. Sierra Valley is about 60 miles from Nevada, and 6,000 feet above the sea."

San Francisco Market Rates.

Wholesale Prices.	
THURSDAY EVENING DEC. 8, 1870.	
Flour, Extra, 3 bbls.	6 10 @ 6 50
Do. Superfine, 3 bbls.	5 10 @ 5 50
Corn Meal, 3 100 lbs.	2 25 @ 2 10
Wheat, 3 100 lbs.	1 85 @ 1 75
Oats, 3 100 lbs.	1 25 @ 1 10
Barley, 3 100 lbs.	1 25 @ 1 10
Beans, 3 100 lbs.	1 00 @ 1 00
Potatoes, 3 100 lbs.	1 00 @ 1 00
Day, 3 100 lbs.	1 00 @ 1 00
Live Oak Wood, 3 cord.	10 00 @ 12 00
Beef, extra, dressed, 3 bbls.	7 00 @ 7 00
Sheep, on foot, 3 bbls.	2 00 @ 2 00
Hogs, on foot, 3 bbls.	6 00 @ 6 00
Hogs, dressed, 3 bbls.	7 50 @ 8 00

GROCERIES, ETC.	
Sugar, crushed, 3 bbls.	14 00 @ 14 00
Do. Hawaiian, 3 bbls.	12 00 @ 12 00
Coffee, Java, 3 bbls.	20 00 @ 20 00
Do. Rio, 3 bbls.	20 00 @ 20 00
Tea, Japan, 3 bbls.	60 00 @ 1 00
Do. Green, 3 bbls.	60 00 @ 1 00
Hawaiian Rice, 3 bbls.	7 00 @ 7 00
China Rice, 3 bbls.	7 00 @ 7 00
Coal Oil, 3 gallon.	40 00 @ 40 00
Candles, 3 bbls.	14 00 @ 14 00
Overland Butter, 3 bbls.	30 00 @ 30 00
Ranch Butter, 3 bbls.	60 00 @ 60 00
Isinglass Butter, 3 bbls.	25 00 @ 25 00
Butter, 3 bbls.	12 00 @ 12 00
Eggs, 3 dozen.	50 00 @ 50 00
Lard, 3 bbls.	18 00 @ 18 00
Hams and Bacon, 3 bbls.	22 00 @ 22 00
Ham and Bacon, 3 bbls.	15 00 @ 15 00
Shoulders, 3 bbls.	9 00 @ 9 00

Retail Prices.	
Butter, California, fresh, 3 bbls.	70 00 @ 75 00
Do. pickled, 3 bbls.	40 00 @ 45 00
Do. Oregon, 3 bbls.	20 00 @ 25 00
Cheese, 3 bbls.	20 00 @ 25 00
Honey, 3 bbls.	20 00 @ 25 00
Eggs, 3 dozen.	60 00 @ 65 00
Lard, 3 bbls.	18 00 @ 18 00
Hams and Bacon, 3 bbls.	22 00 @ 22 00
Ham and Bacon, 3 bbls.	15 00 @ 15 00
Potatoes, 3 bbls.	2 00 @ 2 00
Potatoes, sweet, 3 bbls.	2 00 @ 2 00
Tomatoes, 3 bbls.	2 00 @ 2 00
Onions, 3 bbls.	2 00 @ 2 00
Apples, No. 1, 3 bbls.	4 00 @ 5 00
Pears, Table, 3 bbls.	4 00 @ 5 00
Plums, dried, 3 bbls.	10 00 @ 10 00
Peaches, dried, 3 bbls.	10 00 @ 10 00
Oranges, 3 dozen.	50 00 @ 50 00
Lemons, 3 dozen.	50 00 @ 50 00
Cheese, 3 bbls.	20 00 @ 25 00
Turkeys, 3 bbls.	75 00 @ 75 00
Soap, Pale and G. O.	10 00 @ 10 00
Soap, Castile, 3 bbls.	18 00 @ 20 00

A NEW PLOW.—Mr. L. D. Gavitt, of Los Angeles, according to the *News*, has invented a new subsoil plow, which consists of an ordinary plow, such as is generally used, with a smaller plow of the same pattern directly underneath, and so arranged that the lower one can be readily adjusted and guided by the man who holds the main plow.

Household Reading.

Essence of Soup Herbs, Etc.

It is always convenient for the housewife to have at hand a ready means for flavoring her soups. The sprinkling in of crushed, dried leaves, etc., is, at best, but a barbarous way of arriving at the desired results, the importance of which was fully pointed out in a recent article, under the head of "Delicacy Essential to Food." The following preparation which has been highly recommended, can always be kept at hand for such purpose:—Take of thyme, winter savory, sweet marjoram and sweet basil—each one ounce; grated lemon peel and eschalots one half ounce each; bruised celery seed one quarter ounce, and alcohol one pint. Allow the mixture to stand two weeks, when it will be ready for use, and will constitute a convenient and very superior flavoring essence for soups, gravies, etc., without the presence of unsightly leaves and seeds floating around in the same.

ESSENCE OF SAVORY SPICES.—A most excellent preparation of savory spices, for many purposes decidedly preferable to "ground spices," may be made as follows:—Take of black pepper (ground), 4 oz.; powdered turmeric, 3 dr.; coriander seed (ground), 1½ oz.; oil of pimento, 1½ dr.; oil of nutmeg, oil of cloves, oil of cassia and oil of caraway, each ¼ dr.; and alcohol one pint. Mix and allow to stand two weeks, with frequent agitation.

ANOTHER.—Take of black pepper, 3 oz.; allspice, 1½ oz.; nutmegs and burnt sugar, each ½ oz.; cloves, coriander and caraway seeds (all ground), 1 dr. each; and add alcohol one pint. Mix and allow to stand two weeks, with frequent agitation, then press and filter. This is used when it is not convenient to get the essences.

When all the ingredients named cannot be conveniently obtained, a portion may be used, but not with such satisfactory results. Flavoring prepared after the above directions will be found very strong, and may be termed the "essence of savory spices" or herbs. A weaker preparation may be made by using the same amount of alcohol, with one-half the other ingredients; such a preparation may be called a "tincture of savory spices."

A preparation of this kind made in the kitchen directly from the spices and herbs named is much preferable to that purchased of dealers, which is too often made up of chemical and mineral compounds, not one of which, perhaps, has ever passed through a vegetable organism.

Potatoes and Beans.

Of all edible roots the potato stands at the head. It is especially useful to eat with lean meat—to which it stands in the relation of fat or carbon. Meat and potatoes together constitute about the same aliment as bread, on which alone, it is well known man can live longer than on any other food.

Potatoes when used with oat meal, peas and beans, supply all the muscle-making elements required for the laboring man—these three latter answering instead of meat.

All old California miners will recollect the exceeding great relish with which beans were eaten in 1849 and '50, before beef was plenty in the mines. They formed, with most, the chief staple of food. The miners of those days could scarcely have stood up under the hard work and exposure to which they were necessitated, if it had not been for their bean diet. It was thence they derived the nitrogen or muscle-making food ordinarily obtained from a meat diet.

The potato is almost entirely devoid of muscle and brain food—all that it does contain is found in the "eyes" or germs, and they, especially in old tubers, are generally cut out by the fastidious cook.

How to Reduce Corpulency.

Avoid all fatty or oily food, such as butter, gravies, milk; also all bread except that made from unbolted flour; avoid sugar and all kinds of sweet fruits; also beets, turnips, potatoes and rice.

The diet should consist as far as possible of lean beef or mutton, graham bread, acid fruits and such vegetables as peas, beans, tomatoes, cabbage (when boiled with lean meat) spinach and asparagus. Vinegar may be used as freely as it can be done without injury to the system generally.

The leaner or less oily kinds of fish may be eaten; but salmon and mackerel should be especially avoided.

Eat but twice each day, and that sparingly; take much out door exercise, and secure as much perspiration as is consistent with general health. Bathing and vigorous rubbing are good assistants. Avoid an excess of sleep and ill ventilated apartments. Abstain from ardent spirits and especially strong beer or "lager;" water slightly acidulated with good cider vinegar is the best drink which can be used. It will be better to avoid both tea and coffee.

SOAP ADULTERATIONS.—Soap may be made to contain more or less water, and some other ingredients, according to the manufacturer's desires more or less profit. Different kinds of hard soap vary in the amount of water contained, from 20 to 35 per cent. J. M. Willett's New York premium soap, lately analyzed in that city, was found to contain 30 per cent. of water and 20 per cent. of starch. The latter ingredient, whenever found in soap is an unmitigated fraud, as it has no property whatever of cleansing, nor does it enter into any of the chemical combinations required in the manufacture of soap, as is the case with water to a certain extent—about 20 per cent. Starch is used because it will hold several times its own weight of water. Other ingredients are sometimes employed in adulterating soap.

LARGE HEADS.—A general idea holds good, that large heads mean large intellects; that weight of brain indicates mental strength. But this notion is a false one. Man is inferior to some apes in the proportion which his brain bears to his body. When we come to animals the differences are very striking. To range a few of the commonest animals in the order of brain weights, we have the following descending scale:—Cat, dog, rabbit, sheep, ass, pig, horse, and ox. The cat has six times as much brain in proportion to her size as the horse has in proportion to his size. The pig has more than the horse, the sheep more than the pig. These facts almost set us wondering whether the brain has anything to do with the intellect at all.

DIFFERENCE BETWEEN THE ACTION OF CHLORAL AND OPIUM AND CHLOROFORM.—It is said that the action of chloral differs from that of opium and chloroform in the following respect: From the sleep produced by chloral one may be awakened at any time, with instantaneous command of all his faculties, and may then drop off into unconsciousness again. This is not the case with opium. Chloral does not effect the secretions, and is always certain and safe, when the dose is not excessive, even for children. This cannot be said of either, opium or chloroform.

DISINFECTING AGENTS.—Disinfecting with metallic salts, like chloride of zinc, or zinc vitriol, cannot be depended upon, since they simply deodorize, but do not destroy the miasma. Carbolic acid, its salts and compounds, are the only reliable disinfectants.

BAKED POTATOES MOST NUTRITIOUS.—Potatoes are more nutritious baked than when cooked in any other manner; and they relish better with those who have not been accustomed to eat them without seasoning. Wash clean, but do not soak them. Bake them as quickly as possible without burning in the least. As soon as they are done press each potato in a cloth so as to crack the skin and allow the steam to escape. If this is omitted the best potatoes will not be nearly so good. They should be brought immediately to the table, as they will soon become solid and lose their flavor.

Household Receipts.

POTATO FRITTERS.—For potato fritters, grate six cold boiled potatoes, add to them a pint of cream (new milk will do), and flour enough to make as stiff as other fritters, the yolk of four eggs, then the beaten whites, and a little salt. Fry in hot lard or butter. They are delicious.

BEER HASU.—Slice some cold beef, and some cold boiled potatoes, put an onion to a good gravy, either from the joint or stewed from the bones. Let the potatoes and beef simmer in the gravy. Add pepper and salt, thicken the gravy, and serve hot, with slices of toasted bread in the hot-tom of the dish.

TO "DO UP" BLACK SILK.—Boil an old kid glove (cut into small shreds) in a pint of water till the water is reduced to half a pint; then sponge your silk with it; fold it down tight, and ten minutes after, iron it on the wrong side while wet. The silk will retain its softness and luster and at the same time, have the "body" of new silk.

TO WASH BLACK CALICO WITHOUT FADING.—Put it to soak in weak suds made boiling hot; let it stand until cool enough to handle, then wash and raise in the usual way. For stiffening, use strong coffee or old ekim-milk.

TO DRIVE AWAY BED-BUGS.—An exchange gives the following as a sure way to drive bed-bugs from old bedsteads: "Take green tomato vines, put them into a basin or tray, pound them to pieces as fine as possible, then stain the bedstead where they inhabit, with pieces of vines, lay leaves under the ends of the elats." If this is practiced twice a year, not a bug will remain in the bedstead.

REMEDY FOR THE EAR ACHES.—The following is given as an excellent palliation for the ear-ache—one of the worst and most irremediable aches to which children are subject: Take a bit of cotton, put upon it a pinch of black pepper, gather it up and tie it, dip it in sweet oil, and insert it in the ear. Put a flannel handkerchief over the head to keep it warm. The application will generally give immediate relief.

Mechanical Hints.

FACTS ABOUT VARNISH.—A very warm temperature is exceedingly trying to the worker in varnish. When the thermometer stands at 90° to 100° the patience of the workman is severely tried. From 65° to 70° is the most favorable temperature for varnishing.

Frost is also another severe trial on the delicacy of coach and car or carriage varnish. If, on a frosty night, the fire in the paint-shop goes out, and the frost takes the varnish just at the point of setting, it will often produce most unsatisfactory results. The most common of these is "crimping" (or "enameling" or "eraping"). This consists of a peculiar shriveling of the surface, producing an effect similar to what would result from the pressure of crape upon the soft surface. The only remedy for this is to keep a steady fire in the paint room until the varnish is thoroughly set.

Frost will also sometimes bring out or "show" the grain on a finished panel. It has been stated, on good authority that frost has pushed the grain out through twelve to fifteen coats of paint, the night after being varnished, while another panel, as similar as could be, and treated alike, only kept from frost, remained perfect.

Still another effect of frost is its tendency to expand the wood, especially when the seasoning is not absolutely perfect.

To insure a perfect varnish job, use moderately three coats, observing in all cases that the brush marks flow out. It is particularly important that the first coat should be thin, as that is more liable to "crawl" or "pit" than the subsequent ones. The first coat should be applied as thin as will allow of its flowing out the brush marks.

WATER-PROOF GLUE.—Take one ounce each of gum sandarac and mastic, and dissolve in one pint of alcohol, then add one ounce of turpentine. Have ready a small pot of ordinary glue, to which a little isinglass is added, which is now to be gradually mixed and stirred into the first mixture—both mixtures must be hot; and immediately after being mixed strain through a piece of linen or fine sieve. It must be applied hot—it dries quickly and very hard, and wood united with it will not separate even when immersed in water.

PERMANGANATE of potassa will give white woods the color of walnut. Use warm solution.

Life Thoughts.

Men often blush to hear what they are not ashamed to do.

GREAT DIFFICULTIES, when manfully met, bring out great virtues.

GOOD-NATURE is a glow-worm, that sheds light even in the darkest places.

HAPPINESS is a perfume that one cannot shed over another without a few drops falling on one's self.

SUCCESS rises on the hour—grapple it and you may win; but without a grapple it will never go with you.

LUCK whines, Labor whistles. Luck relies on chance, Labor on character. Luck slips down with indigence. Labor strides upward to independence.

A HAPPY LIFE is made up of happy thoughts, and a man should be a very miser in hoarding, conscientiously, every mill of the treasure.

FORGIVING.—The power to forgive flows from a strength and greatness of the soul, conscious of its own force and security, and above the little temptations of resenting every fruitless attempt to interrupt its happiness.

GOOD AND POOR THINKERS.—Dull thinkers are always led by sharp ones. The keen intellect cuts its way smoothly, gracefully rapidly; the dull one weers its life out against the simplest problems. Next to a good heart and a clear conscience, is a clear head.

AVOID RASH SPEAKING.—They that speak without care often remember their own words afterwards with sorrow. They that expect peace and safety should restrain their tongues with a bridle.

THERE is no folly equal to that of throwing away friendship in a world where friendship is so rare.

Cheerful People.

God bless the cheerful people—men, woman or child, old or young, illiterate or educated, handsome or homely. Over and above every other social trait stands cheerfulness. What the sun is to nature—what God is to the stricken heart which knows how to lean upon Him—these cheerful persons in the house and by the wayside. They go unobtrusively, unconsciously, about their silent mission, brightening up society around them with happiness beaming from their faces. We love to sit near them; we love the expression of their eye, the tone of their voice. Little children find them out, oh! so quickly, amid the densest crowd, and passing by the knitted brow and compressed lip, glide near, and, laying a confiding little hand on their knee, lift their clear young eyes to those loving faces.

TEARS AND LAUGHTER.—God hath made both tears and laughter and both for kind purposes; for as laughter enables mirth and surprise to breathe freely, so tears enable sorrow to vent itself patiently. Tears hinder sorrow from becoming despair, and laughter is one of the very privileges of reason.

WISDOM AND PLEASURE.—If we apply ourselves seriously to wisdom we shall never live without true pleasure but learn to be pleased with everything. We shall be pleased with wealth so far as it makes us beneficial to others; with poverty for not having much to care for, and with obscurity for being unenvied.

SELF-HELP.—He who has not learned the lesson of resolute self-help has made little progress as a student, has grown little toward real manhood. Half the world refuses to do its own thinking, to toil through the solution of its own knotty problems; hence, half the world, who will not do this, must be subject to the other half who will.

OBEY YOUR PARENTS.—Show me the boy who obeys his parents, who has respect for age, always has a friendly disposition, and who applies himself diligently to get wisdom, and to do good towards others, and if he is not respected and beloved, then there is no such thing as truth in the world.

SILENT TEACHERS.—The silent influences of life are by far the greatest. We do not know at what moment we are stamping the character and coloring the whole future life of our associates by our voiceless examples or our most unpremeditated words. Many a father has poisoned the purity of his boy's soul by employing an unprincipled hand on the farm for a single season. It is not enough that your workman has brawny arms and is a good worker. Are his habits also good? If not, better let your grain fields rot on the soil than employ him.—Working Farmer.

Scientific Press.

W. B. EWER.....SENIOR EDITOR.

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A. T. DEWEY. GEO. F. STRONG.
W. B. EWER. JNO. L. BOONE.
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TWO EDITIONS.—We now issue a mining edition and a farming edition of the Press. The difference consists in changing the reading matter of the 6th and 7th pages [All advertisements appear in both issues, affording an immense circulation.] Subscribers will please notify us if they do not receive the edition they prefer. Both editions furnished to one address for \$7 per annum.

San Francisco:
Saturday Morning, Dec. 10, 1870.

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Gold and Legal Tender Notes.

San Francisco, Thursday, Dec. 8, 1870.—Legal Tenders buying @90%; selling @91. Gold in New York to-day 110%.

Where to Get Cotton Seed.

It is presumable that many persons in the state, will desire to experiment in the growing of cotton, the coming season, on a more or less extensive scale; and we would recommend all such as desire to obtain the best and most approved seed, to apply to Mr. J. M. Strong, Snelling, Merced county. Mr. S. is agent for planters producing the several varieties named in the communication in another column under the head of "The Best Kind of Cotton Seed," and he will order, without extra charge for commission, at the following rates:

Dickson seed, \$5.00 (currency) per bushel, delivered on the cars and bills of lading taken.

Puler, same price.

Petit Gulf, \$1.50 (currency) per bushel, sacked and delivered on cars as above.

Orders, accompanied by the funds necessary to cover the amount desired, with name and shipping point, addressed to Mr. Strong, as above, (care of James Dale Johnson); or to Dewey & Co. of the SCIENTIFIC PRESS, San Francisco, will be forwarded at once and guaranteed pure.

THE SPECIAL AGENT and correspondent of the SCIENTIFIC PRESS, Mr. W. H. Murray, after having for several years traveled throughout the principal mining and farming districts of California, Nevada, Montana, Idaho and Utah, is now about to visit the Eastern States on the business of the paper. Mr. Murray has been unusually successful in making friends wherever he has been in the Pacific States and Territories, and his descriptive letters have been extensively read and copied. We hope that he may make as pleasant impressions in the Central and Atlantic States, and we bespeak for him a kind reception there from the many friends of our paper. He is duly authorized to make contracts for the SCIENTIFIC PRESS and the PACIFIC RURAL PRESS as fully and favorably as can be made in our own office.

Mining Commissioner's Report

Through the courtesy of Prof. W. P. Blake, we have been furnished with an early copy of the first issue of the report of the U. S. Commissioner of mining statistics. This forms a large octavo of over 800 pages. The report was transmitted to the Secretary of the Treasury last March, but such is the snail-like rapidity with which documents of the kind are printed and bound in the government office, that months may still elapse before the work will be fairly presented to the public. The delay is of course very vexatious to the author, who has nothing to do, however, in the circumstances, except to keep his temper.

Mr. Raymond has evidently "laid himself out" (if we may be pardoned the expression) in this book, and, we think, to advantage. He has not hesitated to call to his assistance efficient co-operators, and not only have we here valuable statistical matter, but also treatises on mineral deposits, mechanical appliances of mining, metallurgical processes, U. S. mining law, etc.; and the book contains much which has never before been collected and printed in the English language, so far as we are aware.

Mr. Raymond estimates the bullion product for 1869 as follows:

California.....	\$20,000,000
Nevada.....	14,000,000
Oregon and Washington.....	4,000,000
Idaho.....	7,000,000
Montana.....	12,000,000
Colorado and Wyoming.....	4,000,000
New Mexico.....	500,000
Arizona.....	1,000,000
All other sources.....	1,000,000
	\$60,500,000

"The falling off, as compared with 1868, is less than the severe drought, affecting the placer mines, the disastrous conflagration in three most important silver mines, and the trouble from miners' strikes would lead us to expect. In fact, the decrease in the placer product has been partly counterbalanced by an increased yield from quartz mining; and it is especially encouraging that the causes of decrease have been temporary, while the causes for increase have been such as to operate with augmented effect hereafter. I cannot but consider the prospects of our mining industry in the precious metals as far more promising than they were a year ago."

Mr. Raymond's attempt to collect certain statistics through blanks sent to miners, mill-men, etc., etc., failed. Out of 234 sets sent, answers to only 31 were received. To persons acquainted with the reserve of those connected with mining in our country as to publishing their private business, which they consider to be nobody else's business, this result is not so very surprising, and probably Mr. Raymond expected no very brilliant returns; had the attempt been successful, however, no private individual would have been harmed, while the public would have been benefitted. Yet Mr. Raymond has succeeded in collecting quite a large amount of valuable statistics, which appear to have been prepared with care, which is really quite surprising when we consider the limited amount of funds at the Commissioner's disposal.

In regard to the troubled matter of mining laws, there is a long letter from Hon. E. F. Dunne, of White Pine county, Nevada, which is very valuable in its treatment of the subject and in its suggestions. Mr. Raymond gives the draught of a proposed bill amendatory to the Act of July, 1866. We have no space to discuss the bill here. It covers some of the disputed points, but leaves others untouched. It proposes granting land of a width not exceeding 250 feet on each side of a vein or lode (but of the length of the claim it says nothing), with the right to all other veins or lodes within said tract. It would grant a patent covering an area of — feet for all deposits, except those in lodes, of gold, silver, cinabar or copper, and the right to all minerals within said tract, without the right to

follow the mineral deposit into the land adjoining. It contains sections providing conditions necessary to establish title, etc. One provision allows the payment of a sum of money (to be determined hereafter) to the U. S. Revenue Collector of the district, in place of performing 24 days of faithful labor upon the claim subsequent to the date of location and before a certain day of each year. Such are some of the points.

There are exceedingly interesting chapters (Part III) on mineral deposits. Mr. Raymond treats of various theories, although wisely committing himself to no one general one to apply to all cases. He rather favors the theory of the growth of nuggets in alluviums, a theory which has found some able supporters. While we would by no means deny the possibility of such growth, rather incline to it to some extent, yet we have our doubts also. The purity of such nuggets can be well explained by the action of water and air to which they have been exposed for long periods. In regard to size, we hear of large pieces of gold found in veins, and almost all the large nuggets unearthed have large amounts of quartz adhering or intermixed with them. The matter is still very unsettled. Mr. Raymond's treatment of mineral veins is also interesting.

Dr. Van der Wyde's chapter on wind as a motor justly calls attention to a force which has been neglected by those connected with mining, while it is a most promising subject. Part V treats of metallurgical processes and is an excellent addition to the book. Prof. W. P. Blake's article (Part IV) on the mechanical appliances of mining are an exceedingly valuable contribution to our works on mining, and are profusely illustrated. We shall refer to this more fully hereafter.

In concluding our hasty and imperfect remarks, we would again express our pleasure at Mr. Raymond's report. We hope that it will be widely spread among our mining districts, as it is replete with matter valuable to our mining community. As it is published at the government expense for gratuitous distribution, we hope that the details of the distribution may be so arranged that the object intended may be attained.

UNIVERSITY OF THE PACIFIC.—The commencement exercises of the Medical Department of the University of the Pacific were held at Mercantile Library Hall on Wednesday evening. A large audience was present and the affair passed off most pleasantly. Rev. C. H. Benson opened the exercises with a prayer, after which the degree of M. D. was conferred on Messrs. F. A. A. Belinge, J. B. Pilkington and C. Rowell. The *ad eundem* degree was conferred on Drs. H. M. Fiske, of St. Charles Medical Coll., Ill., A. S. Dubois, M. B. Pond and A. J. Younger, of the Toland Medical Coll., and C. P. Chesley, of the Vermont Medical Coll. Prof. W. H. Smith delivered the valedictory address on behalf of the Faculty, and Hon. Newton Booth, of Sacramento, made a very witty and pleasant speech which was frequently applauded. Rev. Dr. Thomas pronounced the benediction. The students of the Medical Department now number 25. The Faculty intend giving a course of Lectures this winter in addition to the regular course.

METROPOLITAN RUBBER HOSE.—Mr. J. L. Constable, 72 Montgomery Block, agent for the Odorless Rubber Co., of New York, has shown us specimens of a new hose for steam fire engines, mills, etc. There are two qualities: the 4-ply and the rubber-lined hose. The former has stood successfully a pressure of 400 lbs., and the latter 300 lbs., per square inch. The hose has the highest recommendations. It is said not to sweat, leak or rot, to be exceedingly durable and to pack so neatly that 1,500 feet can easily be carried on one hose reel. It is very light and in other respects has the best claims for notice from miners, farmers, mechanics and business men generally.

A California Embalming Process.

The Egyptians Outdone.

Some two years or more since, we made allusion to a process of embalming, invented and practiced by Dr. B. F. Lyford, of this city. At the time referred to, we were called upon to view, at an undertaker's room on Market street, the remains of Mrs. C. A. Ward, late wife of John B. Ward, of San Leandro, which had been embalmed by Dr. Lyford. The body, although it had lain freely exposed to the air for several months, did not exhibit the slightest evidence of decomposition. During the time which has since elapsed—some two years, or more—the body has been suffered to remain, as above, in an open casket.

A few days since we took another occasion to examine it, and found it still as we first saw it, the only change being a process of hardening, until the flesh has become as firm as horn or bone, and quite as hard, but more brittle. The chemicals employed in the process of embalming seem to have absorbed the juices of the body, and with very little shrinkage of the features, to have converted them into a semi-vitreous condition, in which state, with ordinary care to avoid excessive moisture or heat, there is every reason to believe it will remain through all future time, without the least perceptible particle of effluvia passing from the body.

Quite a number of intelligent and scientific gentlemen have examined the remains, and all bear testimony to the perfection with which the embalming has been done, and the perfect manner in which the features and expression of the countenance have been preserved.

Dr. L. has embalmed quite a number of subjects, and among others the remains of Mons. Pierre Bidcan, which were sent to his friends in Paris some two years since, and where the condition of the body attracted so much attention from scientific men and others, that space was given for it in one of the churches of that metropolis, where it was suffered to remain for public inspection some four months, eliciting general surprise for the natural and life-like appearance which it presented.

Dr. Lyford has practiced his art on quite a number of other bodies, in all of which he has met with corresponding success. Had the body of the late lamented General Thomas been placed in charge of Dr. L., the story that reached us of its condition, before it reached half the distance to New York, would never have been told; and the thousands of his friends and comrades at the East, who had so much desired to gaze once more upon the countenance of one they loved and respected so much, might have had their desire gratified, in a manner which would have left no unpleasant remembrance, save that the life-like form which they viewed had lost its consciousness forever. The process is as yet known only to the Doctor, and although apparently so perfect, he still hopes to further improve it before imparting his secret to the faculty and the world.

COAL, OYSTERS AND DIAMONDS.—In another column will be found a report of Prof. Le Conte's very interesting lecture before the Mechanics Arts College on the mode of formation of coal beds. The theory advanced then was very ably handled, but naturally full justice can not be done to the Professor's arguments in the condensed report to which we are limited. Still the report will give a very fair idea of the Lecture, and we think our readers will derive much benefit from our accounts of the series, in preparing which expressly for the Press considerable care has been taken.

In the Academy of Sciences, the matter of raising oysters in our Bay was treated, and if, as there intimated, the breeding of superior varieties can be successfully carried on, it will be a great gain for us. We likewise called attention to the finding of diamonds in Arizona, noticed in the report of the meeting of the Academy.

RECEIVED.—We have received from Prof. W. P. Blake, a number of additional reports of the United States Commissioners to the Paris Universal Exposition of 1867.

Patents and Inventions.

Full List of U. S. Patents Issued to Pacific Coast Inventors.

[FROM OFFICIAL REPORTS TO DEWEY & CO., U. S. AND FOREIGN PATENT AGENTS, AND PUBLISHERS OF THE SCIENTIFIC PRESS.]

FOR THE WEEK ENDING NOVEMBER 29th.

MANUFACTURE OF ARTIFICIAL STONE.—William H. Foye, San Francisco, Cal.
RIDDLE FOR SEPARATING GRAIN.—Matthew M. Cooper and James W. Donaldson, Fairfield, Cal.

NEEDLES AND THEIR CARRYING-ARMS FOR SEWING-MACHINES.—Charles Henry Palmer, New York, N. Y., assignor to A. F. Sawyer, William H. Sharp, Jacob Rogensburger, Charles D. Carter and Mary P. Carpenter.

ANIMAL-TRAP.—Romano E. Wood, Santa Cruz, Cal.

APPLICATIONS FOR FOREIGN PATENTS.

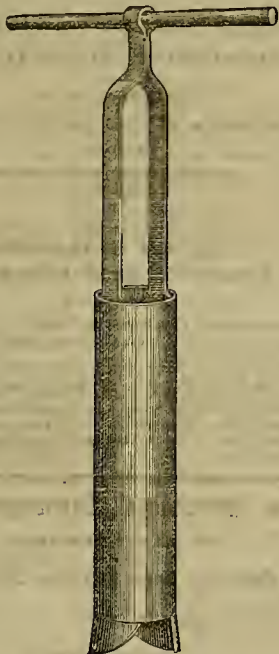
Robinson Rutter, of Vallejo, Solano County, has made application for a British Patent, on improvements in the means or method of securing or locking screw-bolts and nuts. Dated 9th November, 1870.

Ernest von Jensen, of the city and county of San Francisco, State of California, has made a like application for a patent on "improvements in automatic lubricators."

NOTE.—Copies of U. S. and Foreign Patents furnished by Dewey & Co., in the shortest time possible (by telegraph or otherwise) at the lowest rates. All patent business for Pacific coast inventors transacted with greater security and in much less time than by any other agency.

Patent Earth Boring Auger.

Our farmers often require some simple apparatus for boring wells, post holes and the like. The present invention is an evidence of the extent to which this want is



ORCHARD'S PATENT EARTH BORING AUGER.

felt. It is the result of practical working on a farm, the inventor being a practical farmer, who required a simple device with which he could bore successfully in all kinds of soils—in our mountains or valleys.

The auger is intended for wells, post and other holes, but the one here represented is the special construction for post holes. It consists of a hollow cylinder, having at the bottom two or more bits or cutters so arranged as to take the earth up into the cylinder, where it is packed and thus can be readily removed from the hole. The cutters may be made of one piece with the cylinder, or may be made separately and riveted on; their edges describing, when the device is revolved, a somewhat larger circle than that of the cylinder, thus enabling this last to turn without friction against the sides of the hole.

For sinking wells, the device is essentially the same, except that there is a peculiar arrangement for fastening together the different lengths of tube necessary to be added in deep boring.

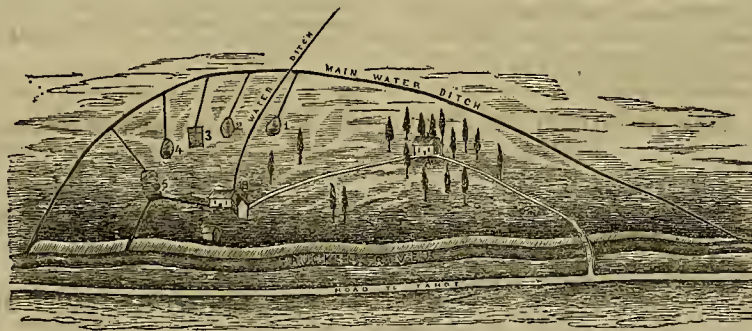
The inventor has experimented long with his device and now offers it to the public with a feeling of satisfaction resulting from his own successful workings with it. It will easily bore the common hard-pan, which in many places occurs near the surface, enabling the farmer to set his posts far more solidly than he otherwise could do, and in a much shorter time, especially as here there is no necessity of sharpening the posts. It will act equally well in other soils. For well-boring when quicksand is struck, there is a portable valve in connection with the device, which can be used or removed at pleasure.

The mere looks of the invention, it is claimed, give no adequate idea of its capabilities. The inventor wishes persons to be eye-witnesses of its operations, which are the convincing proofs of its excellence. He is certain that he can demonstrate by working-experiments the superiority of his auger, and we therefore advise the numerous class of persons interested to either visit or apply by letter directly to him. A patent was granted through the SCIENTIFIC PRESS Agency in October of this year to Mr. Thomas Orchard, (of Lincoln, Placer county,) who is the gentleman to whom we have referred.

A California "Fish Ranch."

Our correspondent, W. H. M., sent us some time ago a description of the fish-ranch of the California and Lake Tahoe Artificial Fish Culture Company, which we here publish.

This company, J. H. Connor & Bro., have a fish farm about four miles from Truckee on the Truckee river. The situation is a most beautiful one, and the owners have taken advantage of the opportunities to make it a most charming spot. We pass up on the main road to Truckee until opposite their place, where we cross the river on a small bridge, and ride up to the house, situated in a grove of small pines, which give a pleasant and romantic appearance. The accompanying rough sketch will give a general idea of the grounds, the location of the ponds, etc., and render



FISH RANCH OF CALIFORNIA AND LAKE TAHOE ARTIFICIAL FISH CULTURE CO.

more intelligible the following description. The company, I may here state, commenced operations in 1867, and although without much previous experience in the business at that time, have yet been very successful in their experiment of raising trout.

Surrounding the grounds on all sides, except where the Truckee forms a boundary, is their main ditch (a mile long, two feet wide at the bottom, 20 inches high, and with a fall of a quarter of an inch to the rod) which takes its water from the river and conducts it to the various ponds, affording an adequate supply for all purposes.

The Ponds,

There are six ponds. That marked 1 in the cut is 75 x 50 feet and six feet deep. Here are the first fish raised by the company, which are three years old and will average 1½ pounds in weight. They number about 2,000, and visitors coming here are allowed to fish for the speckled beauties. These fish are fed on small minnows from Lake Tahoe. The pond is supplied with water from the main ditch through a trough, 10 x 20 inches, and from the further end of the pond is an exit down to the river, so that there is always a current of

fresh, pure water.

Pond No. 2 is 70 x 40 feet, six feet deep, and shaded in places to give the fish the dark retreats which they like. Here are some 8,000, now two years old, which were hatched from this pond. Pond No. 3 is a wooden tank, 12 x 30 feet, with two feet of water, holding 6,000 two year old fish which will average five inches in length. Pond No. 4 is 20 x 20 feet, and contains 10,000 trout, which are to be moved to a larger pond the coming winter. Pond No. 5 is 40 x 80 feet, and 10 feet deep, in which are 100,000 beauties. This pond is located 45 feet from the hatching-house, with which it is connected by a trough 8 x 6 inches. Through this trough a constant stream flows from the hatching-house to the pond, and by this the fish are transferred at the proper time. In the pond they are fed for the first time, and as they grow they are changed successively to the other ponds in the order intimated above.

The company collects the small streams flowing down the hills behind their place in a large pond, 70 x 80 feet, which they have built some 250 feet above the other ponds. This they have carefully constructed, having a heavy stone dam, 8 feet wide, of rough stone. In this pond the company, the first year, put all of the small fish as soon as they were moved from the hatching-house, 50 days after hatching; but they lost heavily by the operation, for the greater part of the small fry got into the interstices between the rocks, and large numbers perished. This showed the owners that a common earth-bank or planking is preferable for the sides of the ponds. The company propose now to raise minnows here for food. In the diagram, A is the house where the owners reside, B the hatching-house, and C the stables.

The Hatching-House—Hatching.

The hatching-house is 42x18 feet. In it are the hatching-hoxes, of one of which I send you a drawing. These hoxes are 12 feet long and 20 wide and are raised about three feet from the floor for the convenience of the workmen. They are divided up by partitions 18 inches apart, and the bottom is covered with a layer of gravel an inch deep. These partitions are simply bars, laid across the hox, which breaks somewhat the force of the current and create eddies, which are of advantage.

The water used here is not taken from the main ditch, as the purer water of springs is desirable. The water for hatching is taken from a spring, a quarter of a mile back of the ranch, and led through a box, 6x8 inches, to the hatching-house.

The temperature of the water in spawning season is about 45 degrees. The spring water is led into small tanks and thence to the hatching-hoxes.

The season for hatching in this locality extends from the beginning of May to the latter part of August, but the company do not attempt it later than July. They get the female fish each year at the spawning season and obtain the ova in the manner illustrated in the Press of May 7th of this year. After impregnating them (in the manner there described) the owners place the eggs in the hatching-hoxes on the gravel. The eggs are examined daily and all dead ones removed. When first hatched the fish have the form shown in the small cut, and as they draw nutriment from the large umbilical bladder, they do not require to be fed. But as the matter here is absorbed, they are carried over the bars, out of the boxes into the trough below (over a heavy fall, where they must get terribly shaken up, and out into pond No. 5, as before related).



Feeding the Trout.—Improvements. The company feed the fish with mutton liver and curds. The fish will thrive on

either but seem to prefer the former. Two livers, costing 12½ cents each, are fed daily, and thus the whole expense is only 25 cents for the whole lot of small fry. The larger ones are fed with minnows, as stated above. The liver is chopped up very fine and strained through a fine wire screen. Next year the company will experiment with a small lot, giving them curds only. It will be readily understood why it is impossible to let the large and the small fish remain in the same pond. The small fry would not remain there long if the proprietors wished it, for they would be devoured by their larger kindred.

In the winter, the ponds sometimes freeze over, but the proprietors assure me that the fish do not appear to suffer thereby. It is intended to make a large pond, 200 feet square and 12 feet deep, the coming winter, and the owners being old placer miners, propose to do this by hydraulic process, taking 200 inches of water from the main ditch and washing out the ground, letting the earth, etc., pass down into the river. Thus they can make their pond at a very small expense.

Etc.]

The fish hatched out are sold at the rate of \$40 per thousand when from six weeks to two months old. When older, the price is higher, ranging from \$40 to \$100 per thousand, at which last rate some sales have been made of fish eight months old. The largest ones sell readily here at 2½ to 30 cents per pound, and when only a few are taken, at 50 cents per fish. Quite an amount of fish have been taken by the farmers of Humboldt, Nevada, who have small ponds on their ranches, and who, I am told, are doing splendidly in this respect.

This company expect to raise from 100,000 to 200,000 next year. They propose to send specimens to the coming exhibition of the Mechanics' Institute of San Francisco, in 1871, and I can conceive of no more interesting exhibit than this.

The proprietors have been working with the greatest patience and energy during the last three years, have labored under many difficulties, have spent large sums of money, some eight to ten thousand dollars. They now have the prospect of realizing some returns, and I heartily wish them success. You have already called attention to the danger of our having our streams depopulated of the finny tribe, unless some preventive measures are taken, and to the possibility of farmers and others stocking small bodies of water with these useful and delicious fish. There is no doubt but that fish culture could be made most profitable in many places on our coast, and if the subject is not attended to now, it must be hereafter. The ova or the fish can easily be transported with safety. This company can send them in 20 hours from their hatching-hoxes or ponds to your city.

Messrs. P. Pingel and J. Hurley are building a fish pond near Lake Tahoe, at the mouth of Truckee river. They are now constructing spawning beds and ponds, having commenced operations on the first of September.

THE AMERICAN JOURNAL OF SCIENCE AND ARTS, the oldest of our scientific serials, closes its first century of volumes this year, and will hereafter be continued as a monthly, instead of appearing only six times a year. Its reputation has been of the highest, in accordance with its merits, and we rejoice at this intimation of its increasing success. Being the leading exponent of the views of our American Scientists, we can but wish it continued prosperity and an over enlarging influence, and recommend it to those interested in the growth of science in our country. It is published by Messrs. Silliman & Dunn, New Haven, Conn., at six dollars a year.

STAMP GUIDE.—Bolthoff's stamp guide, says the Colorado Register, is attracting a good deal of attention among the mill men, and is highly spoken of by some of the best judges of mill fixtures in the country. It consists of a guide-box to be gained into the cross-timbers through which the stem passes, having its interior diameter tapering toward the bottom. Into this box common hemp or cotton packing is stuffed, which is pressed down by a screw-follower, thus packing the box much as a piston-box is packed. As the packing wears, a simple turn of the screw sets the packing snug again, while the follower is quickly raised to admit more packing. The cost we hear but are not positive, is \$10 to \$22 per box. Once put in there appears no reason why they should not last forever. There is really no wear upon them or upon the stamp stem.

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As the conditions and circumstances of soil and climate and seasons on this coast are so peculiar that many of the approved methods of eastern agriculture are not at all applicable on our side of the Continent, special attention will be given to considering the need, extent and character of the modifications necessary. This will alone render the paper of great practical value to our home readers and more essential to them than all the distant publications obtainable, without such auxiliary and modifying instructions.

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Silk, Cotton and Sugar Beet Culture; Nurseries, Orchards, Tropical and small Fruits; Steam-plowing, seeding and harvesting for large tracts; Reclamation of swamp and unproductive lands; Hill and mountain farming; Grape growing; Fig, Raisin and Fruit drying; Irrigation; Lessons and Lectures on the chemistry of growing crops and on fertilizing lands; Practical Farming vs. Speculation; Taxation of unimproved lands; Railroads and improved transportation for crops and the better class of immigrants; Farmer's Clubs, lectures and associations; Co-operation in farming, mechanism, manufacturing and other industries; Government lands for settlers whether sold by R. R. operators or the U. S.; Reliable wholesale and retail market reports; Brief notices of Mechanical and Scientific Progress; Instructions for regular and farmer mechanics; Household Reading; Health and domestic receipts; a sprinkling of sprightly reading; Life thoughts; Poetry, condensed stories, items of news, etc., will be given.

A Plain and Simple Style

Of writing will be our endeavor. Necessarily dealing largely in researches for facts we believe it desirable to present them in an inviting shape and in so comprehensive language that our special journalism shall advance in popularity and common relish.

No editorials or selections of unchaste or doubtful influence, or lottery, quick or other disreputable advertisements, will be admitted into its columns.

Arrangement of Matter.

Our reports of agricultural, horticultural and other fairs, lectures, farmers' clubs and social literary meetings [the improvement and increase of which we shall especially advocate] will be carefully prepared in a valuable form for preservation; and the matter of our entire columns will be so classified as to be convenient to readers of various minds and individual tastes for ready perusal and future reference.

Interesting Illustrations of Pacific States and Eastern Inventions and Machinery, Fine Arts, Science, Fruits, Rare Stock and Natural Scenery.

Of special or peculiar interest to our readers will be published weekly in liberal variety. No pains or reasonable expense will be spared to furnish a

Large and Richly Filled Journal

Nicely printed on fine paper, which will favorably compare with the long established class journals of more populous fields and older communities. Although the latter have less opportunities than new communities to be benefited by printed information of discoveries,

And Neighborly Experiences,

the reading of agricultural newspapers and books is lately increasing with a rapidity quite astonishing, and with the most profitable results.

We enter the field after a careful consideration and consultation with many of our leading agriculturists, with the strong conviction that such a journal on this coast is greatly needed and earnestly desired by the most prospectively flourishing and rapidly progressing community in the Union if not in the world. We know the task before us,—two of the proprietors and editors having experienced respectively 18 and 13 years of successful journalism in this state.

Five Thousand Subscribers.

We shall print 5,000 copies of the issue of January 7th. That is the number of subscribers we hope to start with, having half that list already.

Subscription in Advance.

One copy one year.....	\$4 00
One copy six months.....	2 25
One copy three months.....	1 25
Single copies.....	10

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	1 week.	1 month.	3 months.	1 year.
One-half inch.....	\$1 00	\$3 00	\$6 00	\$20 00
One inch.....	2 00	5 00	10 00	35 00
Two inches.....	3 75	8 00	18 00	70 00
Three inches.....	5 25	12 50	27 00	105 00
Four inches.....	6 75	16 00	36 00	140 00
One-fourth column.....	6 00	12 00	28 00	100 00
Half column.....	12 00	20 00	54 00	200 00
One column.....	20 00	40 00	100 00	400 00

Advertising Rates Favorable

A select variety of advertisements only will be inserted. Circulated widely among the most thrifty of our population, the P. R. P. will be the cheapest and most effective medium for a large range of first class advertisements in the Pacific states.

Correspondence is respectfully solicited from every worthy source.

Parties desiring to get up clubs or act as agents, will be furnished sample copies and prospectus free.

DEWEY & Co.,

Publishers Patent Agents and Engravers, No. 414 Clay st., San Francisco. Nov. 21, 1870.

[Being also publishers of the SCIENTIFIC PRESS, we would say here that no change will be made in that paper except to improve it in its present character. Each journal will be published entirely distinct from the other.—D. & Co.]

THE MASONIC MIRROR

Is the only Masonic Publication on the Pacific Coast. The Second Volume is published weekly, in the popular and beautiful form of a

QUARTO-MEDIUM SIXTEEN PAGE PAPER

AND IS A FIRST CLASS

Literary and Family Newspaper,

AS WELL AS THE

Organ of the Masonic Fraternity on the Pacific Coast.

ENDORSEMENT OF THE GRAND LODGE.

The following resolution was unanimously adopted by the M. W. Grand Lodge, F. & A. M. of the State of California, at its Annual Communication, October, 1870. Whereas, In the opinion of this Grand Lodge, a well conducted Masonic Journal is of great benefit to the craft, in disseminating Masonic information among the fraternity, as well as furnishing a medium for general Masonic intelligence. Therefore,

Resolved, That this Grand Lodge, recognizing in the MASONIC MIRROR, edited by Brothers Amasa W. Bishop and Edwin A. Sherman, and published by the Masonic Publishing Company of San Francisco, a Masonic Journal of the character above set forth, do hereby recommend the said Masonic Mirror to the craft generally as worthy of their most favorable consideration and support.

ENDORSEMENT OF THE GRAND CONSISTORY.

At the communication of the M. P. Grand Consistory, Ancient and Accepted Scottish Rite of Freemasonry in and for the State of California, held October, 1870 at San Francisco, the following resolution was unanimously adopted: Resolved, That the MASONIC MIRROR, published in this city be the official organ of this Grand Consistory.

TO ADVERTISERS.

The MIRROR presents the best Advertising medium on the Pacific Coast, as it circulates in every town and hamlet, and among a class of citizens that it will be of advantage to advertisers to reach.

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One Square of ten lines, or less, 1 time.....	\$ 1 00
One Square per Month.....	2 00
Quarter Column.....	5 00
Half Column.....	10 00
One Column.....	20 00
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Ore of all kinds worked by Pan Amalgamation, Chlorination, or Smelting—guaranteeing to work as close to the Fire-assay as any persons on the Pacific Coast.
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13v20-4y

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7v21-3m

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Particular attention given to the Analysis of Ores, Minerals, Metallurgical Products, Mineral Waters, Soils, Commercial Articles, Etc.

One or two pupils can receive theoretical and practical instruction in Assaying, Analysis, or any particular branch of Chemistry at the laboratory.
11v21-3m.

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4v16-3m

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For sale—Ground Manganese of superior quality, in quantities to suit; warranted over 70 per cent. per oxide.
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507 California Street.

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R. N. VAN BRUNT.....Cashier.

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No. 415 CALIFORNIA STREET.

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Gentlemen Residing in the Country who

desire to have the comfort and pleasure of a

BRILLIANT AND SAFE LIGHT IN THEIR HOUSE

during the winter months and store and saloon keepers to whom light will bring business, should at once avail themselves of the automatic domestic works of the

PACIFIC PNEUMATIC GAS COMPANY.

Send for pamphlet with full Description, plate, Homs and Scientific Testimonials and Price List.

Office, 200 Sansome Street, San Francisco.

15v21-30m

I. O. O. F.
THE NEW AGE,

A WEEKLY JOURNAL OF SIXTEEN PAGES.

The "Official Organ" of the I. O. O. F. on the Pacific Coast.

Is devoted to Odd Fellowship, the ARTS AND SCIENCES and GENERAL LITERATURE; and as a family paper is not surpassed by any journal in the United States. Subscription price per year by mail, \$5. Delivered in the city, per month, 50 cents. Office, Odd Fellows' Hall, 327 Montgomery street, San Francisco.
19v19

Business Cards.

JOHN GORMAN,
NOTARY PUBLIC.

COMMISSIONER FOR
Nevada, N. Y. York, Etc.
No. 612 MERCHANT STREET. 6v20-3m

JOHN ROACH, Optician,
Has removed from 622 Montgomery street to
610 Washington street,
East of Montgomery.
Surveying Instruments made, repaired and adjusted
22v17-3m

GRAY & HAVEN,
ATTORNEYS AND COUNSELLORS AT LAW,
In Building of Pacific Insurance Co., N. E. corner Cal-
ifornia and Leide-dord streets,
SAN FRANCISCO.
37v16

REMOVAL.

DR. BEERS, Dentist.
Has removed from Tucker's Building to
No. 109 Montgomery street, three doors
north, opposite the Occidental.
2v20-3m

Farmers and Mechanics
BANK OF SAVINGS,
No. 25 Sansome Street.

Interest paid on Deposits. Money Loaned on Real Estate.
H. DUTTON, President.
GEO. M. CONDEE, Cashier. 19v16-3m

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BOOKBINDERS,
Paper Rulers and Blank Book Manufacturers.
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15v12-3m SAN FRANCISCO.

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Manufacturers of Boxes,
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For sale—Mahogany, Spanish Cedar, and other Woods.

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(Over W. T. Garratt's Brass Foundry,
S. E. Corner of Mission and Fremont sts.,
16v14-11 SAN FRANCISCO

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BANDMANN, NIELSEN & CO.,
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and 131 Beale street, between Mission and Howard
San Francisco.
LIGHT AND HEAVY CASTINGS,
of every description, manufactured 24v16-9

SAN FRANCISCO
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Manila Rope of all sizes. Also, Bale Rope and White
Line constantly on hand. Mailing Ropes of any size
and length manufactured to order.
TUBBS & CO., Agents,
611 and 613 Front Street.

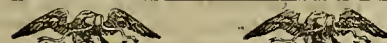
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Machinist, and Maker of Models
for Inventors.
All kinds of Dies, Stamps and Punches made. Also,
all kinds of Small Gears cut. Repairing done on very
reasonable terms, and in the best manner. 27 No. 10
STEVENSON STREET, near First, Pioneer Mills. 25v19-3m

L. SCHUMANN,
PIONEER
Meerscham Pipe Manufacturer,



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The first and only Manufacturer on the Pacific Coast.
Meerscham Pipes with S. Schumann
Pipes Baled and Repaired. Amber Mouth-pieces Fitted.



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SEAL ENGRAVER,
AND LETTER CUTTER,
Brass and Steel Stamps and Dies, 608 Sacramento street,
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THE WEED
SEEDS, ROOTS AND PLANTS, can be sent carefully sealed
by mail, prepaid in packages not exceeding 4 lbs., as
follows: 4 oz. or less, 2 cts; 8 oz. 4 cts; 1 lb. 8 cts; 4 lbs.
32 cts; 10 lbs. 1.00

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No. 314 CALIFORNIA STREET,
SAN FRANCISCO.

Manufacturers and have constantly on hand

SPORTING,
MINING,
And BLASTING
POWDER,

Of SUPERIOR QUALITY, FRESH FROM THE
MILLS. It being constantly received and transported
into the interior, is delivered to the consumer within a
few days of the time of its manufacture, and is every
way superior to any other Powder in Market.
We have been awarded successfully

Three Gold Medals

By the MECHANICS' INSTITUTE and the STATE AG-
RICULTURAL SOCIETY for the superiority of our
products over all others.
We also call attention to our

HERCULES POWDER,

Which combines all the force of other strong explosives
now in use, and the lifting force of the BEST BLASTING
POWDER, thus making it vastly superior to any other
compound now in use.

A circular containing a full description of this Pow-
der can be obtained on application to our Office,
15v20-3m JOHN F. LOHSE, Secretary.

The State Fair Gold Medal

A. D. 1870, was awarded to

"CALIFORNIAN"

SEWING MACHINE,

SAWDON & GRAY,
MANUFACTURERS,

Corner Mill and Neal Streets,
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Patent applied for.

It is the simplest, most durable, easiest understood,
and strongest built, and 30 per cent. cheaper than any
of the prominent ones now in the market.
Examine before purchasing elsewhere, or send for
Circular.

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14v21-3m.

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Spirits of Turpentine and Alcohol.

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1870.

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Packing performed in the most skillful and thorough
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sent prepaid on receipt of stamps, as follows:

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W. B. WEST,

NURSERYMAN AND FLORIST,
Evergreens, Fruit Trees,

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GREENHOUSE PLANTS.

Wine and Table Grapes a Specialty.
Nursery and Greenhouses: one mile North of the Asy-
lum, Stockton.
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TREES.

We offer this Season, 1870 and 1871,

A very large and superior stock of trees, etc., of best se-
lected varieties of everything usually produced in well
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land, and are unsurpassed for thrifty growth of root and
stock, and are reliable as to name on labels. Orders re-
ceived by Mail or Express, will be strictly attended to,
and PACKING done so as to INSURE A SAFE TRANSIT
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Dealers and Agents allowed favorable terms.

Priced Catalogues furnished on application.

JOHN ROCK, Nurseryman,
San Jose, California.
17v24-3m

Notice.

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SCIENTIFIC PRESS

Special attention is called to the

FURNITURE WAREHOUSES

George O. Whitney & Co.,

No. 31, 317, 319 and 321
PINE STREET, SAN FRANCISCO.

The largest and most complete stock on the Pacific
Coast. At Wholesale and Retail. 8v213m

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FOR
Zell's New Encyclopedia.

This work, the Best, the Latest, and the Cheapest ever
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COMPLETE ENCYCLOPEDIA,

Freshly written, and up with the times, but is also
a thorough and complete

Lexicon, a Gazetteer of the World, a
Biographical and Bibliographical, Legal
and Medical Dictionary.

And the only book ever published containing all these
subjects, with 2,000 Engravings. This really wonderful
work is to render readily accessible reliable information
on every conceivable subject. No human being could
be found to whom it would not prove invaluable. It
minutely describes every disease, flesh is heir to; ex-
plains every legal term or phrase; gives the geography
of the entire world; acquaints you with all noted men
and women living or dead; describes every country, city
and town; defines every word in use in the English lan-
guage; pictures the birth-place and gives portraits of many
distinguished personages; teaches the correct pronun-
ciation of proper names; is a biographical dictionary of
all nations; a biblical dictionary; describes every an-
imal known to exist; acquaints you with authors, scrip-
tors, travellers, warriors, painters, divines, historians,
naturalists, etc., of ancient and modern times; speaks of
all the battles and heroes of the late war; and explores
the whole vast vegetable kingdom.

AGENTS WANTED.—Apply to F. DEWEY & CO., 512
California Street, San Francisco, General Agents for the
Pacific States, and Territories. 19v21

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DESIGNING AND ENGRAVING
on wood and for electrotype cuts
of every description, done by ex-
perienced artists at the office of the
SCIENTIFIC PRESS. Fine Cuts
made for Book and Newspaper
Illustrations, and for Fancy Labels for printing in
various colors; Monograms, Seals, etc., etc. Prompt
execution and reasonable prices.

DEWEY & CO.,

No. 414 Clay street, S. F.

Thursday Evening.

Owing to the time necessary to mail the present large
edition of the SCIENTIFIC PRESS, we are obliged to go to
press on Thursday evening—which is the very latest
hour we can receive advertisements.

Travellers' Guide.

Central Pacific Railroad.

Time Schedule, December 5, 1870.

EASTWARD.		Express Train	Sundays excepted	Mixed.*
San Francisco	Leave	8:00 A. M.	8:00 P. M.	8:30 P. M.
Oakland	Arrive	8:40 A. M.	4:42 P. M.	4:45 A. M.
San Jose	Arrive	9:15 A. M.	4:35 P. M.	4:12 A. M.
Stockton	Arrive	9:45 A. M.	4:30 P. M.	4:44 A. M.
Sacramento	Arrive	10:15 A. M.	4:25 P. M.	4:40 A. M.
Yuba City	Arrive	10:45 A. M.	4:20 P. M.	4:35 A. M.
Colfax	Leave	5:25 P. M.	5:25 P. M.	5:30 P. M.
Yuba City	Leave	5:55 P. M.	5:55 P. M.	5:55 A. M.
Winnemucca	Leave	6:25 P. M.	6:25 P. M.	6:25 A. M.
Butte Mountain	Leave	6:55 P. M.	6:55 P. M.	6:55 A. M.
Carlin	Leave	7:25 P. M.	7:25 P. M.	7:25 A. M.
Reno	Leave	7:55 P. M.	7:55 P. M.	7:55 A. M.
Ogden	Arrive	8:30 A. M.	8:30 A. M.	8:30 A. M.

Through Tickets to all Principal Cities in Europe for sale at the Company's Office.

P. M. A. M.		Local Trains.	A. M. P. M.
3:00	9:00	Leave SAN FRANCISCO	9:40 7:30
3:20	9:20	Leave OAKLAND	9:00 7:55
4:40	11:00	Leave NILES	8:15 8:35
5:35	12:00	Leave SAN JOSE	7:45 4:35

P. M. A. M.		From	A. M. P. M.
4:00	8:00	Leave SAN FRANCISCO	12:35 8:30
7:30	11:45	Leave STOCKTON	8:30 7:04
9:05	3:05	Leave MODESTO	7:15 5:45

From		From	From
SAN FRANCISCO	8:00 A. M.	OAKLAND	8:00 A. M.
8:00	8:00	8:00	8:00
9:00	9:00	9:00	9:00
10:00	10:00	10:00	10:00
11:00	11:00	11:00	11:00
12:00 P. M.	12:00 P. M.	12:00 P. M.	12:00 P. M.
2:00 P. M.	2:00 P. M.	2:00 P. M.	2:00 P. M.
4:00	4:00	4:00	4:00
5:15	5:15	5:15	5:15
6:45	6:45	6:45	6:45
8:15	8:15	8:15	8:15
10:30	10:30	10:30	10:30

Sundays excepted. S. F. only. S. F. only.
D. To Oak and only. G. To Fruit Valley only.
A. N. TOWN, Gen'l Sup't C. P. R. R.,
T. H. GOODMAN, Gen'l Pass'r Agent, Sacramento

SHORT ROUTE.



The following time will take effect
Saturday, October 1, 1870

GOING NORTH—DAILY (Sundays Excepted).		Trains	Trains
New World	Leave	Trains	Trains
Leave	Arrive at	Arrive at	Arrive at
S. Francisco	Callisto	Sacramento	Marysville.
8:00 A. M.	12:45 A. M.	12:30 A. M.	2:15 P. M.
4:00 P. M.	8:15 P. M.	8:00 P. M.	9:20 P. M.

GOING SOUTH—DAILY (Sundays Excepted).		Trains	Trains
Trains	Leave	Trains	Leave
Leave	Callisto	Sacramento	S. Francisco
Marysville.	1:30 P. M.	7:15 A. M.	10:30 A. M.
1:00 P. M.	2:30 P. M.	3:5 P. M.	7:30 P. M.

ON SUNDAYS.
10:15 A. M. 3:30 P. M. 2:30 P. M. 7:30 P. M.
To Kets for sale at 15 Main street, or on board
steamer New World. R. S. MATTHEWS, Superintendent.
S. R. Branch Office of Western Union Telegraph Com-
pany, Front and Vallejo street wharf.
L. G. FOWLER, General Freight and Passenger Agent,
Vallejo October 1, 1870 13v2-1y

White Pine Stage Line.

WOODRUFF & ENNOR'S STAGES.

NEW ROUTE.

Coaches will leave HAMILTON daily at 12 o'clock M.,
running through SILVERADO, EUREKA, MINERAL
HILL and RAILROAD DISTRICT.

TO PALISADE,

Connecting with the cars for the West next morning.
Fine new Concord Coaches and six horse Stock.
Passengers for the East and West will find this the

Shortest and Pleasantest Route.

Office, Main street, Hamilton, opposite Wells, Fargo &
Co's.

W. B. DAUGHERTY,
AGENT AT PALISADE.

ALL Passenger Trains stop at this Station going
East and West. 4v21-1m

Academy of Sciences.

Oysters—Diamonds.

The regular meeting of the Academy was held last Monday, Dr. Blake presiding. Prof. Davidson presented some specimens of oysters said to have been planted about six months ago from seedlings brought from the East. These show a remarkable rapidity of growth, having obtained a great size in this short time. Moreover, as far as known, none have been subject to the disease which has been so fatal to the oysters in the bay and which reached its maximum three years ago, but has since decreased. But even now in every lot of oysters, a coating can generally be seen on some of the oysters, this killing them. This winter will thoroughly test the matter, whether they can sustain the amount of fresh water resulting from the rains. A company has been incorporated for the purpose of raising oysters from seedlings of all varieties to be brought from the East. The specimens were raised in the Bay.

Prof. Davidson had seen two diamonds brought from Arizona by a party of prospectors, who had also collected a lot of rubies and quartz crystals. The latter they had taken for diamonds, while the real gems were preserved almost by pure accident. One of these will weigh about 4 carats and the other two. They are both of the first water, and the best one is estimated to be worth from \$500 to \$600. This occurrence of diamonds is most interesting and may lead to valuable results.

Variations—Meteorological.

Prof. Davidson made some remarks with regard to station errors, deflections of the plumb line, at various stations in the lower country. At Santa Barbara, where there are high mountains back of the town, the deflection is $7\frac{1}{2}$ seconds. At all stations the existence of such station errors is more frequent than their absence. At the Presidio it is $6\frac{1}{2}$ seconds; at Santa Cruz, over 10 seconds. At this last place there is this remarkable fact, that the deflection is not towards the mountains in the vicinity, but towards the deep submarine valley in Monterey Bay.

Dr. Blake made some observations on the connection of our meteorology with that of the Sandwich Islands. He had previously spoken of the corresponding barometrical changes occurring here and at St. Louis at a regular interval. Now he had noticed in several instances that there seemed to be a connection of the kind between the Sandwich Islands and San Francisco. The change would appear to occur about three days later here than there. Thus, a gale occurred there on October 20th; the barometer commenced to fall here on the 21st and reached the lowest point on the 24th.

Asphaltum vs. Borers—Earthquakes.

Dr. G. Hewston showed a very interesting specimen. It was of asphaltum containing *Pholadidea perita* in a natural state and evidently having been bored by the mollusk. Now it has been a very prevalent idea that asphaltum will prevent the inroads of boring mollusks. This disproves this idea.

Dr. Le Plongeon read the first part of his paper on earthquakes. He contended, and advanced evidence to prove, that the ancient philosophers were acquainted with the causes of earthquakes. We are by no means acquainted with the extent of the scientific knowledge of the ancients, many of whose works have been destroyed. He then took up, as his second point, the theory that the center of the globe is a mass of liquid fire, which he combated. The paper is to be continued.

Prof. Esmarck kindly consented to arrange the crustacea and other collections of the Academy. Dr. Hewston promising contributions in the hope of being able to get in time a collection typical of the coast.

A STEAM ENGINE FOR ONE DOLLAR!—The new toy for the coming Christmas, in New York, is a diminutive steam engine with boiler attached, which is made to turn a little driving wheel at the rate of one thousand or more revolutions a minute. The whole apparatus may be placed under a common sized goblet. It is sent to purchasers by mail for \$1.36, nicely packed in a box only four inches high by $2\frac{1}{2}$ in diameter.

Mechanic Arts College Lectures.

[Reported expressly for the SCIENTIFIC PRESS.]
Formation of Coal Beds.

Prof. Le Conte, in his fourth lecture, said that it has been shown that there could be but little question as to the vegetable origin of coal. But as to the mode of accumulation in the beds, the manner in which the immense quantities of coal have been stored up in their present positions, there is considerable room for dispute. Hugh Miller has estimated that all the forests of America, if changed to coal, would not make a deposit as large as the one Pittsburgh seam; and yet we have such a supply of this combustible in the coal-fields of the U. S., that even at our present very high rate of consumption, it will last at least 20,000 years. Now the question occurs, under what circumstances were these immense supplies laid up?

Some things are certain in this connection. We know that the deposits took place in connection with water. The preservation of the woody matter can only be accounted for on this supposition, as shown in a previous lecture in remarking on sub-aerial and sub-aqueous decay. Again, all plants of coal are swamp plants. Not only are the accompanying clays and sandstones stratified, that is, deposited by water, but the coal itself often presents distinct marks of stratification. The vegetable origin and the deposition in connection with water, we may then take as certain.

In regard, however, to the conditions under which our deposits have taken place, there are two principal opposing theories. Some say that it was done by the growth of plants *in situ*, just as the peat bogs are now forming. This is one theory. The other is that the deposits were formed by immense amounts of timber drifted by the water, as rafts are drifted by rivers and deposited at the mouths of streams. Let us now examine these two theories and see if we cannot arrive at some satisfactory conclusion.

The Peat Bog and Drift Theories.

We all know how, in some places, immense bodies of black carbonaceous matter are deposited as peat bogs, often growing in size so as to acquire a thickness of 30 to 40 feet. Such an amount as this would, perhaps, if compressed under proper circumstances, form a coal seam 2 to 3 feet thick. Let us now take a coal field and compare it with a peat bog and with the drift theory.

In every coal seam we have interstratified clays and sandstones, which agrees with what we find in peat bogs. The immense quantity of coal deposited can hardly be accounted for by supposing timber to have been drifted into place, as this would demand unreasonably large accumulations, while this is quite supposable in a peat bog if we allow plenty of time. We often find coal absolutely pure, i. e., with no more mineral matter than has been derived directly and solely from the wood. In drifts the accompanying mud would surely prevent the formation of pure coal, while peat often occurs pure. The almost perfect preservation of the most delicate portions of plants, so common in coal seams, is utterly unreconcilable with the idea of drift, but actually occurs in peat.

We have before seen that the leaves always occur in the black shale above, and between this and the coal seam. Now this relative position of the leaves is found also in peat bogs, but is not supposable in drift. The structure of the seams points in the same direction, these seams consisting of almost entirely apparently structureless matter, or with only microscopically visible structure, which often contains logs. Finally, and still more conclusively in favor of the peat theory and against the idea of drift, is the fact that with almost every coal seam, the under-clay is crowded with roots as they actually grew. Thus in the Nova Scotia fields, each of the 76 seams of coal has an under-clay with such roots, and over 20 have also stumps in the position in which they must have grown. In South Wales, 100 seams occur, each underlaid with fire-clay holding roots.

Thus far everything has favored the idea of the peat bog. But there is one strong objection to this,—the very frequent repetition of the coal strata, one above another, often up to a hundred times, and often with layers of marine (or ocean) formation. The only explanation, if we accept the peat theory, is a very violent one, viz.:—the repeated oscillations, or upheavals and subsidences of the level of the ground, and the constant plant growth directly over the previous bed. But the drift at the mouth of rivers explains this perfectly, as the sections of the deltas formed in such places show limestones (marine formation) alternating with fresh water sandstones and clays, and with layers of timber.

Combination of these two Theories.

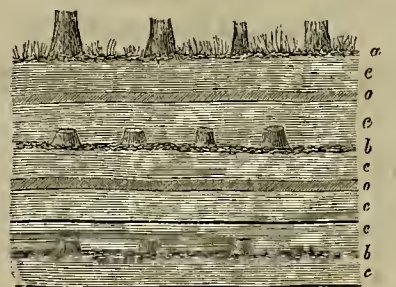
If then each theory explains a part of the phenomena, no one separately explains all, but the two if combined would explain the whole, is it not possible to combine them? I think we can; and in this way: Coal beds were formed by the growth of peat bogs at the mouths of rivers. Let us see if facts will not sustain this theory.

The formation of peat bogs, as shown above, explains fully the formation of the various seams. Now it is also a fact that peat is now accumulating at the mouths of nearly all the great rivers. This idea is then exceedingly plausible. But can such a peat bog be free from impurities where it is subjected to periodical overflows of the river? Lyell has shown that it can, and is in the case of the bogs forming at the mouth of the Mississippi; for the overflowing water is strained and freed from its sediment by the thick underbrush.

Let us take an actual section of a peat bog at a river mouth. The accompanying diagram shows that of the one just alluded to,—at the mouth of the Mississippi. The bog has been explored to a depth of a thousand feet without finding bottom. But this section of a very small part is sufficient to give a general idea. On top, at *a*, we see the bog now forming with plants and trees; *b b* denote what were once similar peat bogs, now sunk below the surface; *c c* denote strata of clays and sand which have been deposited by the river; and *o o* denote limestones or marine deposits. Almost exactly similar bogs occur at the delta of the Po, to a depth of 400 feet; at the delta of the Ganges, to a depth of 500 feet; and at the mouths of many other rivers.

Now these regular alternations of peat beds and fresh water deposits, with here and there marine deposits, are easily explained. The peat forms on the surface which has a constant tendency to subside. If the level falls, the river raises the surface by depositing thereon clays, etc. Thus we have two opposing influences constantly at work, and the result is an alternation of peat beds and fresh water deposits. Now if the subsidence is very rapid and the surface falls below the level of the sea, the salt water overflows the land and we have a marine deposit, until the equilibrium is again restored.

In this way we can reasonably suppose our coal beds formed without taking for granted any circumstance which is not known to actually exist at present. An additional evidence for our theory is the fact that in coal beds we find drift timber just where we should expect to, on our supposition, viz: in the sands and clays above the coal seams. Here we have trunks of the pines, the upland plants of the period, which have been washed away by an overflow of the river and deposited with the sediment above our peat bed. Again, we find



in these clays all the marks of shore lines, as ripple and rain marks, footprints of the ancient animals, etc.

Application to our Coal Fields.

Now let us apply this combination theory to our great coal fields and see how it will answer. The lecturer here showed diagrams illustrating the portions of the continent which were above water at various periods. At the commencement of the coal period what is now the Appalachian coal basin was a fresh water lake, inclosed by land on all sides, but communicating with the sea at the south. Into this rivers ran, and a peat bog formed, and the conditions above given were continued until we have here our coal bed formed. In the Great Western and Central Basins, probably one originally, and separated by erosion, we have a similar case, only here was not an inland lake, but a swampy shore of immense extent. Hence we find here naturally a predominance of marine formations, while in the Appalachian, fresh water formations predominate. At the end of the coal period came the "Appalachian Revolution" of the geologists, which ended the Paleozoic period, rolled up the Appalachian mountains, raised the land and commenced a new era.

Taking the coal fields of the Jurassic period, we find similar circumstances. Formations of this period occur in Nova Scotia, Connecticut River Valley, New Jersey, Virginia and North Carolina. Here we had inland bays communicating with the ocean. At the north the land was so low as to be covered with salt or brackish water, and no plants could grow to form coal; but we find here the tracks of animals, etc. Towards the south, however, the conditions were more favorable, and the Richmond, Piedmont and North Carolina coal fields were formed. These have different plants from the above-named,—some ferns, but principally gymnosperms.

At the end of the Mesozoic era another upheaval occurred and our continent, before divided into two parts, was united into one. But certain spots were covered with fresh water lakes and thus were formed our Rocky Mountain tertiary coal beds, with plants still different from those of preceding fields, with forest trees predominating, many genera the same as now growing.

Estimate of Geological Time.

We have two methods of estimating the geological age of our coal fields,—by calculating the time it would take to accumulate our coal deposits, taking as our measuring rod the rate in which they are now forming; and by calculating in the same way the time necessary for the accumulation of the sands and clays.

According to Boussingault, the thickest forest vegetation collects about $\frac{1}{2}$ ton of carbon annually per acre, or about 1 ton of wood; or about 200,000 lbs of wood per acre in 100 years. This would give a layer of coal 6-10 inches thick over the acre, if all the wood were changed to coal. To form 100 feet of solid coal would thus take 200,000 years. But according to Bischoff, in

anthracite there is a loss of at least 5-6 of the whole organic matter, and in bituminous coal a loss of at least $\frac{1}{4}$. Taking an average, we will say that 1-5 of the wood is preserved. In this case then we must multiply our number of years by 5, and then we have a period of at least one million years to form 100 feet of coal *in situ*.

Now to calculate our sands and clays. We will take the Nova Scotia fields, as these afford the most complete reasons for the river delta theory. The original area of these was at least 33,000 square miles (now reduced by erosion to 18,000). The extreme depth is calculated at 3 miles in perfect section; we will call the average thickness $1\frac{1}{2}$ miles. This gives us over 50,000 cubic miles of sedimentary matter. We will take here the Mississippi river deposits as our measuring rod. Calculating from the amounts of sediment deposited at the mouth of this river, it would take at least 1,122,000 years to form the Nova Scotia fields.

The lecturer enlarged on this topic, meeting some of objections, to show that he had not over-estimated the time required, explaining how the erosive action and formation of sedimentary deposits is increased with the increased age of the world and the increased area of dry land, and declaring his estimates to have been stated, not as precise data, but in order to give some little conception of the immense lapse of time in geological history. These estimates were merely for the coal measures, which are but a part of the carboniferous period, which again is only a part of the paleozoic era, which finally is but one of the four eras (leaving out of account the present) of recorded history; and before this recorded history, we have still other ages, stretching back into the dim, unknown Infinite.

University of California.

The Regents of the University met this week and received communications concerning the Preparatory Department. The suggestion of Prof. Carr, of organizing the lower or preparatory classes in connection with the public schools in the various cities and towns of the State, is worthy, in our opinion, of mature consideration. We are opposed to the plan of having the University take direct and sole charge of the education of the youth of California where each education can be given in the grammar and high schools, as this is no part of a University's course. The rudimentary elements can be taught better in separate schools, and, moreover, the University is financially unable to undertake the huge task of teaching all the boys and girls of the State, having as much as it can do to instruct those desirous of studying the higher branches. It might be well for the Regents to explain what they consider a "University" to be.

Dr. Toland wishing to have his name prefixed to the title of the medical department, which would then be called the "Toland Medical Department of the University of California," and sending a communication with a condition to the transfer of the Toland Medical College building to that effect, the following resolution was adopted:

Resolved, That the resolution heretofore adopted by this Board, consenting to accept the conveyance of the building known as the Toland Medical College from Dr. H. H. Toland, be and the same is hereby repealed, he (Dr. Toland) having imposed as conditions of said conveyance that the Medical Department of the University should be called the Toland Medical Department of the University.

Mr. Hallidie presented the Mechanic Arts College with two handsomely bound books,—a register and a roll-call. The register contains the names of 500 students who have been enrolled. Mr. Hallidie stated that 80 students had applied for admission when any vacancies should occur. The lectures are a great success.

Prof. W. Swinton was elected Librarian of the University without salary, having consented thereto. The sum of \$500 was ordered to be placed in the hands of the President of the University for the payment of the expenses of the five free scholarships for the first term.

OVER a year ago, Colonel Paxton, of South Olive, Pennsylvania, lost a set of tools in an oil well he was boring, and never could get them out. The earthquake the other day gave that well a twist, and the tools came out several feet into the air.—*Ex.*

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THE AMERICAN CHEMIST

EDITED BY

CHAS. F. CHANDLER, Ph. D., and W. H. CHANDLER.

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Chemical Notices:—

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The Scientific Press is devoted specially to matters of machinery, inventions and processes pertaining to the development of mines, and gives free and full discussions of such matters. Terms, \$4 per year.—*White Pine News*, May 4th.

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And in accordance with law, and an order of the Board of Trustees, made on the 20th day of Oct. 1870, so many shares of each parcel of said stock as may be necessary will be sold at public auction at the salesroom of J. C. McNeill & Co., 204 and 206 California Street, S. F., on the 3rd day of December 1870 at the hour of 12 o'clock M., of said day, to pay said delinquent Assessment thereon, together with costs of advertising and expenses of sale.
D. H. CROWE, Secretary.
Office 220 Clay Street, San Francisco.

KINCAID F. MINING COMPANY.—POSTPONEMENT.—The above sale is hereby postponed until December 17, 1870, at the same hour and place. By order of the Board of Trustees.
D. H. CROWE, Secretary.

Mahogany G. & S. M. Company.—Location

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M. Herman 20 200 400
J. S. Van Slyke 26 40 80
C. S. Muller 27 760 1520
A. L. Frank 23 50 100
A. L. Frank 28 3350 6700

And in accordance with law and an order of the Board of Trustees, made on the 2nd day of November 1870, so many shares of each parcel of said stock as may be necessary, will be sold at the office of the company, No. 2, Express Building, San Francisco, California, on Tuesday the 27th day of December 1870, at the hour of 1 o'clock P. M. of said day, to pay said delinquent assessment together with costs of advertising and expenses of sale.
Dec. 10-3w C. M. RICHARDSON, Secy.

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of Works: Steptoe, Johnson & Latham, Antelope and Clifton Districts, Elko County, State of Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the sixteenth day of November, 1870, an assessment of four (4) cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary, at his office, Room 5, 202 Montgomery street, San Francisco, Cal.
Any stock upon which said assessment shall remain unpaid on the seventeenth day of December, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Saturday, the seventh day of January, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.
WM. H. WATSON, Secretary.
Office, Room 5, No. 302 Montgomery street, San Francisco, California. nol94t

Providence Gold and Silver Mining Company.—Nevada County, California.

Notice is hereby given that at a meeting of the Board of Trustees of said Company, held on the 12th day of November 1870, an assessment of one cent per share was levied upon the capital stock of said Company, payable immediately in United States gold and silver coin, to the Secretary.

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Office, No. 37 New Merchants Exchange, San Francisco California. nov19,

A Thankful Inventor.

PORTLAND, OREGON, Nov. 24th, 1870.—Dewey & Co.,—On reflection, it is thanksgiving to day, and I think it is my duty to write you a letter of thankfulness, for the trustworthy and business like manner in which you have attended to my business. Four inventions illustrated by valuable models, which I place in your hands, together requiring years of hard study, have been protected by valuable patents through your agency. Dewey & Co., are the only Patent Agents that I shall ever employ to obtain Letters Patent for me so long as I live, and I shall place in your hands more cases in your hands for protection. Again thanking you, I remain, Yours &c., THOMAS HILL.

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FROM A READER.—Duncan's Mill, Sonoma Co., Oct. 10, 1870.—Messrs Dewey & Co: Don't stop my paper. Your journal is very valuable. No better investment for \$4. Respect, B. O. B.

CONTINENTAL Life Insurance Co., 302 Montgomery street, corner of Pine.

MARAVILLA COCOA.—For Breakfast.—The Globe says: "Various importers and manufacturers have attempted to attain a reputation for their prepared Cocoa, but we do not doubt whether any thorough success has been achieved until Messrs. Taylor Brothers discovered the extraordinary qualities of 'Maravilla' Cocoa. Adapting their perfect system of preparation to this finest of all species of the Theobroma they have produced an article which supercedes every other Cocoa in the market. Entire solubility, a delicate aroma, and a rare concentration of the purest elements of nutrition, distinguish the Maravilla Cocoa above all others. For homepaths and invalids we could not recommend a more agreeable or valuable beverage." Sold in packets only by all Grocers, of whom also may be had Taylor Brothers Original Homeopathic Cocoa and Soluble Chocolate. Steam Mills Brick Lane, London. 624-21-1

THE PRESS is just such a journal as the people of this valley should patronize—it ought to go to every fire-side. It is devoted to the agricultural and mining interests, mechanic arts and general industrial progress. The subscription price is \$4, which, considering that the Press is one of the largest and ablest journals of its class in the Union, we consider very reasonable. Every business man of Bozeman, will we are satisfied, give Mr. Murray his name, and we hope such of our country friends as he interviews will be equally liberal. PICK & FLOW, MONTANA.

TO MINERS, MILLMEN AND METALLURGISTS. Kustel's new work on the Concentration of all kinds of Ores, and the Chlorination Process, for Gold-bearing Sulphurates, Arseniurets, and Gold and Silver Ores generally, is the best and most complete work issued. It contains 120 diagrams, illustrating machinery, etc., which alone are of the greatest value. Price, \$7.50, postage paid. Published by Dewey & Co., publishers of the Scientific Press, San Francisco.

SCIENTIFIC PRESS—three numbers—terms \$4 per annum—San Francisco. Constant improvements are being made in this publication. Illustrated mechanics receive liberal attention. Of late, an edition exclusively devoted to agricultural matters is issued simultaneously with that devoted to mining and scientific subjects generally. The growth of the paper and multiplicity of subjects embraced in the table of contents give evidence of an increased patronage and corresponding industry to maintain its high character.—*Colorado Herald*.

FOR SALE.—An account due this office for advertising for A. Jackson, of La Crosse, Wis., will discount 99 per cent, if necessary, 182-21-17.

IMPORTANT BOOK!

JUST ISSUED.—Roasting of Gold and Silver Ores, and the Extraction of their Respective Metals without Quicksilver. By G. Kustel, Mining Engineer and Metallurgist; Author of "Nevada and California Processes of Silver and Gold Extraction," and "Concentration of all Kinds of Ore." Illustrated by numerous engravings. Published and sold by Dewey & Co., proprietors SCIENTIFIC PRESS, San Francisco.

This Book contains 120 pages. Price, \$2.50, gold, or \$3 currency, postage paid.

San Francisco Metal Market.

PRICES FOR INVOICES

Jobbing prices rule from ten to fifteen per cent. higher than the following quotations.

THURSDAY, Dec. 8, 1870.

IRON.—Duty: Pig, \$9 per ton; Railroad, 60c a 100 lbs.; Bar, 1 1/2c a lb; Sheet, polished, 3c a lb; common, 1 1/2c a lb; Plate, 1 1/2c a lb; Pipe, 1 1/2c a lb; Galvanized, 2 1/2c a lb.

Scotch and Eng. Pig Iron, a ton... @ \$37 50

White Pig, a ton... @ 35 00

Refrined Bar, had assortment, a lb... — 03 @ —

Refrined Bar, good assortment, a lb... — 04 @ —

Boiler, No. 1 to 4... — 04 1/2 @ —

Plate, No. 5 to 9... — 04 1/2 @ —

Sheet, No. 10 to 13... — 04 1/2 @ —

Sheet, No. 14 to 20... — 05 @ —

Sheet, No. 24 to 27... — 05 @ —

Copper.—Duty: Sheathing, 3 1/2c a lb; Pig and Bar, 2 1/2c a lb.

Sheathing, a lb... — @ — 26

Sheathing, Yellow... — 20 @ — 21

Sheathing, Old Yellow... — 10 @ — 11

Composition Nails... — 21 @ — 22

Composition Nails... — 21 @ — 22

Tr. PLATES.—Duty: 25 cent. ad valorem.

Plates, Charcoal, IX, a box... 12 00 @ —

Plates, I C Charcoal... 10 00 @ 10 50

Roofing Plates... 10 00 @ 10 50

Banks Tin, Slabs, a lb... — @ — 42

STEEL.—English Cast Steel, a lb... — @ — 15

QUICKSILVER.—a lb... — @ — 80

Lead.—Pig, a lb... — 6 @ — 7

Sheet... — 9 @ — 7

Pipe... — 10 @ — 11

Bar... — 8 @ — 9

ZINC.—Sheets, a lb... — 10 1/2 @ — 11

BORAX... — 35 @ — 28

Machinists and Foundries.

FULTON

Foundry and Iron Works.

HINKLEY & CO.,

MANUFACTURERS OF

STEAM ENGINES,

Quartz, Flour and Saw Mills,

Hayer's Improved Steam Pump, Brodie's Improved Crusher, Mining Pumps, Amalgamators, and all kinds of Machinery.

N. E. corner of Tehama and Fremont streets, above How street, San Francisco. 3-47

THE RISDON

Iron and Locomotive Works.

INCORPORATED.....APRIL 30, 1868.

CAPITAL.....\$1,000,000.

Corner of Beale and Howard Streets, SAN FRANCISCO.

Steam Engine Builders, Boiler Makers, Machinists, Foundrymen, and Manufacturers of Car Wheels equal to the best imported, and guaranteed equal to Eastern Wheels.

Directors:

S. F. Butterworth, Lloyd Tevis, Wm. Alvord,

Wm. Norris, Joseph Moore, Chas. E. McLane,

JOHN N. RISDON.....President.

JOSEPH MOORE.....Vice President and Superintendent.

LEWIS R. MEAD.....Secretary.

UNION IRON WORKS,

Sacramento.

WILLIAMS, ROOT & NEILSON,

MANUFACTURERS OF

STEAM ENGINES, BOILERS,

CROSS' PATENT BOILER FEEDER AND SEDIMENT COLLECTOR,

WILCOX'S PATENT WATER LIFTERS,

Dunbar's Patent Self-Adjusting Steam Piston PACKING, for new and old Cylinders.

And all kinds of Mining Machinery.

Front Street, between N and O streets, 1471

SACRAMENTO CITY

ESTABLISHED 1851.

PACIFIC IRON WORKS,

First and Fremont streets, | 26

SAN FRANCISCO

IRA P. RANKIN, A. P. BRAYTON,

GEORGE W. FOGG, Superintendent.

Steam Engines and Boilers,

MARINE AND STATIONARY,

IRON AND BRASS CASTINGS

Mining Machinery of Every Description,

And all other classes of work generally done at first-class establishments, manufactured by us at the lowest prices, and of the best quality.

Particular attention paid to Jobbing Work and Repairs.

N. B.—Sole Agents for sale of HUNTOON'S CELEBRATED PATENT GOVERNOR.

18720-3m

GODDARD & CO

ROOT'S PATENT FORCE BLAST-ROTARY BLOWER.

MANUFACTURED BY KEEP & BARGION,

At the Globe Iron Works, Stockton, California.

Patented Nov. 1st, 1864; July 21, 1866; and Oct. 9, 1868.

Awarded the First Premium at the Paris Exposition.

ADAPTED FOR Smelting, Foundry, Mining and Steamships.

REQUIRES Fifty Per Cent. LESS POWER Than any Blower Now in use.

One of these Blowers may be seen on exhibition at W. T. Jarratt's Brass Foundry, corner of Mission and Fremont street. They are also in use at the Almaden Quicksilver Mine; Gridley's Foundry, Gold Hill, Nevada; Aetna Iron Works, San Francisco, and many other places.

CAUTION.—Purchasers will find it to their advantage to apply direct to the Stockton Agency, as certain parties, not authorized to manufacture the Blower, have put in the market machines of inferior construction, which do not answer all the requirement of the genuine article.

Quartz, Saw and Grist Mill Irons, Steam Engines, Horse Powers, High and Low Pressure Steam Engines, Steamboats and Propellers, made at short notice.

For circulars and further information address

KEEP & BARGION,

Globe Iron Works, Stockton, Cal.

4716 3m

CAMERON'S

STEAM PUMPS.

PICKERING'S

Engine Regulators.

GIFFARD'S

INJECTORS.

BARTOL'S

STEAM TRAP.

SURFACE

CONDENSERS.

DAVID STODDART,

114 BEALE STREET.

NOVELTY MILL AND GRAIN SEPEARATOR.

THE undersigned having purchased of the Patented, W. T. & S. W. I. F. of Hudson, Michigan, their right in this mill, Patented Jan. 22d, 1869, for California, Oregon, Washington Territory, Montana, Utah, New Mexico and Arizona, wishes to call the attention of FARMERS, MILLERS AND GRAIN DEALERS to one of THE GREATEST IMPROVEMENTS OF THE AGE for cleaning and separating grain. While it combines all the essential qualities of a first-class FANNING MILL, it also far exceeds anything that has ever been invented for the separation of grain. It has been thoroughly tested on all the different kinds of mixed grain, separating all the different seeds in almost a magical manner, placing them in their different compartments in the mill arranged for their reception, at the same time taking out all the Mustard, Grass Seed, Barley and Oats, and making two distinct qualities of wheat if desired, thereby selecting superior, large plump and perfect kernels for SEED WHEAT, and all the small and cut kernels, such as merchantable wheat, is deposited in another compartment. By the use of this Mill a great quantity of wheat usually sown that has been cleaned in the common mills will be saved to the farmer, as the cut or shrunken kernels will never germinate.

The above mentioned Novelty Mill is the only mill known to possess all these superior qualifications, and was exhibited and tested at the last Michigan State Fair held at Jackson, Michigan, September 21, 22, and 23, 1869, and here away the palm over some thirty other different mills from all parts of the United States, including the famous Dickey Mill of Racine, Wisconsin. All who have witnessed here the operations of the NOVELTY MILL, declare it perfection, and the most beneficial invention to the Farmers, Millers, and Grain Dealers ever introduced on the Pacific Coast. The farmers in Santa Clara County, are loud in its praise, and also in other parts of the State where it is being introduced. No. 1 Mill, complete, is capable of cleaning 25 tons of grain per day. No. 2 Mill, 15 tons; No. 3 Mill, 8 tons. A large number of recommendations and certificates of the practical working of the mill will be furnished. Circulars containing references sent free by mail. N. B. Town, County, or State Rights for sale on favorable terms. For further particulars apply to

W. T. STONE, 423 Battery Street, San Francisco.

GEO. T. PRACY'S

MACHINE WORKS,

109 and 111 MISSION STREET, SAN FRANCISCO.

MANUFACTURER OF

PRACY'S IMPROVED

PATENT STEAM ENGINE

GOVERNOR.

These Governors are the most sensitive built, running at a high velocity and maintaining a uniform speed.

SOLE AGENT FOR

L. W. POND'S CELEBRATED TCO S,

— SUCH AS —

Lathes, Planers, Drills, Boring Mills, Milling Machines, &c.,

Which I will offer at very low rates. Also,

MORSE'S TWIST DRILLS,

AND CHUCKS OF ALL KINDS.

MANUFACTURER OF

Steam Engines, and Mill Work Generally.

Sole Agent for TAFT'S PATENT SHEARS AND PUNCHES.

3721

MACHINERY

— AT —

GREATLY REDUCED RATES.

Miners' Foundry & Machine Works,

235 TO 243 FIRST STREET, SAN FRANCISCO.

This Establishment is now working upon the

CO-OPERATIVE PLAN,

And are thereby enabled to manufacture

MACHINERY, CASTINGS & BOILERS

AT FAVORABLE PRICES.

And better adapted to the wants of the Pacific States

Ascertain our prices before purchasing. 8720g

CALIFORNIA BRASS FOUNDRY,

No. 125 First street, opposite Minna, SAN FRANCISCO.

All kinds of Brass, Composition Zinc, and Babbitt Metal Castings, Brass Ship Work of all kinds, Spikes, Sheathing Nails, Rudder Braces, Hinges, Ship and Steamboat Belts and Gears of superior tone. All kinds of Stocks and Valves, Hydraulic Pipes and Nozzles, and those Couplings and Connections of all sizes and patterns, furnished with dispatch.

PRICES MODERATE.

J. H. WEED, V. KINGWELL.

California File Manuf'g Co.

437 BRANNAN STREET, bet. Third and Fourth.

W. WUSTHOFF, L. KRAMER.

REAPER AND MOWER SECTIONS, BARS AND KNIVES COMPLETE.

At a saving of 50 per cent. New Files of every description on hand and made to order. Old Files re-cut, and warranted equal to new. Orders from the country promptly attended to. 8719-47

McAFEE, SPIERS & CO.,

BOILER MAKERS

AND GENERAL MACHINISTS,

Howard st, between Fremont and Beale, San Francisco.

Flue or Tubular Boilers, with plain circular or spiral courses. Upright Flue or Tubular Boilers, Locomotive and Marine Boilers, and Wrought Iron Tanks of every description.

Hydraulic Pipe supplied at reasonable rates. In ordering, give the quantity of water to be supplied, height of the fall, and total length of pipe, so as to enable the firm to determine the diameter of the pipe and thickness of iron to be used.

Repairs.—Boilers, Smoke Stacks, Pipes, etc., put in repair with promptness.

To Boiler Makers and Machinists in the Interior.—The firm is prepared to furnish estimates of Boilers, supply new Heads, drilled and punched, and attend to the selection and forwarding of Iron for Boilers, Pipes and other purposes.

Plans, Drawings and Specifications.—The firm is prepared to make out Plans and Specifications, receive estimates, and superintend the Erection of any Machinery that may be entrusted to their care.

To Inventors.—The firm is prepared to assist in developing the plans of those who have the ideas but not the practical experience necessary to put the same in form, by making Drawings of their Inventions, giving them the benefit of their practical knowledge in the construction of Machinery, and attending to the manufacture and introduction of their invention. 187187

NELSON & DOBLE,

AGENTS FOR

Thomas Firth & Sons' Cast Steel.

MANUFACTURERS OF

Sledges, Hammers, Stone Cutters', Blacksmiths' and Horse-Shoers' Tools,

13 and 15 Fremont street, near Market, San Francisco. 187147

ESTABLISHED 1820.]

WILLIAM J. YOUNG & SONS,

Mathematical Instrument Makers,

No. 43, North Seventh St. Philadelphia Pa.

Having increased their facilities, expect in future to keep on hand a full supply of Transits, Levels, Compasses, Solar Compasses &c. Manufacturers of Young's celebrated Shifting Tripod for Transits. Original manufacturers of Burts Solar Compass. 18721-2m

New York Metal Market.

[CORRECTED WEEKLY FROM THE AMERICAN ARTISAN.]

New York City, Saturday, Nov. 26, 1870.

IRON.

Pig, Scotch, No 1 (cash), per ton	\$33 00	@	\$35 50
Pig, American, No. 1 (cash)	33 00	@	34 00
Pig, American, No 2	29 00	@	31 00
Saw-dish, ordinary sizes	110 00	@	125 00
Common	75 00	@	80 00
Refined	77 50	@	95 00
Rods	85 00	@	120 00
Horse-shoe	95 00	@	—
Hoop	105 00	@	150 00
Scrill	97 50	@	125 00
Nail-rods, per lb	—	7	7 1/4
Spring	—	7 1/4	—
Tire	—	8 1/4	—

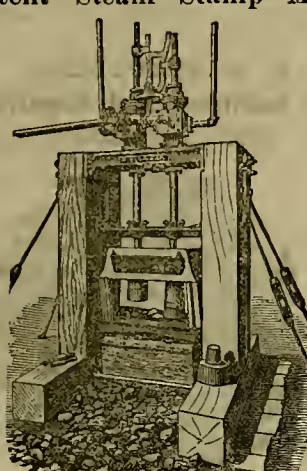
STEEL.

Bars, best cast, warranted, per lb	—	17	@	—	18
Sheet, best cast	—	18	@	—	—
Sheet, second quality	—	16	@	—	—
Sheet, third quality	—	14	@	—	—
Saw-plates, circular	—	27	@	—	—
Double-shear, warranted	—	23	@	—	—
Single-shear	—	19	@	—	—
Montague & Co. (cast bars)	—	18	@	—	—
Machinery, round	—	11	@	—	—
German, best	—	11	@	—	—
German, 2nd	—	10	@	—	—
German, eagle	—	9	@	—	—
Blister, warranted	—	16	@	—	—
Blister, common	—	15	@	—	—
Jessup & Sons, common	—	17	@	—	—
Double-rolled	—	25 1/2	@	—	—
Stone at wharves	—	26 1/2	@	—	—

Machinery.

THE WILSON

Patent Steam Stamp Mill.



This extraordinary Mill, now so justly popular in the East, is now offered to the miners of the Pacific Coast. Having been in operation now for about two and a half years, the Company feel confident that the

WILSON STEAM STAMP MILL,

For Durability, Efficiency,

AND ECONOMY OF WORKING,

HAS NO EQUAL.

The Wilson Steam Stamp Mill is the only Steam Mill that has had the severe ordeal of practical working, and proved itself eminently successful. It is now in operation in several of the Eastern States and Territories, and gaining an ever increasing popularity. The whole machine is so simple as to be readily understood by the most ordinary minds. In fact, its simplicity is its durability. The expense of crushing rock or cement with this Mill is less than one-half the expense of any other Stamp Mill, and less than one-half the cost. For further particulars inquire of

FURMAN R. WILSON,

San Francisco.

Or of THE WILSON STEAM STAMP MILL CO., 326 Walnut street, Philadelphia, Pa.

Notice.—All persons are hereby warned not to manufacture or use any Steam Stamp Mills that are an infringement on the Wilson Patents, as they will be prosecuted to the utmost rigor of the law.

F. R. WILSON,

20v19-tf Supt. W. P. S. S. M. Co., Philadelphia.

THE

ASPHALTUM PRESSURE PIPE

COMPANY,

HAVING ERECTED A MANUFACTORY

of sufficient capacity to supply their Asphaltum Pipe in large quantities,

Are now Prepared to Take Orders

AND MAKE CONTRACTS.

This Company will manufacture Pipe and guarantee it to stand any pressure required; it is lighter than iron pipe and more durable, it is not affected by chemical action, cannot corrode, and being glazed imparts no disagreeable taste to water. To miners and farmers it is invaluable; any body can put it down; it is twenty per cent cheaper than iron pipe and ten times more durable. For further particulars, apply at the office of the Company, Room No. 2, 643 Market street.

65 Circulars sent on application.

16v21-tf

Gold Saving Amalgamated Plates.

Miners, Quartz Millmen—Attention.

Best quality of Silver Plated Amalgamated Plates for saving fine particles of gold, furnished at the

San Francisco Plating Works.

655 Mission Street, Between New Montgomery and Third Streets, San Francisco.

E. C. DE VOST, Proprietor.

HAVILAND, HOOPER & CO., Agents, No. 335 Pine St.

67 Best means yet discovered for saving fine particles of Gold.

20v21-tf

BLAKE'S PATENT

STEAM PUMP.



THESE PUMPS.

Have been tested, and found to be indisputably without an equal wherever tried. They are constructed in the most simple style, and built in the most thorough manner—especially calculated for SIMPLICITY, DURABILITY and POWER.

Some of the advantages of the Blake Pump may be summed up as follows:

It is POSITIVE UNDER ANY PRESSURE. May be run slow or fast as may be desired. Will discharge more water than any others of the same dimensions. Has no leaky joints, the steam part being cast in one entire piece. The steam valve is perfectly balanced, is cushioned at each end, and slides with the greatest facility, having no cams, nor complex rotary arrangements to get out of order. Will start at any point of the stroke, and will discharge all the water of condensation.

The Pump has no crank or fly-wheel, thereby saving a considerable item of expense to the purchaser. Having NO DEAD POINTS, it therefore needs no watching, and is consequently ready to start without using a starting bar or any hand work whatever. The Blake Pump is extensively used

On Railroads and Steamboats; in Hotels; for Mining and Fire Purposes; in Breweries, Tanneries, Sugar Houses, Factories, Mills, Laundries.

And as BOILER FEEDERS, wherever steam is employed. In fact, wherever water or other liquids are desired to be raised in large or small quantities, or against heavy or light pressure, it is the

Cheapest and Best Pump that can be Used.

It is offered to the public as the most perfect independent Steam Pump ever invented. FORTY DIFFERENT SIZES are made, capable of throwing from 1,000 to 200,000 gallons an hour, and adapted to any class of work that might be required. For sale by

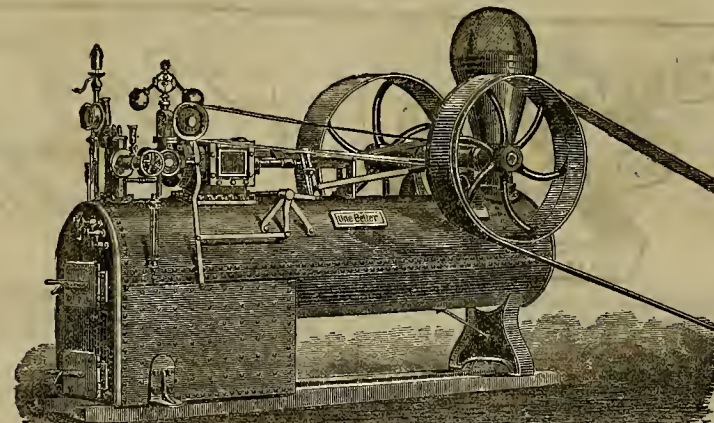
BERRY & PLACE,

112 and 114 California Street, San Francisco.

Every pump will be warranted to perform the work required of it by the purchaser, or it may be returned and the money will be cheerfully refunded.

Awarded a SILVER MEDAL at last Exhibition of Mechanics' Institute, San Francisco, and State Fair at Sacramento, as being the Best Pump on Exhibition.

HOADLEY'S PORTABLE ENGINES!



3 to 20 Horse Power on Carriages and Beds.

These Engines are in use all over the United States, and are regarded as the best in use. They are self-contained Engines, without the running gear and appurtenances, for driving

Saw Mills, Grist Mills, Tanneries, Machine Shops, Planing Mills, Factories &c., and for all other purposes under seventy-five horse-power, to which Stationary Engines are applied. For Agricultural uses they are unsurpassed. For Circulars or pamphlets, describing dimensions and price address

TREADWELL & CO., Sole Agents,

15v21-3m SAN FRANCISCO.

WOODWORTH PLANERS.



Smith's Patent Wood-working Machinery, and all other ingenious. Sole Agents, BERRY & PLACE, 112 and 114 California St., San Francisco.

SEVERANCE HOLT & CO.,

MAUFACTURERS OF

Diamond-pointed Drills

AND DRILLING MACHINERY.

For Mining, Quarrying, Shafting, Tunneling, Prospecting, Draining, Grading and Submarine Blasting. Special attention given to Deep Boring for testing the value of Mines. Also to Boring Artesian Wells. Office, 318 CALIFORNIA STREET, San Francisco. 25v20-3m

The Stetefeldt Furnace.

For information of any description respecting this process,

APPLY TO

STETEFELDT FURNACE COMPANY.

STETEFELDT FURNACE COMPANY,

Duncan's Building, Room 1, California Street,

14v21-1y San Francisco.

California Fire and Burglar Proof Safe.

At the late fire on Fremont Street, Oct. 18th, one of the safes, containing Miller & Haley's books and papers, stood the test PERFECTLY,—to whom all interested are referred. This safe is built at the


CALIFORNIA TOOL WORKS,

147 Beale Street, bet. Mission and Howard. All kinds of Edge and other Tools made to order. Agricultural machinery repaired. Job grinding and polishing by steam. All work warranted. Orders promptly attended to.

22v22-3m J. WEICHBART, Proprietor.

STEAM JET PUMP.

Blakelock & Williams' Patent, for Water, Oils, Acids, Etc.



The best COLD WATER pump for filling tanks for stationary or portable Steam Engines. Also highly recommended for MINES, DISTILLERIES, SALT WORKS, STONE QUARRIES, and similar places, and saves the expense of putting up and running an engine.

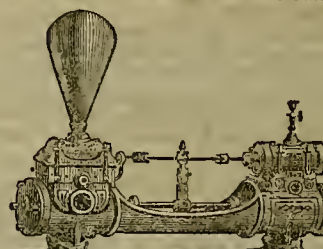
We ask the attention of all proprietors of steam power to the following points of merit—it is operated by steam taken directly from the Boiler into the Pump; It has no valve or wearing parts of any kind; It requires no bolts, pulleys, or machinery of any kind; it operates entirely independent of an engine; it will not choke up with foul water; it costs much less to put up and start; it will not wear out in a lifetime, or require repairs; it is reliable, and certain to work at all times; it is not liable to injury from freezing.

Safe friction guaranteed or the money refunded.

Send for Circular. PARKER & HUNT, Southeast cor. Tenth & K Streets, Sacramento City Cal. AGENTS—CHAS. F. FROCK, 117 California st., San Francisco; KEOP & BARGION, Stockton. 21v21-tf

A. L. FISH, Agent,

KNOWLE'S PATENT STEAM PUMPS.



Seldon's Steam Packing for Stuffing Boxes. All kinds new and second-hand Machinery in stock and supplied. No. 9, First Street, near Market, San Francisco, Cal. 23v21-3qslp

Varney's Patent Amalgamator.

These Machines Stand Unrivaled.

For rapidly pulverizing and amalgamating ores, they have no equal. No effort has been, or will be spared, to have them constructed in the most perfect manner, and of the great number now in operation, not one has ever required repairs. The constant and increasing demand for them is sufficient evidence of their merits. They are constructed so as to apply steam directly into the pulp, or with steam bottoms, as desired.

This Amalgamator Operates as Follows:

The pan being filled the motion of the miller forces the pulp to the center, where it is drawn down through the aperture and between the grinding surfaces.—Thence it is thrown to the periphery into the quicksilver. The curved plates again draw it to the center, where it passes down, and to the circumference as before. Thus it is constantly passing a regular flow between the grinding surfaces and into the quicksilver, until the ore is reduced to an impalpable powder, and the metal amalgamated.

Sellers made on the same principle excel all others. They bring the pulp so constantly and perfectly in contact with quicksilver, that the particles are rapidly and completely absorbed.

Millmen are invited to examine these pans and actors for themselves, at the office, 229 Fremont Street, San Francisco.

EUREKA FILE WORKS.

311 Bet. Fremont and Beale, SAN FRANCISCO.

T. G. DURNING, Superintendent.

New Files of every description made to order. Files re-cut and warranted equal to new. Reaper and Mower sections, bars, etc., made to order at short notice. Orders from the country promptly attended to. 22v22tf

Baltimore Copper Company.

Highest Price paid for Copper, Ore, 1580-0

Regular, and Bars.

DANIEL MEYER, 210 Pine Street,

23v21-3m SAN FRANCISCO.

Swamp Land Reclamation.

—THE—

California Peat Company,

OWNERS OF THE

Roberts' Steam Ditching Machine,

are now ready to take contracts. They are prepared to construct

Ditches and Sewers,

of any desired dimensions. Terms easy. Address,

H. J. PAINE, Sec. Cal. Peat Co.,

225 Bush Street, San Francisco

23v21-1m

The Scientific Press is devoted specially to matters of machinery, inventions and processes pertaining to the development of mines, and gives free and full discussions of such matters. Terms, \$4 per year.—White Pine News, May 18th.

California Agricultural Notes.

AT A HANDSOME PROFIT.—Some late shipments of California brandy, which cost \$2.50 delivered in Chicago, was sold readily there for \$5 per gallon.

WILLIAM WOODWARD, the Napa vine-grower, is about engaging in the manufacture of champagne. He has secured the services of a native of the Champagne district, of France.

WILD HONEY.—Large quantities of honey are being brought into Los Angeles from the wild swarms of bees in the mountains to the east of that city. One party of bee hunters recently brought in over 1,000 pounds of clear honey, the proceeds of a single trip.

ANOTHER BEET SUGAR FACTORY.—It is said that Flint, Bixby & Co. will shortly erect a beet sugar mill on their farm between San José and Hollister.

BEET SUGAR IN OREGON.—The Oregonian says that measures are now in progress for establishing a beet sugar factory in Portland or its vicinity. We have already noticed the fact that one is about to be started in Salem.

BANANAS IN SAN GABRIEL.—Mr. Davis of San Gabriel, in Los Angeles county, is growing bananas with excellent success.

THE average consumption of wine in California is ten gallons to every citizen. The average yearly consumption of coffee in the State is 16 3-5 pounds.

JUST IN TIME.—Just before the late rains it was reported that the live stock about the Bay and in many parts of the interior valleys was beginning to suffer severely. The old grass was pretty well used up, as the previous rains had not started the new.

CAN WE GROW CORN?—About 25 tons of corn in the ear have arrived at Reed's Landing this season, from a single farm in Calaveras county. It is used to feed hogs. We shall buy our pork from Reed's Landing.

B. N. BUGBY, the well known vinecultivist, of Folsom, has lately returned from a short visit to the East. During his absence he has disposed of a large amount of the product of his vineyard, and has orders for more.

WOOL, WINE AND SALMON.—The steamer Sacramento, which sailed for Panama on Saturday last, had among her cargo 164,000 pounds of wool, 500 packages of Oregon Salmon, and 2,700 gallons of California wine.

CALIFORNIA SILK FOR THE EAST.—Mr. Joseph Newmann, the silk man, shipped, a few days since, the first bale of California grown silk ever sent to the Eastern States.

The Oakland mill is now turning out 200 grain sacks per day, and gives employment to 70 persons.

Eastern Agricultural Notes.

SCYTHES.—The old-time "scythe" does not seem to be entirely laid aside for the more costly machine mowers; as it is stated in an Eastern journal that there are not less than 1,500,000 of these implements manufactured in the United States every year, at a cost of about one dollar each.

FEARFUL OF THE RINDERPEST.—Stringent measures have been taken to guard against the introduction of rinderpest from the Continent into Great Britain. Among other preventive measures, all cattle from the Continent are to be slaughtered immediately on their arrival at any English port. No wine packed in straw is now allowed to come from Germany, where this disease is prevalent.

APPLE SEEDS are worth from five to six dollars and fifty cents per bushel, dry and clean, in the vicinity of Dansville, N. Y.

PREMIUM FOR FOREST TREES.—In Nebraska, every acre of transplanted forest trees exempts \$100 from taxation. A wise provision which it would be well for California to follow.

The harvest in Germany this year has been mostly gathered by the women, assisted by the men too old to join the army, and by children.

THE FRENCH AGRICULTURAL SOCIETIES have put off all their meetings, as the whole force of the country is required for its defence.

FARMERS CLUBS IN MAINE.—One-quarter of the State aid for agriculture in Maine is now used for establishing and sustaining local Farmers' Clubs, and one-fourth to encourage wheat-growers. As a consequence Farmers' Clubs are rapidly increasing in that State, and four times as much wheat as usual was grown there in 1870.

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Every one who wears a "Butterfly" tie, knows well the vexation incident to fastening the loop of these ties over the common collar stud or shirt buttons. This stud while serving every purpose of the common article makes this task as easy as hanging ones hat on a nail. The loop slips readily into the slotted hulk, and cannot escape by accident, thus preventing the loss of the tie; now so common. They are well plated with gold. It is very seldom that a patent is offered which affords a larger profit than this one. Parties buying the right to a town, county or state, will be furnished with the studs at what they cost to manufacture. A sample will be sent to any one by mail, on the receipt of the retail price, fifty cents.

Improved Construction of Roofs for Tobacco and Fruit Drying Houses.

Persons who are interested in the drying of fruit or tobacco, can fully appreciate this new and useful invention. The object of the invention is to construct the two inclined sides of the roof of a Tobacco or fruit-drying house, so that the sides can be easily and quickly thrown into a vertical position, so as to expose the fruit or tobacco to the drying effects of the sun and air. By the use of this simple device, the labor and expense of handling the tobacco leaves, and changing them upon the racks, is avoided. In California and Oregon, this invention can be used to great advantage in fruit drying. In time of rain the sides of this roof can be almost instantly lowered to protect the fruit from dampness. This invention has been recently patented by M. de K. Cutts, of Richmond, Va., and a full set of drawings, and Letters Patent, can be seen at our office. Here is an opportunity for a profitable investment, as we are authorized to dispose of Rights at very low prices. Full particulars can be obtained from any of our travelling agents, or by calling at our office.

NEW HOSE COUPLING.

This coupling is one of the most useful and perfect inventions of the day. It can be joined almost instantaneously and answers equally well for gas or water hose. Call and examine samples. The Right, to any town or city on the coast, will be sold at a reasonable price.

P. Davis' Wire and Picket Fence.

Although about two hundred different styles of fences have been invented and patented in the United States within the past ten years, yet this Fence, for GENERAL FARM USE, stands at the head of the list. This is a Virginia invention, and the actual cost of the Fence complete in that State is less than fifty cents per rod. Three men can put up six hundred yards per day. You men who are idle, why hang about the city talking hard times when you can make from five to eight dollars per day building this Fence? We will make a present of ONE FARM RIGHT in each county on the Pacific coast to farmers who will erect one hundred rods of the fence in good style within thirty days after the privilege is granted. We wish to employ several working men to travel in this State and Oregon. Price of territory, and circular with full description of fence sent on application.



New Gas Light.

This Light takes the place of the Candle, the Kerosene Lamp and Coal Gas. Each Lamp is a perfect Gas Factory, making its own gas as fast as it is required. It is a safe, cheap and beautiful light. Circulars and full particulars sent on application. A few good traveling agents wanted to sell this and other valuable Patents.

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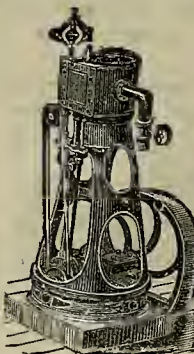
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San Francisco, Saturday, December 17, 1870.

VOLUME XXI.
Number 25.

Farming Edition.

Boating—Paper Boats.

The idea of trusting one's precious self on water with only a sheet of paper to sustain the body, would have seemed most absurd no very long time ago. But the increasing interest in boating, the ever quicker time made in races by oarsmen, and the necessity of having the lightest boat possible, have at last familiarized us with the idea, which the skill of the builders has made an established fact.

The first paper boat which we remember to have seen, was exhibited at one of the fairs of the Sanitary Commission held in a large city at the East during the war. The fragile thing, when tried, performed suc-

cessfully its intended mission, but immediately curled up when taken out of the water and allowed to dry. Since then, however, other paper boats have been made and have been shown to be as durable as the thin wooden shells, when properly cared for. During the last two or three years, these boats have been quite generally used for racing purposes at the East, have been subjected to a variety of severe tests for speed, strength and durability, and have endured these tests so well that their manufacture has now grown to be an important business. A large firm, Messrs. Waters, Balch & Co., of Troy, New York, deal very extensively in them, and we are enabled to present our readers with representations of two kinds of the racing boats turned out by these gentlemen.

The skin and decks of these boats are made of the strongest paper which can be manufactured, molded into the model desired on solid forms of wood, supported and kept in shape by a framework of light wood, supported and finished with fittings of wood and metal in the usual manner. The paper skin is prepared with hard varnishes, and presents a solid, horny and perfectly smooth surface to the action of the water, unbroken by joint, lap or seam from stem to stern. This surface can be polished as smooth as a mirror if desired; it cannot be cracked or split like wood; and no ordinary degree of heat or cold, it is said, affects its shape or hardness. With paper, lines can be produced which are unattainable with wood, unless the boats are worked out of the solid material. The boats are provided with air-tight compartments, to increase their buoyancy, and as the cockpit is only large enough to accommodate the oarsman, but little water can be shipped,

while no water can leak in through seams, from the fact that there are none. In the boating season of 1869, the boats were used by the winners of twenty matched races. Being painted and varnished, they cannot be distinguished from cedar shells at a short distance.

For the benefit of hunters, the firm alluded to make a paper hunting skiff, 15 feet long by 36 inches beam, and weighing 65 pounds. These, being so light, can be easily propelled through the water or carried over portages, while they are sufficiently strong and steady for all ordinary work. They afford ample room for traps and equipments and are remarkably dry in roughwater.

To those who have witnessed the glorious scene of four- or six-oared shells flashing

splendid corrugation of biceps and deltoid, as he recedes down stream. Still better is it to stand by the well-known bath-house on Charles Street, on a fine afternoon—June 17th or July 4th—and watch the great shells taking their places in the line—backing, turning, or going ahead with the precision of clock work, at the low word of command from the captain, as if the boat had eyes in her bow, and feelers in her six long antennae,—and then at the word “go” to see the sharp mahogany beaks shoot out from the line, the row of six half-naked figures, capped with blue, brown, white or magenta, working steadily and swiftly back and forth with the resistless swing of some powerful engine, and the water flashing up in diamond spray at each stroke of the gleaming spoon blades, while from bank,

The Australian Subsidy.

The Chamber of Commerce of this city have determined to petition Congress to pass a law containing all the provisions of the bill on this subject introduced into the Senate last March, by Senator Cole. In the Memorial adopted by the Chamber and including this petition, are statements of exceeding interest, showing the importance of having a subsidized line of steamships from here to Australia. The population of the colonies in 1869 is given as 1,949,929; value of imports, \$180,205,427; of exports, \$175,834,571; of tonnage cleared, \$2,075,256; number of vessels, 7,190; gold exports of New Zealand, \$13,816,253; of the other colonies from 1851 to 1868, \$651,140,330. The value of articles imported directly and



PAPER SIX-OARED SHELL.

through the water in living competition, the oarsmen in full exercise of their powers keeping perfect time with their swaying bodies and swinging blades, there are few sights more pleasantly exciting. To those who have taken part in such a race, have felt their muscles strung to their fullest pitch and changed to steel, their whole force concentrated to put one more pound

and wharf, and crowded river, and judge's boat goes up one mingled roar of manly sympathy and generous applause! Yes, decidedly, dear cousin from the rural districts or elsewhere, who have hitherto failed to see a good regatta, don't miss the next chance, on Charles, or Hudson, or Quinsigamond,—go and get a good place and see it through, and my life on it you

indirectly from the U. S., or from countries unable to compete with the U. S. in their manufacture, is set down as \$43,164,174; but the articles exported directly from us have a value of only \$4,619,313. The population, in 1868, of Polynesia, (which would be brought into direct and exclusive communication with San Francisco, if the proposed line be inaugurated) is given as

540,000; imports, 1868, \$4,566,600; exports, 1869, \$3,958,358. The memorial cites many of the advantages which would



PAPER SINGLE SCULL.

on the oars, have heard the cries and yells of encouragement from a thousand throats, have had their strength all but gone and then somehow renewed, and received their “second wind,” have felt by some sympathetic power (not of the eyes which can see but the broad back before them rising and falling in one steady monotone) that the sharp bow beside them is slowly but surely falling to the rear, and who have finally come in victorious in the noble contest of skill and strength,—to such the sight even of the graceful, delicate shell is tinged with the brightest colors of rich memories. To those who have never viewed such a strife, let us repeat a few words of a writer in the *Aldine Press*.

“You should manage to be on Cambridge draw-bridge some fine afternoon when the single-sculls are out for practice, see the odd animal rapidly growing larger on the view, looking, as it comes down the river—end on, and so showing no boat at all—like a great mosquito or daddy-longlegs in a state of convulsions; then see the exquisite proportions of the graceful creature as it shoots through the draw beneath you, just missing the pilcs on either side with the tips of its sculls, and then watch the long regular swing of the oarsman's body and

will agree with me that it is one of the prettiest sights yet to be seen in these stockjobbing times.

“The one good thing left in evil days.”

FILE WORKS.—The business of re-cutting old files must be increasing considerably on the coast, as a third establishment for this purpose has been recently opened in this city. It is located at 311 Mission street, and is styled the Eureka File Works. T. G. Durning is superintendent. Mr. D. is a pioneer in this line, having established the Pacific File Factory, with which he was for many years connected.

BLOSSOM ROCK.—The work on Blossom Rock has finally been accepted by the Government, and Col. Von Schmidt has received his \$75,000. The Colonel leaves for the East soon, where it is reported that he will be engaged by the Government in the operations at Hell Gate, New York Harbor.

NEW OCEAN CABLE.—The New York and London Direct Telegraph Company is the name of a new association which proposes laying an ocean cable from Rhode Island to Wales. The company is organized in London, with a capital of \$3,200,000. Five of the twelve directors are Americans.

EARTHQUAKE.—The bark Amethyst, from Bellingham Bay, reports that on December 4th, near Cape Mendocino, bearing E. N. E., distance 45 miles, felt a severe earthquake shock. The wind at the time was fresh and from the south.

Communications.

IN THIS DEPARTMENT we invite the FREE DISCUSSION of all proper subjects—correspondents alone being responsible for the ideas they advance.

All About Montana.

[Continued from page 394.]

The Mineral Resources.

The mineral resources of Montana are but just touched on. The first seekers for gold found the placers of Bannock City in 1862. Alder Gulch, discovered in 1863, drew thousands of men; and from these recent dates the territory grew up.

The number of gulches worked, up to the end of 1868, is given as 134, making 475 continuous miles of gold diggings. Besides these, the Crow Creek diggings comprise an area of over 25 square miles. Nine-tenths of these will pay \$6 a day in gold to the hand and some over a hundred. More than once a thousand dollars to the panful of dirt have been obtained in Confederate Gulch, and over three hundred in McClellan Gulch. These are facts, says the *Statistical Almanac*, on whose authority they are given, and which gives also the following:

PLACER YIELD UP TO 1869.

Lewis and Clark county.....	\$19,360,000
Meagher county.....	6,949,500
Deer Lodge county.....	13,250,000
Madison county.....	40,000,000
Beaver Head county.....	2,243,500
Jefferson county.....	4,500,000
Emigrant gulch, on the Yellowstone, and the neighboring bars.....	80,000

Approximate total yield of Montana placers.....\$86,384,200

There were over 287 miles of ditches, with 77,848 feet of fluming, carrying 25,370 inches of water, at a cost of \$806,500. Besides these, there were probably 1,000 miles of small ditches for mining and irrigation.

Quartz mining is being carried on every year with better results and on a more extended scale. Through bad management much trouble has been experienced in former years, but matters are righting themselves. The country is by no means prospected for quartz veins, which must exist, and the present yield is no test for the capabilities of the territory. We may expect rich developments hereafter, and not only, it is thought, in quartz, but also in deep alluvials.

The first quartz mill, that of the Philadelphia Enterprise Co., was erected in 1867, at a cost of \$45,000. In 1869, as near as I can learn, there were 34 mills and 476 stamps in the territory. The motive power is steam, for the most part. Many are now in operation, but quite a number are closed.

The number of gold veins, with shafts on them from 20 to 100 feet deep is set down as 400; silver veins explored, 32; copper veins, 19. Smelting furnaces have been erected in a few places and more are to be built at an early day. The yield of gold and silver up to 1869, according to the authority given above, is as follows:

From Quartz.....	\$ 6,000,000
From Placers.....	86,384,200
Total.....	\$92,384,200

COAL.—Coal beds have been found in various localities. A fine vein of bituminous coal, 22 feet in thickness, has been developed near Bozeman. On the banks of the Missouri, just above Benton, a vein is reported, with coal proper for supplying the boats on this stream. On the Gallatin River, coal is exposed by the washing away of the surface dirt. On the road between Helena and Blackfoot, I saw a fine vein, owned by Mr. W. Clancy. Many other beds have been struck, and the quality is often very good. The beds in the region of Fort Union are said to be of a very large extent.

Lead, iron, mercury (cinnabar), tin, fire-clay, gypsum, etc., are all reported in this territory. But the treasures of Montana are yet to be taken out of the earth.

Agriculture.

The main agricultural districts, where farming operations have been carried on, are in Gallatin, Missoula and Choteau counties, each of which is as big as a large-sized State. In Gallatin, the beautiful valleys of the three forks of the Missouri, in Missoula, the valley of Hell Gate and Bitter Root are noted everywhere; and these and others are thickly settled, for a new country, with enterprising farmers. But there is plenty of other good land left yet for new comers.

I have already written you quite fully concerning some of the principal farming districts. I need not, therefore, dwell further on the productiveness and capabilities of the soil. As high as 60 bushels of wheat have been produced to the acre, where care has been taken in seeding down choice lots of ground. In 1868, 23,334 acres yielded an average of 30 bushels of wheat; 18,000 acres of barley yielded 30 bushels; 18,572

acres of oats yielded 35 bushels, and 2,567 acres of potatoes yielded 300 bushels to the acre. Of the latter article, larger amounts are not unusual, and 400 to 500 bushels have often been produced. It has been shown by experience that the only limit to the area of agricultural lands is that prescribed by the water available for irrigation purposes.

In some places, especially Bitter Root and Hell Gate valleys, the oldest agricultural districts of the territory, orchards have been laid out and are beginning to produce largely. Some of the fruit is of excellent quality, but I see that still large quantities of California fruit are sold here, and this brings high prices. But I have no doubt but that Montana will do well in this line, as it gets more thickly settled.

Stock Raising.

As a grazing country, Montana is not surpassed by any place I have seen. The wild bunch-grass grows luxuriantly, from 12 to 18 inches high, and supports in excellent condition huge herds of cattle. Wild hay is cut from thousands of acres. In 1868, there were reported to be 43,216 head of stock in the territory, of an estimated value of over a million and a half dollars. The freedom from snow of the low lands and valleys, in many places, enables cattle to graze and grow fat the year through, and there are but few farmers who feed their stock. In other places, sheep can readily get at abundance of feed under the lighter falls of snow, but farmers would do well to keep hay on hand for winter for their beef cattle; and of good hay they can easily get sufficient for this purpose.

Among my acquaintances, I know a number in the stock business who have invested from \$300 to \$5,000 to commence with, and have had the amounts doubled on their hands within twelve months. The cattle do not require very much care, and the rancher can with advantage carry on farming operations. Sheep raising is an especially good business. I have seen enough personally to convince me of the profit of this, and to know that wool is produced of the finest texture.

But my trip through Montana is at an end, and it is time to conclude my letters. If any one wishes my opinion of the territory he can have it. I can heartily recommend immigration. For the miner, there are still untold quantities of wealth to be taken out of the earth; for the farmer and stock raiser, nature holds out the highest inducements, and the government has plenty of good land for them; for the invalid, there is health and life promised; for the seeker of the beautiful, there are natural wonders. Nearly as large as California, wonderfully rich in natural resources, in an excellent geographical position, Montana is certainly a most inviting field in which to seek a fortune and a home. W. H. M.

Remarks on Metallurgical Experiments

[WRITTEN FOR THE SCIENTIFIC PRESS.]

It is often said, in regard to new metallurgical processes, that though they may succeed on a small scale, that is no proof that they will do so on the large or practical scale.

I submit that this remark, though often apparently sustained by results, loses its force when the experiments are rightly conducted. It has heretofore been observed by a writer in your columns, (Mr. Pique, if I mistake not) that, in chemistry, whatever can be done on a small scale can also be done on a large scale under similar conditions; and he might have added, it can be done in the same length of time. It is precisely for want of attention to the maintenance of essential conditions that experimenters so often fail to carry out their projects in practice.

If the gentleman who, a couple of years ago, undertook to smelt ores of gold and silver, and refine the product at the same time, by the aid of nitre (which was said to have succeeded admirably on the small scale, and which was probably quite correct in theory) had considered the quantity of nitre required to oxidize the lead and copper present, and the difficulty of maintaining, in a furnace, the favorable conditions offered by a clay or sand crucible, he would at once have perceived the impracticability of his scheme.

It is absolutely necessary, in order that small experiments may afford reliable data for practical operations, that regard should be had to the possibility of maintaining all essential conditions in similar proportions. The quantities of all reagents used, in their proportion to that of the ore operated on, must be noted, as a basis for calculations of cost. The material and form of vessels and apparatus must be considered in their chemical, thermal and mechanical

bearing on the result sought. If these points are all attended to, one ton or one hundred tons of ore can be worked in the same way, and in the same time, as one pound or one grain.

First, as to material. The chemical consideration will be, whether the substance composing the vessel in which the operation is conducted, has or has not any effect in promoting or retarding the result; and whether or not the substance operated on will injure or destroy the vessel. The iron of which an amalgamating pan is made, has an important chemical effect on the ore treated in it. Hasty puddling may be boiled in a copper pot, but it would be injudicious to attempt to make nitrate of silver in one.

The thermal considerations, in regard to material, will depend chiefly on conductivity, fusibility and capacity of resisting changes of temperature. Mechanically, strength and hardness must be regarded. Glass is suitable for many small operations, but its extreme fragility constitutes a serious obstacle to its use in the large way. It must also be remembered that the strength of material does not increase in the ratio of its mass.

Secondly, as to form. The surface of vessels of similar form increases as the square of their similar dimensions, but the capacity of such vessels increases as the cubes of those dimensions; hence, if the material of which the vessel is made has a chemical effect which is essential to success, the form should be so modified, as the size is increased, as to expose an extent of surface proportional to the increased capacity; otherwise the smaller vessel will have an advantage over the larger as to the time necessary to complete the operation. For instance, in the case of two amalgamating pans, the greater of which has a diameter double that of the smaller, the extent of surface in the larger one will be four times as great as that of the smaller, but the quantity of pulp contained will be eight times as great; therefore, so far as the chemical effect of the iron surface is concerned, it will take just twice as long to work a charge in the larger pan, as in the smaller. In this particular instance, however, this effect is counteracted more or less by greater pressure and speed of muller. When the chemical effect of the matter operated on is destructive to the material of the vessel, as in the smelting furnace, the less surface is exposed the better.

The effect of form on thermal conditions depends on the same mathematical laws. The larger the vessel, of which the form is unchanged, the less will be the heating surface in proportion to the contents; but the less also will be the radiating or heat-losing surface, so that, though the larger vessel will take longer to heat than the smaller, yet, once heated to a given degree, it will also cool more slowly. Hence the advantage, in point of economy in fuel, lies with the larger vessel, and especially is this the case when, as usually in pans, the heat is applied by means of direct injection of steam to the pulp. In point of fact, the larger operation, as a general, if not invariable rule, has a decided advantage over the smaller in the application of heat.

As vessels or apparatus of similar form increase in size, their strength becomes less in proportion to the load, for the reason that, as already stated, the strength of material does not increase in the ratio of its mass. A point may be reached at which it will break with its own weight, so that a modification of form may be necessary for this reason. Also the hardness of a given substance remains the same in a large mass as in a small one, whence a change of material may be needed, in which case it must be ascertained that this change will not affect the result unfavorably.

The Stetefeldt furnace is an illustration of the fact that a ton of ore can be worked in the same length of time as a smaller quantity. When this furnace was first spoken of, many persons doubted if the ore could possibly be perfectly roasted in the few seconds of time occupied by its descent through the heated shaft. The work done has, I believe, given a practically satisfactory answer to the objection, and the theoretical explanation is equally clear. Every single particle of ore is exposed thoroughly to the action of hot air, salt, etc., during its descent, and, as it is crushed to a very fine powder, the required effect is produced almost instantaneously; and it matters not what may be the number of the falling particles, (of course within the capacity of the furnace) whether ten or ten millions, this effect is produced on each and all at and in the same time.

To use a more familiar illustration. It will not be doubted that if one pound of beans can be boiled in a pot over a fire in one hour, ten pounds of beans can be boiled

in ten pots over as many fires in the same hour. Now if these ten pots and fires be joined so as to constitute one pot and one fire, the heating surface being undiminished, the ten pounds of beans can still be cooked in one hour; and so with any other chemical operation if essential conditions remain unaltered.

If due attention were paid by experimenters to these considerations, fewer disappointments would be experienced in the practical application of their theories, and "practical men" would have less reason to sneer at the suggestions of the so called "scientific cuss."

C. H. A.

The Deepest Shaft.

EDS. PRESS.—In your issue of December 3rd, you say that the deepest excavation in the United States is a copper mine near Lake Superior, being 1,300 feet deep. Permit me to say that the above is a mistake.

The Amador quartz mining company are working a shaft in their mine, located at Sutter Creek, the depth of which is 1,350 feet. At that depth they have a large body of rich ore. This is undoubtedly the deepest excavation in the United States, or North America, and without doubt the deepest gold mine in the world. One owned by an English company located in Brazil, was worked at a depth of 1,800 feet. Owing, however, to insecure timbering, too much water, and the political troubles of the country, the company were compelled to abandon it.

HENRY M. FISKE.

Sutter Creek, Amador county, Dec. 8, 1870.

Silver in the Sea.

The poet tells of the gems that shine with "purest ray serene" in "the dark unfathomed caves of ocean;" but it is not in those inaccessible depths alone that the treasures of the sea lie hidden. There is untold wealth diffused throughout the immensity of its waters, as secure from human avarice as if it were in the abysses which plummet never sounded. Its very diffusion puts it out of our reach. The fact that it is *everywhere* makes it practically *nowhere*. Some years ago, certain French chemists demonstrated that sea-water contains an appreciable amount of silver. They decided that, if it is equally distributed, there must be at least *two millions of tons* of precious metals in the whole ocean, or more than has ever been dug from the earth. And experiments made at widely distant points prove that the metal is thus uniformly diffused. The water of the Pacific off the coast of Chili, as analyzed by an English chemist, gave the same result as the Frenchmen had obtained from the water of the British channel.

We have said that the silver in the sea is useless to us because it is diffused through so vast a bulk of fluid. But the fact that it has been possible to detect it when thus diffused, shows that if chemical agencies can make solid substances vanish from our sight, they can, on the other hand, compel a body thus concealed to show itself, even when it forms only the minute proportion of the mixture. The delicacy of chemical tests is almost beyond belief. A single drop of a colorless liquid added to a gallon of colorless liquid may instantaneously produce well defined red or blue or yellow throughout the entire mass of the latter; and yet it may be less than the hundredth part of a grain of some solid substance in solution that is made to give such unmistakable evidence of its presence.—*Journal of Chemistry.*

HOW BOYS CATCH GOPHERS.—The *Oakland Transcript* of November 30th is responsible for the following:

Noticing a couple of lads each with a live gopher and a string tied around their hind legs, on the outskirts of the city the other day, our curiosity was a little excited to know how the boys caught the animals. Upon inquiry, one of them gave a practical illustration by going to a gopher hole and letting the rodent into it, taking care to hold on to the string. After waiting a moment a violent twitching of the string from the lower end gave indication that some singular proceeding was going on, and he commenced hauling in his line. Soon the captive gopher hove in sight with his teeth fast into the jaws of another animal of the same species. The stranger was immediately seized by the boy, who dexterously avoided being bitten, and the new captive was accommodated with a string on his leg, and made to do duty in assisting the boys to trap other gophers.

Mechanical Progress.

HYDRAULIC MACHINERY ON BOARD STEAMSHIPS.—Mr. A. B. Brown read a paper before the British Association, at the late meeting, in which he urged the applicability of this kind of apparatus to the work of steering, reversing engines, discharging cargo, etc. We quote briefly in reference to the matter of steering: "The steering gear consists of a pair of primary hydraulic cylinders, placed athwart the ship, each with its ram connected to the other at the center, where it carries a bush or swivel collar. Into this collar the tiller is inserted, in which it has free end play. When the port cylinder receives its water supply the starboard cylinder exhausts, and the motion of the tiller is to starboard, and *vice versa*. The valve chest and face, are very similar to that of an ordinary steam engine; but the slide valve is slightly different, inasmuch as its exhaust cavity or port covers all of the ports on the valve chest face, the object of this being to give free communication between the port and starboard cylinder and exhaust. Two bridges are also placed across this exhaust cavity, so that on the necessary movement of the slide valve, the port, starboard, and exhaust passages are all closed. The admission ports are placed at the extremes of the slide valve, which has in its back another face, upon which works a subsidiary valve. The slide valve is moved by an ordinary steering wheel, which has a screwed bush in its nave. This works on a screw on the valve spindle, and thus screws it backwards and forwards; but the smallest possible opening of the slide valve would suffice to put the rudder hard over either way without the steersman being aware of such motion; it is therefore necessary that a self-acting cut off valve should be introduced. This consists of the subsidiary valve, which is moved entirely by the positive motion of the rudder. It resembles an expansion valve of a steam engine, its action being somewhat similar."

SUBSTITUTE FOR ALBUMEN IN PHOTOGRAPHIC PRINTING.—From *Dingler's Journal*: "Lactarine, an article lately introduced, and recommended for printing purposes instead of albumen, is a yellowish white powder of the odor of cheese. Treated with ether, a small amount of soft, saponifiable fat may be extracted at ordinary temperatures. The powder itself is insoluble in water and alcohol; soluble in caustic soda and in a solution of carbonate of soda. Those alkaline solutions being saturated with acetic or hydrochloric acid, curdy flakes separate, which dissolve in an excess of the acid. The solutions form a skin on the surface upon evaporation. Lactarine is soluble in acetic acid, difficult to incinerate; the remaining carbon becomes soft on continued heating, and leaves after complete combustion, colorless, transparent drops in the vessel, which harden after cooling, and consist principally of phosphate of soda. Lactarine therefore is nothing but casein, containing some of the fat and salts of the milk. For use, it is stirred up with a little water, dissolved in ammonia, and mixed with the proper color."

TOOL STEELS AND LOW STEELS.—We clip the following from the special correspondence of the *N. Y. Times*:—"Scarcely a month elapses in which New York capitalists are not solicited for the means to carry out some new steel process, and very frequently not in vain. Almost all of these processes fail, some because they are bad in principle, some for commercial reasons, but most frequently from both causes combined. A majority of them are intended to make tool steel with great economy and in great quantity. Now, the improbability of making a new tool steel equal to that of Sheffield, or of Pittsburg, is extreme, and its practicality can be demonstrated only after protracted experience in its working; and it is very seldom that new processes make a steel of any commercial value whatever. But a point of equal importance, and one overlooked very generally, is that the trade does not stand in need of any increased facilities for making good tool steels. The market is full of them, and they can be bought as cheaply as we have any right to expect at present. The quantity required for consumption is very limited, and would not be materially increased were the price one-half what it now is. The real want is cheap and reliable processes for making low steels, in quantities practically unlimited. Indeed, this is the greatest present problem of American metallurgy, and must, in the immediate future, employ the highest skill and scientific knowledge, and the most liberal expenditures of capital."

PROP. SEELY'S WOOD-PRESERVING PROCESS.—Dr. Adolph Ott writes the *N. Y. Engineering*, explaining the difference between this process and that of the Englishman Bethell, in 1838. Both consist in impregnating the wood with creosote. "By the Bethell process, wood and liquid are contained in a closed and strong iron receptacle; more liquid is forced into it, until a pressure of 200 pounds to the square inch is reached. This requires a very heavy and expensive apparatus and a great amount of power; and it is not available for unseasoned lumber, on account of the fact that if the interstices of the wood are filled with sap, no amount of power will effect the entrance of the preservative liquid. The Seely process, however, consists in subjecting the wood to a temperature above the boiling point of water, and below 250° Fahrenheit, while immersed in a bath of creosote oil for a sufficient length of time to expel the moisture. The water being thus expelled, the hot oil is quickly displaced by a bath of cold oil, by means of which the steam in the pores is condensed, and a vacuum formed, into which the oil is forced by atmospheric pressure and capillary action. Green wood may be treated as perfectly as dry. No pressure being exerted, the cylinders may be constructed of the lightest iron capable of resisting the weight only. Moreover, the heat being communicated indirectly by a steam coil, and no vapor being generated, the perfect safety of the operation is insured."

AMERICAN HARDWARE.—Says the *London Ironmonger*: "We are running a great risk in England of being beaten by America in the manufacture of axes, shovels, hoes, and other manufactures of the kind. The Pittsburg steel, both cast and rolled, is fully up to the best English—in fact, to such a degree that it is not only supplanting our produce, but in every shape of tool it is being exported to the European Continent. American bolts and hinges excel ours, and medium and American cutlery of all kinds is cheaper and better than any manufactured here." Says the *London Times* of edge to us: "The manufacturers of the United States can import iron and steel from this country at a heavy duty, work up the metal by highly paid labor, and heat us out of the market after all with the manufactured article." * * "The Americans succeed in supplanting us by novelty of construction and excellence of make."

COAL PROSPECTING WITH DIAMOND DRILL.—The Philadelphia correspondent of the *Iron Age* describes the work at the coal field of the Phoenix Park Co., near Pottsville. "At 700 feet deep, the hole was as straight as an arrow, and two inches in diameter. At that depth a core bit was used, and but ten feet per day could be made, the delay being occasioned in raising the rods and removing the core. An arrangement in the bit holds the core, and brings it all out, and it showed plainly every seam and stratum bored through during the day. The greatest distance driven in a day was 43 feet. Six hundred feet from the top, the solid bit bored 20 feet in a day—the core bit 10 feet. The total depth bored was 750 feet 10 inches, making the deepest boring in the region, and cutting 53 feet of workable coal. Even this, however, did not reach the bottom of the basin."

NEW HORSE SHOE MACHINE.—The Providence Horse-shoe Co. has in operation a new machine, the working of which the *Iron Age* of Dec. 1st thus describes:—"The iron is rolled to required dimensions for the several sizes in bars about 12 feet long, with indentures for the nails, each bar divided into 10 shoe shapes. These bars are heated in a long furnace to a white heat and passed directly to the machine, which works two bars at a time, requiring two men to feed the bars to the machine with iron tongs. The process of cutting off, thickening the heels, forming the shape around the dies, and making the concave on the back of the shoe, is rapidly performed by one operation of the machine. The machine weighs 5 tons, requiring 4 horsepower to run it, and has a capacity for making one ton of horse shoes per hour."

LARGEST TURBINE YET.—A turbine water-wheel ten and a half feet in diameter, and weighing 20,000 pounds, has just been cast at the works in Springfield, Mass.

Scientific Progress.

MOLECULE, SKY MATTER, MASS.—In Prof. Tyndall's late address before the British Association, he explains the blueness of the sky on the supposition that the ether waves reflected bear, as regards size, a certain proportion to the size of the reflecting particles; and that the "sky matter" particles are too minute to reflect any waves larger than the blue ones. These minute particles are, as to size, the middle term in the series of transformations of matter in the molecule to matter in the mass. In illustration, Prof. Tyndall instanced the following experiment: "Sulphur and oxygen combine to form sulphurous acid gas. Two atoms of oxygen and one of sulphur constitute the molecule of sulphurous acid. Now it has been recently shown in a number of instances that waves of ether issuing from a strong source, such as the sun or the electric light, are competent to shake asunder the atoms of gaseous molecules. Including the substance in a suitable vessel, placing it in a dark room, and sending through it a powerful beam of light, we at first see nothing; the vessel containing the gas is as empty as a vacuum. Soon, however, along the track of the beam a beautiful sky-blue color is observed, which is due to the liberated particles of sulphur. For a time the blue grows more intense; it then becomes whitish; and from a whitish blue it passes to a more or less perfect white. If the action be continued long enough, we end by filling the tube with a dense cloud of sulphur particles, which by the application of proper means may be rendered visible. Here, then, our ether waves untie the bond of chemical affinity, and liberate a body—sulphur—which at ordinary temperatures is a solid, and which therefore soon becomes an object of the senses. We have first of all the free atoms of sulphur, which are both invisible and incompetent to stir the retina sensibly with scattered light. But these atoms gradually enalesce and form particles, which grow larger by continual accretion until after a minute or two they appear as sky matter. In this condition they are invisible themselves, but competent to send an amount of wave motion to the retina sufficient to produce the firmamental blue. The particles continue, or may be caused to continue, in this condition for a considerable time, during which no microscope can cope with them. But they continually grow larger, and pass by insensible gradations into the state of cloud, when they can no longer elude the armed eye. Thus without solution of continuity we start with matter in the molecule, and end with matter in the mass, sky matter being the middle term of the series of transformations."

THE ELECTRIC LIGHT IN PARIS.—The Paris correspondent of the *London Engineer*, Nov. 11th, says:—"The apparatus set up on Montmartre is arranged by M. Bazin, and is electro-magnetic. The central cylinder supports four series of double coils covered with copper wire enveloped in silk; the cylinder is rotated by a small steam-engine of 3-horse power, making 400 revolutions per minute. The lamp used is of the ordinary form, with the Foucault-Duboscq regulator. The reflector is parabolic in form, and the whole is surrounded by a shield to hide it from the enemy. This light, from its elevated position, commands the whole of Paris and the plains around. A spectator on Montmartre sees distinctly the details of the facade of a building which stands 2,600 metres off; at 2,900 metres a man may be seen standing at a window; at 3,000 metres a mass of cavalry or infantry is distinguishable; and at 4,000 metres the dome of the Invalides, with its bands of gold, is brilliant. A man cannot be seen on the dome at that distance, but on walking towards the building all soon becomes clear. On the ramparts, at 3,800 metres from Montmartre, the light is sufficient to read an ordinary newspaper."

THE ECLIPSE.—*Nature* announces that the English Government has determined to aid the expeditions in the most ample manner. This decision was announced to the Royal Astronomical Society on Nov. 11th. "There will be a ship furnished by the Government to carry observers to Spain. There will be funds to convey observers overland to Naples, and a ship to carry them on to Messina. The various European governments have been requested to aid the various parties, and, generally, the influence of the Government is being brought to bear in every way."

HELMHOLTZ ON FARADAY.—In the preface to the German edition of "Faraday as a Discoverer," recently superintended by Professor Helmholtz, he speaks of the wonderful series of discoveries made by that gifted philosopher as "surprises, the product, apparently, of an inconceivable instinct;"—and says that Faraday himself, even afterwards, could hardly explain the intellectual steps which led to these discoveries. His genius perceived truths "which bewildered the investigators of his time, and the clearer meaning of which has since been in part made out by mathematical theory." * * "More especially he opposed the action of forces at a distance, the assumption of two electric fluids and of two magnetic fluids, and, in like manner, all hypotheses which contradicted the law of the conservation of force, of which he had an early presage, though he singularly misapprehended its mathematical expression. And in these precise directions he exercised, in the first place, the most unmistakable influence on the physicists of England. The mathematicians among them, especially, labor to render theories of phenomena the pure and true expression of the laws of fact, to the exclusion of all arbitrary theoretic devices. In this way Faraday's ideas, though in a modified form, often reveal themselves with their true significance assigned to them."

HYPOTHESIS REGARDING THE CORONA.—J. A. Oudemans writes *Nature* as follows:—"I think that a part of the luminous phenomenon which we call the Corona belongs to an atmosphere of the sun having a feeble reflecting power, or being itself luminous. But the beams in the Corona, whose variability is now confirmed anew, are necessarily an optical phenomenon. They originate, I believe, in the inequalities of the moon's surface. If the sunlight slants somewhere along the moon's limb through a valley, we observe from our point of view a beam, provided there exist between the moon and us particles able to reflect the sunlight, or to transmit it like semi-transparent bodies. There is no need to have recourse to diffraction. To look for these particles in the atmosphere of the earth, as Mr. Gould does, is, in my opinion, not tenable, as the Corona and the beams have also been observed in eclipses, where the cone of the shadow even had a breadth of thirty-six German leagues. The molecules of the atmosphere, which we see around the eclipsed sun, are wholly within the cone of the shadow. These reflecting particles are undoubtedly to be looked for beyond our atmosphere, between the moon and the earth, and I believe that they may be regarded as identical with those particles which float in the ether, and under other circumstances cause the zodiacal light."

A NEW AND REMARKABLE COAL.—Prof. Wurtz in the *Gas Light Journal* of Dec. 3d gives a letter from New Bethlehem Pa., announcing the discovery there of a new canal coal, samples of which have been sent him, and of which he thus speaks: "At first glance it has the characteristic aspect of some of the English Canals, having the cuboidal jointage and dull black conchoidal fracture, but on looking closer, strange peculiarities appear. The fractured surface is full of minute glistening points as if it had a finely crystalline (almost crypto-crystalline) texture. The strangest thing, however, is that when cut, or even rubbed, with a knife blade, it assumes a brilliant lustre, precisely like graphite or plumbago. It easily streaks paper, the streak having a slightly olive-brown tinge, and being (as observed by the writer in the case of *graphamite*) indelible by india rubber. It might be used for making a sort of crayon. This would seem to indicate an admixture of something similar to the *viscine* of the writer. In the fire it burns much like a good ordinary canal, cracking to pieces with some decrepitation, without any caking, yielding a voluminous and cheerful flame, and leaving considerable white ash. A full account of all its properties, chemical and otherwise, will soon be given to our readers."

AGRICULTURAL DEPARTMENT.

Agricultural and Horticultural Work for December.

Farmers and gardeners pretty generally have a busy time during this month. In November we expect rain in sufficient quantities to permit plowing the fields, and preparing generally for planting.

Although we cannot lay down definite rules for work to be done during this month in California, as they do in the Eastern States and in Europe, on account of the peculiarities of our climate, yet the beginning of the rainy season presses certain work upon the farmer and gardener in every part of the State, which cannot very well be done at any other time. When Horace Bushnell speaks of the incredible anomalies of the California climates, we must admit his correctness, as work which is very properly performed during May in the northern parts of the State, may be effected in January or February in other parts of it.

Fruit and ornamental trees, evergreens and flowering shrubs should be planted as soon as the ground can be prepared for them, as nothing is so beneficial to newly set-out trees, shrubs and vines as a few good showers of rain. Early planting should be an established rule in California.

Lawns and flower-beds should receive a good top-dressing of manure now. Some object to this on account of the odor and appearance, but we advise our friends not to be too particular on this point, if they wish to keep their lawns, grassplots and flower-beds in a condition to produce a new and vigorous growth.

This is a very good time to prune all kinds of trees and shrubs; to clip hedges and horders, and to provide plants with proper stakes, so as to keep them in good shape. In cold countries this work is delayed until spring, as severe frosts seriously injure the newly-cut wood.

Any tree, shrub or flower seed which is sown during this month should be raised under glass, and have the full benefit of a sunny aspect; many varieties even require bottom heat to cause them to germinate freely.

Greenhouses and conservatories should receive plenty of fresh air during the morning and early afternoon, to harden the plants to some extent; we do not like to see plants in the greenhouse or conservatory throwing up spindling shoots as if they were climbers, which they will frequently do, and which is attributable to close confinement, insufficient room, or being placed at too great a distance from the glass roof. Plants under glass require less water during the winter months on account of the moist and cold atmosphere, but when artificial heat is maintained for tropical plants or for forcing purposes, the amount of water to be given must depend chiefly on the nature of the plants themselves. A high temperature generally requires an abundance of moisture.

The old wood of blackberries and raspberries should be pruned out now, if not already done; if this is left until the spring, a great many fruit-bearing buds, and young suckers not now visible, will be broken off and destroyed.

Strawberry vines should be planted out this month, if a fair crop is expected of them during the coming season.

We would also advise the owners of vineyards to prune their vines now, or as soon as time and circumstances will permit.

Hyacinths may be placed in glasses or pots now, so as to have them in bloom during January and February. We would advise the lovers of this beautiful bulbous root, to place them, after planting, in a dark room for a fortnight, when they will make strong roots before developing their leaves; this will enable them to send forth a much more vigorous flower-stock than will be obtained under the ordinary treatment.

We had almost forgotten to mention the Dahlia, which should now be taken up and stored away in some cool, dark place, where the temperature is even and comparatively dry, and where the tubers can rest and recuperate preparatory to being planted out again.—*California Horticulturist*.

Training Grape Vines.

I am inclined to think that Californians have fallen into an error in the training and culture of grape vines. It is true this is a new country and a great many new ways have been adopted; some are well and improvements on the old systems; others remain to be more thoroughly tested. The almost universal practice of cutting the

vines of the grape almost back to the ground is a matter I have been considering for some time. I wish to mention one or two facts observed during the past season. A farmer in this neighborhood had a few vines of the same variety near each other. Half the number were cut back after the California fashion, leaving only two or three buds to each stem. The other half were trained on a frame for eight or ten feet and then cut back. This year, whilst those of the short stems only yielded a few bunches to each root, those on the frames bore more than 20 times as many.

Another gentleman, a grape culturist, brought to town some vines, the growth of two years, which he had allowed to run on the ground. They were perhaps 20 feet in length and must have yielded at least 50 pounds to each stem. As to the quality of these grapes on long stems, they were quite as good as those on the short stems.

Now these facts may be exceptions to a general rule in the training of the grape vine, but I can see no reason why more wood should not be allowed to grow, whether the vine be on a frame or on the ground, especially where the soil is rich and moist. On dry, barren hill-sides cutting close may be proper, but even there, when the roots are large and spreading, more wood should be matured, and consequently a larger yield of fruit would result. In frame culture the saving of land surface would be an important item. The saving of labor in cultivating so much surface would hardly be counterbalanced by the expense and labor of constructing frames. If it is thought best to have the grapes grow near the earth so as to receive more heat, the frames might be simply stakes one or two feet high, to hold the vines out of the way of the plow or cultivator.

Should my suggestions be erroneous, will not some practical grape grower set me right and at the same time enlighten our people a little on this subject?

C. L. ANDERSON.

Santa Cruz, Cal., Dec. 9th, 1870.

Work and Think.

Hammer, tongs and anvil ringing,
Waking echoes all day long,
In a deep-toned voice are singing
Thrifty Labor's iron song.
From a thousand fly-wheels bounding,
From a thousand humming looms,
Night and day the notes are sounding
Through the misty factory rooms.
Listen, workmen, to their play—
There's advice in every cluck;
Still they're singing—still they're saying—
"Whist you labor, learn to THINK!"

Think what power lies within you,
For what triumphs ye are formed,
If in aid of bone and sinew,
Hearts by emulation warmed.
Mighty though ye woo and cherish,
What shall hold your spirits down?
What shall make your high hopes perish?
Why shall ye mind Fortune's frown?
Do you wish for profit, pleasure?
Thirst at Learning's fount to drink?
Crave ye honor, fame or treasure?
Ye the germs have—work and think.

Think! but not alone of living,
Like the horse, from day to day;
Think! but not alone of giving
Health for pelf, or soul for pay!
Think! O, be machines no longer—
Like the windmills by the way;
Think! 'twill make you fresher, stronger,
Link you to the great and good!
Thought exalts and lightens labor,
Thought forbids the soul to sink!
Self-respect and love for neighbor
Mark the men who work and think!

Think! and let the thought now nerve you—
Think of men who've gone before—
Leaving lustrous names to serve you;
Yours the path they've plodded o'er!
Freedom fights and wins her charter,
With the sword of thought—the pen!
Tyranny can find no quarter
In the ranks of thinking men.
Think! for thought's a wand of power—
Power to make oppression shrink;
Grasp ye, then, the precious dower!
Poise it—wield it—work and think!

Hold your hands up, toiling brothers;
'Mongst us be it ne'er forgot,
Labor for ourselves and others
Is for man a noble lot.
Nobler far, and holier, higher,
Than vain luxury can claim,
If but zeal and worth inspire,
And true greatness be our aim.
Power to compass this is given—
Power that forms the strongest link
'Twixt an upright man and heaven,
His noblest power—the power to THINK!

SHOO FLY.—Grass Valley has another invention, the "Shoo Fly," a machine intended to keep away flies from one's bodily vicinity.

California Agricultural Notes.

THE FARMING LAND in all the most available locations along the line of the California and Oregon Railroad is being rapidly taken up by settlers, and many holders of Spanish grants are dividing up their large possessions into small tracts. Desirable settlers for such lands are dealt with generously.

SHEEP SKINS.—A single tannery near Saratoga is turning out about 7,000 sheepskins a week for book-binding purposes.

A MONSTER STEER has been raised in Chico by J. C. Maudeville, and sold in Marysville for \$500, where it will be served up for Christmas dinners. It could not be got into any of the ordinary cattle cars, but had to make the trip on a platform car.

BIG PUMPKIN.—P. C. Robertson, says the *Yolo Democrat*, recently received by express from T. Y. Tibbs, of Poor Man's Flat, Sonoma County, a pumpkin weighing 196½ pounds, measuring 6 feet 2 inches one way around and 5 feet 2 inches the other.

LARGE YIELD.—Some idea may be formed of the large yield of young fruit trees in this state from the fact that George Squires, of Dutch Flat, Placer County, recently gathered 450 pounds of apples from an apple tree less than six inches in diameter.

TWO SIDES.—The milkmen of this city have resolved to get up a black book, in which shall be entered the names of delinquent customers; the "customers," both paying and non-paying, propose "another hook" in which shall be entered the names of all milkmen who eke out the lacteal fluids by draught from the pump.

Eastern Agricultural Notes.

EXPENSIVE HOG PEN.—A crazy Connecticut farmer has just finished a hog pen at a cost of \$2,000. It is grained on the outside, and papered inside.

THE GRAIN SHIPMENTS by the Erie Canal are said to have increased the past year by full a million bushels, notwithstanding the general decreased yield of the crop throughout the west.

EXPENSIVE.—The estimated annual expense of running the Departments of Agriculture, Emigration and Colonization in the New Canadian Government, is set down at \$279,655. Some of the people in the "New Dominion" are beginning to open their eyes at these and similar figures.

MALAGA GRAPES are said to be cheaper and better this season than ever before, in Europe.

THE LATEST HORSE TRICK.—It is said that horse dealers in St. Louis sometimes put sulphuric acid on the hoofs of horses to make them "show off" or appear antic.

GOOD COWS are selling in Maine for \$20 each.

BIG RADISH.—The local of the Keokuk (Iowa) *Gale City* boasts of a radish weighing eighteen pounds.

EXHIBITION OF SWINE.—Is is proposed to hold a Fair in Chicago next September, for the exhibition of swine exclusively, with premiums aggregating from \$5,000 to \$10,000!

THE EXPERIMENTAL FARM, of Eastern Pennsylvania, has raised, the present season, 150 varieties of potatoes, between 30 and 40 varieties of wheat, and 30 varieties of oats.

NEW AND FATAL CATTLE DISEASE.—A new and singular disease has broken out among the cattle of Somerset county, New Jersey. The animals attacked died in about three hours.

GROWTH OF THE WOOL INTEREST.—The production of wool from California commenced in 1855, with 360,000 pounds. The export for the present year is estimated at 20,000,000 pounds, or fully 25 per cent. over the yield of any previous year. An increase from 180 to 10,000 tons in 15 years shows a very healthy growth.

PORK PACKING.—The business of pork packing is beginning to be one of considerable importance in this state. One of the largest establishments of the kind in the mountains is that of Cashin & Restof, near Grass Valley, of which the Nevada *Transcript* says:—"The product of this establishment is of the best quality, the meat being cured with the greatest care, and the lard made entirely of pork and by the best process. The whole establishment is neat and clean, and every part of the process is conducted with the greatest care."

A PROFITABLE CROP.—A farmer in Ohio, recently picked 400 bushels of cranberries, from three acres, and sold the lot for \$1,520.

Interesting Facts for Farmers About Ramdell's Norway Oats.

Few among the masses of the people, realize the immense wealth the world holds in the yearly products of a single kind of grain; or the immense addition to that wealth which is often made by the introduction of an improved method of cultivation, or by the origination of a new variety of an improved character in yield or quality. But with the intelligent agriculturist or political economist such facts are of the highest importance to the welfare of the world.

The yearly product of the oat crop of the country is estimated at 300,000,000 of bushels, growing upon 10,000,000 acres of land, or about 30 bushels to the acre. This crop at say 33½ cents a bushel reaches a value of \$100,000,000. Now suppose some enterprising individual can introduce a variety which will increase the yield from 30 to 60 bushels to the acre. Does he not directly add to the wealth of the country \$100,000,000 annually?

Now by reading what follows it will be seen that this is a low estimate of what has been done by Mr. Ramsdell in introducing his new variety of oats to the country.

THEIR INTRODUCTION INTO EUROPE.

The fame of this new oat has gone out into almost every civilized country on the Globe. Experiments, to a greater or less extent have been made in several countries of Europe—which would have been greatly extended the coming season, if it had not been for the awful ravages of war and preparations therefor, which are working such terrible inroads into the peaceful occupations of that portion of the world.

Both capitalists and the governments themselves have in some instances manifested their readiness to assist and encourage, in a substantial way, their introduction into their respective countries. And well they may, for it would effect an annual money increase to the value of that product, on the continent, of not less than two hundred million dollars! as the present aggregate yield of that grain there is 600,000,000 bushels. The story of

THE WONDERFULLY PRODUCTIVE POWER

Of this grain was at first received by many with much doubt; but the evidence has now become so cumulative that it is useless to longer contend against their being an improvement of vast consequence. To this conclusion we must come if we are to exercise the common rules of evidence with regard to the volumes of competent testimony which are constantly flowing in to the fortunate originator of this valuable cereal. Not less than

25,000 PRACTICAL FARMERS

In various parts of the United States have united their testimony in this direction. This testimony is in the main received and approved by the

LEADING AGRICULTURAL PAPERS

Of the country which have collected the information in their own localities and from their immediate friends and collated the same for their own satisfaction and for that of their readers. Great numbers of

INFLUENTIAL SCIENTIFIC WRITERS

Upon agriculture have joined their testimony to the common mass of evidence. We will here endeavor to give a brief allusion to some of this mass of testimony.

The *American Agriculturist* says: Last fall, we asked for the experience of those of the readers of the *American Agriculturist* who had raised the Norway oat, or had tried it in comparison with other sorts. We have received a number of responses, and proposed to print them this month, but they are crowded out. The writers who have had good seed, with a few exceptions, seem greatly in favor of the Norway. The yield in some instances has been enormous. The straw is uniformly extolled for stiffness, length and leafiness. In procuring seed for planting, we surely would try some Norway, even if they failed last year.

The *Chicago Republican* says: "We believe we can do no greater favor or service to the thousands who read the *Republican*, farmers and those interested in the introduction of improved cereals, than to point out to them the merits of these oats. * * A given quantity will weigh a large per cent. more than other variety; the berry is larger, the hull thinner and the grain more nutritious, and hence better for feeding."

The Massachusetts *Plowman* says: "The straw is remarkable for size and beauty, and the kernel plump. This new variety of oat introduced to culture but two or three years ago, has met with great favor, and, so far as we have heard, has given great satisfaction."

We might fill pages with similar extracts from the Atlantic papers; but we pass to the.

EXPRESSIONS OF THE PACIFIC PRESS.

The *Alta* of this city says: "Those farmers who wish to sow oats may do well by trying the Norway variety, which is recommended for being more hardy and producing more grain to the acre than other kinds. Mr. E. Tripp assures us that one acre sown in March last by Mr. Miller, near San Leandro, produced 125 bushels, and a field of sixteen acres near Santa Rosa, sown in April, averaged 92 bushels."

The *New Northwest*, published in Montana says: "Mr. W. B. Harland sowed, this year in the Upper Bitter Root Valley, seven bushels of seed [Norway Oats] on seven acres of ground, and has just cleaned up over five hundred bushels as the yield. This is over 71 bushels per acre, while 30 bushels of common oats is a good yield. At 32 pounds to the bushel, and five cents per pound—the fair estimate of price for oats in this Valley—a crop of this kind is a pretty good thing to have; while the straw, which grows from five to eight feet high, would board and lodge half the cattle in the Bitter Root all season. We hope our Warm Spring farmers will supply themselves with seed of this variety while they have opportunity. [See directions at close of this article for procuring the "seed"]."

The *Denver News* of Oct. 10th, 1870, after speaking at some length of their introduction and successful cultivation in that territory, says: "These oats are far more profitable to raise than any variety with which we are acquainted. The testimony of our farmers is that they yield from thirty to fifty per cent. more than any other variety, and cost no more to cultivate. To obtain seed, therefore, for the next year is the duty of all who have not yet done so. * * * We cannot too strongly advise our agriculturists to do so."

Mr. Samuel Sellers, of Antioch, Contra Costa Co. Cal., writes that he sowed 2½ bushels of these oats about the first of February last, and harvested about 400 bushels from that sowing.

EXTRAORDINARY YIELD AT STOCKTON

Mr. Samuel Miller, of Stockton, San Joaquin Co. Cal. says that from one bushel (32 pounds) of Norway oats sowed about the first of March last, on one acre of ground he harvested 125 bushels and some odd pounds!

Mr. E. Tripp, of this city sowed, on the 13th of April last, a portion of a field in Sonoma county, which, without a drop of rain, yielded at the rate of 92 bushels to the acre; while portions of the same field which were sowed with common oats did not mature at all, on account of the drought!

Such are some of the evidences of the extraordinary yield of these oats on the Pacific Slope! We would here call particular attention to the lateness of the season at which the last mentioned lots were sold, and their remarkable yield under adverse circumstances.

EXCELLENCE OF THE GRAIN AND STRAW.

The testimony in favor of the superiority of the kernel of this oat is as overwhelming as that in favor of its large yield. It forms a hard, well formed, heavy grain, the importance of which every farmer and miller fully understands. Much is also said of the superior value of the straw. We are told of a gentleman in Oakland, who, as a test placed a quantity of superior hay before his horses, by the side of some Norway oats straw. The horses chose the straw in preference to the hay and filled themselves from it. These oats are also very valuable for green soiling, for which their preface and superior foliage seems to peculiarly adapt them.

Another important advantage possessed by them is due to the fact that they will admit of being eat greener than is practical with any other grain.

WHEN TO SOW.

Mr. Ransdell in a circular addressed with regard to the best time to sow the Norway oats says: "It is much better to wait till the ground gets quite warm and dry before sowing, as they stand much better than if sowed earlier."

This would seem to agree with the experience of last season in this State, as recorded above, under the "extraordinary yield at Stockton." Still it would no doubt be quite as well to sow early in this warm climate, on account of the late rains, and not wait later than the 1st of March.

We would refer the reader to advertisement on last page.



The above cut represents a single head of the Ransdell Norway Oats, reduced and copied by photo graphy, from which

this engraving is made. The natural length of this head is thirty-one inches, and it is believed to be the largest ever grown

S. F. Domestic Produce Market.

SAN FRANCISCO, Thursday, P. M., Dec. 15th.

FLOUR—Is still in small demand for export; although the demand for local trade continues fair. We note no changes in prices from last week. Standard Oregon brands are quotable at \$6.37@6.50; local brands—superfine, \$5.25@5.50; extra \$6.37@6.50. We note sales of 2,000 barrels California extra; 5,000 Oregon extra and 3,000 California superfine, at current rates—the latter for export.

WHEAT—Has been in better demand, during the past week, and at a slight advance, especially for choice shipping goods. Sales are reported to the amount of 50,000 sacks, at current prices for shipping and milling. We quote the range of all kinds at \$1.85@2.15; good to choice shipping, \$2.12@2.15; choice milling, \$2.12@2.15. Some small fancy lots for local milling have been sold during the week for \$2.20. Liverpool quotations came through to-day at 11s 4d@11s 5d. New York rates remain unchanged—\$1.62@1.65 per bushel.

BAILEY—Is still in fair demand, and prices have remained unchanged during the week. We quote \$1.25@1.35, from fair to choice. Sales of some 10,000 sacks are reported.

OATS—The market still continues inactive. Fair to good may be quoted at \$1.35@1.60, at which prices some 5,000 sacks have changed hands.

CORN—May be quoted at \$1.37½ @ 100 lbs for good yellow, at which figure the latest sale was made.

BUCKWHEAT—Nominal at \$2.50@3 from the wharf. No sales.

RYE—In limited demand. The latest sale is reported at \$2.12½.

FEED—Remains with but little change. We quote Hay a little easier at \$10@15 from fair to choice; Straw, \$7@9; Bran, \$28@30; Minnings, \$33.50@35 per ton; OIL CAKE MEAL, \$28.00.

HONEY—In good demand at the following rates: Los Angeles, 5-gall cans, \$12@16, and Potter's, 2 lb do, at \$4 @ 1 dozen.

POTATOES—Market firmer for all descriptions. The receipts have been quite heavy during the week—12,000 sacks were received from Humboldt on Tuesday, which found a good market. We quote common \$1.40@1.75; Sweet, \$1.37@1.50.

HOPS—The crop of 1869 dull of sale at 5@5c. This year's crop is still quotable at 10@12½c.

HIDES—We quote Dry, slaughter's stock, 16½@18c; Salted; 7½@8½c. Sales during the week 1644 Cal. dry.

WOOL—Has been in slight demand. Sales light. We quote good shipping, at 15@17c; very choice, 18c; burry, 10@12½; slightly do, 13@14c.

TALLOW—Quotable at 7½@8½c; the latter an extreme figure.

SEEDS—California Mustard, none in the market; Flax 3@3½c.; Canary, 7@8c.

BEANS—Quiet at the following rates. Bayo at \$2.50@2.75; butter, \$2.50 for small, \$3 for large; small white and pink \$2.00; pea and red \$2.25 per 100 pounds.

FRESH MEAT—Beef in good supply without any special change in prices. Several car loads have come to hand from Nevada during the week. We quote prices from slaughterers to dealers:

BEEF—American, 1st quality, 9@10c @ lb.
Do 2d do 7@8c @ lb.
Do 3d do 5@6c @ lb.

VEAL—From 8@11c.

MUTTON—Steady at 6@7c. @ lb.

LAMB—9@10c. @ lb.

PORK—Undressed at 5½@6½c; dressed, 8½@9½c. @ lb.

POULTRY, ETC.—The market is well stocked, and prices unchanged. Spring Chickens, \$5@6; Hens \$7@8.50; Roosters, \$7@8.50; Ducks, tame, \$6@7 @ doz; do wild, \$2@3.00 @ doz; geese, tame, \$2@2.50 @ pair; wild \$1.75@3 @ doz; tame Turkeys, 17@19c @ lb; Hare, \$2.50 @ 3 @ doz; Doves, 50c do; Quail, \$1.25@1.50; Snipe, 75c do; do English, \$1.50 do. Venison, 8@9c @ lb.

DAIRY PRODUCTS—Rule lower; California Butter, Fresh, in rolls, 40@50c; ordinary, 32@40c; Irkin, 35@42c @ lb. Cheese is in fair supply—California, new, 12@15c., Eastern, 17c. Eggs, California fresh 42@50c; Oregon, 37½@40c. California Lard, 11½@12½c; 11@13½c; Oregon, 12½@13½c, according to package.

FRUIT—We submit the following prices, for which we are indebted to A. Lusk & Co.: Apples, per box, eating \$1.25@2; cooking, \$1@1.50. Grapes, per pound, native, 4@5; foreign, 10@20c. Pears, per box, eating, \$2@3; cooking, \$1.25@1.50. Strawberries, per pound, 15@20c. Oranges, per M, \$35@50. Lemons, per box \$42; per 100, \$4. Cocoanuts, per case, \$7@8. Pine Apples, per doz., \$9.

CASE GOODS—In 2 lb cans, per doz., Apricots, \$4; Apples, \$2.50; Blackberries, \$1; German Prunes, \$4; Grapes, \$4; Peach, table, \$4; Peach, pie, \$3; Pie, assorted, \$3; Plum, table, \$3.50; Plum, pie, \$3; Pears, \$3.75; Quince, \$3.50; Tomatoes, \$2; Table, assorted, \$3.75.

GENERAL MERCHANDISE.

AGRICULTURAL IMPLEMENTS—Have been in good demand since the late rains, and a good demand is expected to continue for the season.

BAGS AND BAGGING—Are in moderate request only, and will not be until the approach of the coming season. We quote wool bags at 50@52½c. Oat Sacks 23x40, 12½c; 28x35, 18c; Potato Gunnies, 24½@25c.; imitation Donkeys, 19@20c.

BUILDING AND FENCING MATERIALS—Are in better demand, and prices are reported firm. Immediately after the first heavy rains the market was nearly emptied of fencing stuff. We quote wholesale rates to dealers: Redwood Rough at \$18; do Siding, \$22.50; do Surfaced, \$30; Fancy Pickets, \$30; Oregon Rough, \$17; do Flooring, \$27; do Fencing, \$18; Laths, \$3@3.25, and Redwood Shingles, \$2.75 @ M.

DRIED FRUITS—Are in only moderate request at the present time. Sales of 25 bbls. Zante Currants, private; 50 kegs Oregon Dried Apples, and 5 cs Citron on private terms. We quote the market as follows: Cal. Dried Apples, 5½c; Oregon do, 6½c; Languedoc Almonds, 25c; Figs, Smyrna, 15@20c; Prunes, Hungarian, 14@16c, for old and new respectively, @ lb; Raisins, layer, \$4.50@5; Currants, Zante, 14½@15½c, for old and new; Citron, 40@42½c.

PROVISIONS—The stocks of all kinds of Cured Meats are in fair supply, and a good demand continues to exist. We quote jobbing rates as follows: Hams, California, at 13@13½c; Oregon do, 16½@17c; Bacon, California, 15@15½c; Oregon do, 16½@17c; Lard, California, 12½@13½c; Oregon do, in kegs, 12½@13½c @ lb.

PEPPER-TREE BERRIES FOR FOWLS.—Mr. Alexander Campbell, of Oakland, informs us that he uses the fruit of the South American pepper-tree (*schinus molle*) to mix occasionally with the food for his chickens, instead of the ordinary pepper of commerce, and he finds it quite as good or better for them.

The fruit of this tree, which is often called here the California pepper-tree, is a red berry, enclosing a large seed, which, when dry, is powdered and often used upon the table as a substitute for black pepper. Though nearly resembling pepper in taste and appearance, the plant producing that spice is not at all related to this, either botanically or in appearance; as the real pepper plant has more the appearance and form of the comma calla, or Egyptian lily.

The so-called California pepper-tree, however, is really one of our prettiest ornamental evergreens, growing either as a shrub or a tree, at the will of the gardener.

It is very hardy and easily grown with us, and stands our dry season, without water, better than almost any other tree, being a native of a dry country—Peru. As an ornament, as a break-wind, as a shelter or a shade, it is peculiarly adapted to our State, and deserves to become a much more common tree about our homesteads.

THE SECRETS OF THE OCEAN.—Mr. Green, the famous diver, gives the following sketch of what he saw at the "Silver Banks," near Hayti: The banks of coral on which my dives were made, are about 40 miles in length, and from 10 to 20 miles in breadth. On this bank of coral is presented to the diver one of the most beautiful and sublime scenes the eye ever beheld. The water varies from 10 to 100 feet in depth, and is so clear that the diver can see from 200 to 300 feet when submerged, with but little obstruction to the sight. The bottom of the ocean, in many places, is as smooth as a marble floor; in others it is studded with coral columns, from 10 to 100 feet in height, and from one to 80 feet in diameter. The tops of the more lofty support a myriad of pyramidal pendants, giving reality to the imaginary abode of some water-nymph. In other places the pendants form arch over arch. Here and there the coral extends to the surface of the water, as if the loftier columns were towers belonging to those stately temples that are now in ruins. There were countless varieties of diminutive trees, shrubs and plants in every crevice of the corals where water had deposited the earth. They were all of a faint hue, owing to the pale light they received, although of every shade and entirely different from plants that I am familiar with, that vegetate upon dry land. One in particular attracted my attention; it resembled a sea fan of immense size, variegated colors, and the most brilliant hue. The fish which inhabit these "Silver Banks" I found as different in kind as the scenery was varied. They were of all forms, colors and sizes—from the symmetrical goby to the globe like sunfish, from the dullest hue to the changeable dolphin.

—Journal of the Telegraph.

WANTED, A BUTTER WORKER.—Moore's *Rural* asks for a good butter worker, that will take the butter from the churn, wash, salt and work it without the aid of a butter bowl. If any such invention is in practical shape, or can be put in such a position, the owner or inventor may calculate on having a good thing. Is there not a chance here for some of our California inventors.

Silk Culture—The War.

The French and German war has already affected, more or less, nearly all kinds of business in this country—including agricultural industries. Should it continue much longer, or become more wide-spread, as the present position of things indicates that it may, the effect will be still greater and more lasting. The price of breadstuffs has already been materially enhanced in consequence of the war, and should Russia and England become involved—Russia being one of the greatest producers and exporters of wheat—the prospect for the farmers of the United States to obtain a high remuneration for their surplus wheat and flour, for a few years to come, is most flattering. An equally favorable effect would also follow to our manufactures and commerce. But of all our industries, none have been so directly and materially affected, by the present war, as those connected with the culture and manufacture of silk.

When it is considered that France is one of the foremost nations of the earth, both in the production and manufacture of silk, and that Germany is also extensively engaged in both of these industries, the reason for the facts above stated is obvious.

Strange as it may seem, however, while all other agricultural industries in this country have already felt an enlivening influence, consequent upon the war, silk culture, in California, has for the present, or so far as the immediate sale of the products is concerned, received a severe blow; and to those unacquainted with all the facts involved, or who have not given the subject a careful investigation, the prospect for this industry looks exceedingly dark and unpromising.

Before coming to this conclusion, we should examine these facts. At the commencement of the war there were orders in the State for all the silk eggs that had been or could be produced this season, and the prospects of the silk culturists for satisfactory profits were most gratifying. Quite a quantity of eggs had already been sold to agents of Parisian merchants, and the money had been paid for them, at from four to five dollars per ounce. Very soon, however, after the war began, all orders, not then filled, were countermanded; and even the eggs then already purchased are still in San Francisco, waiting an opportunity of shipment, which the present condition of France prevents.

This state of things has had an equally deleterious effect upon the egg trade in Japan, as we are informed by the late news from that country; and the present prospect is that nearly all the surplus eggs produced there and here will hatch in the hands of the producers, and thus prove to them a total loss. So much for the effects of the war upon the silk egg trade.

Now as to the cocoons and raw silk. The first impression would naturally be that the demand and price for these articles must necessarily be materially enhanced. We shall show hereafter that this will, in time, be the case; but for the present, it is quite the reverse. A moment's reflection will explain the reason of this apparent anomaly.

The silk crop of all Europe, the past season, was fully up to an average, and was secured before the beginning of the war. In times of peace, France not only manufactures all her own silk product, but by far the larger part of that of Italy, Spain and other European countries. She also imports largely from China, Japan and other Asiatic countries, to keep her looms at work. Now, however, all her factories are idle, and all their silk, usually consumed by them, is at present seeking a market in other parts of the world. As the silk factories outside of France are inadequate to consume so large a surplus, and the capital of the silk merchants insufficient to handle the same, the natural result is a present complete disorganization of the markets, and prostration of prices for the raw material.

We deem it proper to mention, here, another cause which has operated very much against this industry, in our State, and one which of itself was sufficient to completely discourage and dishearten a less enterprising and persevering people than Californians. We refer to the short-sighted, illiberal and unjust execution of the wise and judicious laws for the encouragement of silk culture in California, passed by our Legislature, some years

since. The course pursued by the State authorities in this matter deprived those engaged in the industry of the means they had calculated upon for pushing the business ahead, and operated, generally, much to the discouragement of others, who anticipated engaging in it.

Having alluded to and explained the cause of the present depression of silk culture in this State, we propose, for a moment, to look into the future, and examine a brighter and more promising side of the question. It is an old saying that "the night is darkest just before day." We believe that the brightest day for this rich industry in California is just about to dawn. We believe that the causes which have been and are just now operating so much to its disadvantage, will very soon bring about a complete change in its favor, and be the means of building up this industry upon a more firm and substantial foundation than its most sanguine friends ever anticipated for it. We refer to *legitimate silk culture—the production of silk itself.* And in the meantime, we believe we shall, after the war is over, enjoy a better chance to supply Europe with eggs than any other country. And now for the reasons for our belief.

In the first place so large a proportion of the world's silk manufacturing machinery and capital as is embraced in France can not remain idle for any length of time without necessarily being followed by a material rise in the price of silk goods. The unusual profits thus guaranteed to the manufacturer, by the great disparity between the prices of the raw material and manufactured silks, will attract the attention of capitalists and secure large investments in this direction. Thus will grow up a great silk manufacturing interest in our own country, and secure to us a constant home demand, at paying rates, for all our cocoons and raw silk. The signs of the times, the actual formation of silk manufacturing companies, the erection of factories point, with unerring certainty, to these results.

Again, even if the war does not assume any greater proportions in Europe, it can now scarcely be brought to a close in time for the French to secure eggs and produce a crop of silk the coming year. Should the war continue any length of time and the armies overrun the southern silk districts, as they now seem certain to do, the greater portion of the mulberry orchards of the Empire will be greatly injured or permanently destroyed. In that country of slow growth, these orchards once injured or destroyed, it will require a series of years to renew them so as to produce crops.

These facts and circumstances alone, without considering the injury to and destruction of the factories and machinery used in preparing the raw material—the reduction of the operators by the casualties of war, and the general disorganization of society and all the industries by the armies marching over this portion of the country, must necessarily, for years to come, reduce the products of this industry very materially in Europe, and produce a scarcity of the world over.

Thus it will be seen that there are at present a combination of causes most favorable to the cultivation and manufacture of silk in the United States, and especially in California, such as never before have existed. Added to these may be mentioned the great abundance and low price of mulberry trees in this state, and the great necessity of a greater number and diversity of industries for the general prosperity of the country.

We would therefore urge upon every farmer who has the land upon which to plant trees to make a beginning at once. It will cost but little and can scarcely fail to lead to good results.

Silk culture is an industry which proves most successful and prosperous when prosecuted as an adjunct to the farm, in connection with other occupations. No special buildings are necessary for cocooneries. A room in the house or in the barn or other outbuilding may be used for feeding the worms. The time employed will not interfere with other farming operations, as it will be needed when but little else is going on. In fact the feeding and care of the worms will prove a healthy recreation or pastime for the family, and the money thus made will be clear gain. We propose, in future numbers of this paper, to continue this subject, treating of all the different branches of the business, at such times as will render the most assistance to those engaged therein. The different articles taken together will prove a complete silk manual or guide for the use of the new beginner, and we hope they may prove of material benefit to individuals and the state.

Notes of Travel in Butte County.

[WRITTEN FOR THE SCIENTIFIC PRESS.]

Chico, the center of agriculture in this county, is situated midway between the Sacramento River, on the west, and the Table Mountain on the east. It is about 25 miles northwest of the county seat (Oroville), and 40 miles north of Marysville, from which place it is reached by rail. It contains nearly 4,000 inhabitants, and is one of the most prosperous towns in the State. It supports three good hotels—the Chico Hotel, Ira A. Wetherbee, proprietor; the Union House, B. F. Allen, proprietor; and the Junction Hotel, H. W. Cary, proprietor. Nothing will speak louder in the praise of these houses, and the prosperity of the place in general, than the fact that during my stay of a week in the place (and no excitement going on) there was not a bed to let in either, after 10 p. m. each day. The town has three fine livery stables, the two principal ones being owned by Messrs. Daniels & Hoole, than which there are no better anywhere. There are many fine stores here, in which everything is sold from a needle to a threshing machine. The principal dealer in agricultural implements is George F. Jones, who is the authorized agent for the sale of all implements made and sold by Treadwell & Co., of San Francisco.

Manufactures.

Messrs. Hallet & Loy are working some 15 men in the manufacture of chairs, tables, bureaus, bedsteads, wardrobes, picture frames, etc. Their machinery is driven by steam, and their establishment is stocked with the newest and most improved machinery now in use for such work.

C. F. Ellsworth also owns a mill, run by a 15-horse power engine. At present he is only sawing and planing, but intends soon to manufacture all kinds of wooden implements and wares. He also owns a large lumber yard, in which, at this present writing, there are 800,000 feet of lumber, and one million more of sugar pine at the railroad depot, close by, for shipping.

Principal Farms.

Among the principal farms here, may be mentioned that of D. M. Reavis, who owns a fine tract of land containing about 6,000 acres, situated two miles and a half west of Chico. He had 2,000 acres in grain last season, and will sow 3,000 the present season.

John Parrott, Esq., (San Francisco banker) is the proprietor of about 18,000 acres of beautiful land, lying 10 miles south of Chico, a small portion of which is situated in the edge of Colusa county, and upon which Messrs. Morehead & Griffith farmed 2,000 acres last year, and expect to put 3,000 in grain this year. Gen. John Bidwell is the possessor of about 20,000 acres of land next adjoining the town of Chico. He personally superintends the cultivation of about 2,500 acres, and raised last season about 45,000 bushels of wheat and barley. General B. also owns a fine grist mill, and has the finest country residence in the vicinity. He personally superintends his own affairs, and I believe has no enemies in a business way. Last, but not least in importance, comes what may be called the

Model Farm of Butte County.

This farm is situated three miles north from Chico, and is owned by H. Bay, Esq. It consists of 550 acres, all under cultivation. This is probably the most beautifully situated and best tilled farm in the State. Order—Heaven's first law—reigns there supreme. The visitor will find here a well dispositioned host, affable children, and gentlemanly and well skilled farm hands; and the best-blooded, heaviest roadsters, and best trained horses in the county. No plows, harrows, cultivators, sowers, mowers, reapers or threshers are seen here, lying around in fence corners, when not in use, but a building of the

proper construction and dimensions contains all. Some 10 acres are covered with dwelling house; servants' and workmen's houses; barns, stables, cribs, horse sheds, tool houses, etc., which have been constructed at a cost of about \$10,000. This last year 250 acres of wheat were harvested which averaged 32 bushels per acre.

Fine Stock.

Mr. B. has about 20 head of the finest breeds of horses in the State, including the descendants of Cheetham, Belmont, Lancet, Signal, John Morgan, Vermont, Corn-Planter, Imported Clydesdale, Rattler, Kentucky Hunter, and others. A hundred other points are worth mentioning upon this farm, and worth adopting by others, but time and space do not permit.

Splendid View.

Your Eastern Continent travelers, and commentators upon Swiss, and Italian scenery, should visit a point of rocks located about 1½ miles from Spanish Town, about 20 miles a little east of north from Oroville, in this county. From this point, on a clear day, you can see the meandering of the Sacramento River for over 100 miles, and can see the same steamer sailing nearly the whole day. The Marysville Buttes are to be seen in the foreground; Mount Shasta, to the north, is in full view, while Mount Diablo is in full view to the south; and Lassen's Butte, the snow-capped top of which is visible by walking 10 steps, may be seen to the northeast. I know of no other place in this State where so many prominent points can be seen from one view.

A New Oil.

Messrs. Yokum & Jones, of Chico, are the inventors of a new oil called "Naph-alta." As to its merits I know nothing, but its inventors claim for it extraordinary cheapness, safety, and a beautiful light. They also claim that it will not only burn in a common oil lamp, but may be also burnt as a gas.

Dayton

Is a thriving little village, some eight miles south of Chico. It has as yet no postoffice, but the population have to depend on Chico for their mails. An Odd Fellows' Lodge, organized there the 6th day of August last, now contains 29 members. Some 50 farmers, who till from 100 to 1,000 acres each, live in the vicinity. Colusa will be noticed in my next.

L. P. Mc.

San Francisco Market Rates.

Wholesale Prices.

THURSDAY EVENING DEC. 15, 1870.		
Flour, Extra, per bbl.	6 00	58 50
Do, Superfine, per bbl.	5 00	58 50
Corn Meal, per 100 lbs.	2 25	2 10
Wheat, per 100 lbs.	2 25	2 10
Oats, per 100 lbs.	1 10	1 00
Barley, per 100 lbs.	1 25	1 15
Beans, per 100 lbs.	1 00	1 00
Potatoes, per 100 lbs.	25	1 15
Day, per 100 lbs.	10 00	4 15
Live Oak Wood, per cord	10 00	12 10
Beef, extra, dressed, per lb.	7	10
Sheep, on foot, per lb.	2 00	2 50
Hogs, on foot, per lb.	10	10
Hogs, dressed, per lb.	7 1/2	8

GROCERIES, ETC.

Sugar, crushed, per lb.	14 1/2	14 1/2
Do, Hawaiian, per lb.	8 1/2	12
Coffee, Costa Rica, per lb.	25	21 1/2
Do, Rio, per lb.	20	20 1/2
Tea, Japan, per lb.	60	1 00
Do, Green, per lb.	60	1 1/2
Hawaiian Rice, per lb.	8	5 1/2
China Rice, per lb.	9	10
Coal Oil, per gallon	40	62 1/2
Candles, per lb.	14	18
Overland Butter, per lb.	30	37 1/2
Butter, on foot, per lb.	15	15
Lard, per lb.	25	15
Islands Butter, per lb.	25	15
Cheese, California, per lb.	12	14
Eggs, per dozen	40	45
Butter, on foot, per lb.	15	15
Ham and Bacon, per lb.	15	17
Shoulders, per lb.	9	10

Retail Prices.

Butter, California, fresh, per lb.	50	60
Do, pickled, per lb.	40	50
Lard, Oregon, per lb.	20	25
Cheese, per lb.	10	15
Honey, per lb.	25	30
Eggs, per dozen	40	45
Lard, per lb.	18	20
Ham and Bacon, per lb.	22	25
Cranberries, per gallon	75	1 00
Potatoes, per lb.	2	3
Potatoes, Sweet, per lb.	2	3
Potatoes, per lb.	2	3
Onions, per lb.	4	5
Apples, No. 1, per lb.	4	5
Pears, Table, per lb.	4	5
Plums, dried, per lb.	10	12
Peaches, dried, per lb.	10	15
Oranges, per dozen	50	75
Lemons, per dozen	75	1 00
Chickens, per lb.	75	1 00
Turkeys, per lb.	10	15
Soap, Pale and Yellow, per lb.	10	15
Soap, Castile, per lb.	18	20

WASTE OF FRUIT.—A recent number of the Marysville *Appeal* very properly deprecates the great waste of fruit in this state by allowing to rot by tons in nearly all our orchards, as a fair example of the wilful waste so peculiar to this country—a waste which anywhere else would bring "woeful want." Fruit in excess of the market demand should either be fed to stock or dried.

Household Reading

Taking Cold.

The human frame is intended for activity. If we sit still in a close, warm room, we take cold much more readily than when we stir about in the open air. Men seldom take cold who work out of doors; colds among miners are much less frequent than among such mechanics as work most of the time in-doors. A writer in *Technologist* compares the human body to a locomotive which is intended for activity—to be kept in motion—to run fast or slow as desired; but it must be "managed." "A locomotive can run very fast, but if stopped instantaneously when going at a high rate of speed, it is uninjured as badly as if it had had inflammatory rheumatism for seven years. A skilful engineer, however, tones down his speed gradually; and in this lies the whole secret of not taking cold. It is exposure, or carelessness, after exercise that brings on colds. After walking, or running, or dancing, or any exercise that quickens the circulation, a little current of air from a window, a crevice, from an open door, for a few minutes, just to cause a chill, is sure to produce cold. Merely stopping on the street in a current of air—as at a corner where the wind breaks or makes an angle—will do the job. Any sudden subsidence of active forces of the body in a temperature that chills will produce cold. The little common sense that is needed, and for the lack of exercise of which so much money is paid to doctors, is to preserve an equable temperature, or, having exercised freely, to recover the proper state gradually and without a chill. This is attained in a most simple and easy manner. After exercise, always seek rest in a sheltered place, where you will be warm, never being hasty to remove hat, gloves or cape. Let perspiration subside before disrobing, if indoors; and if outdoors, always keep gently moving until the usual condition is attained.

RIGHT AND LEFT STOCKINGS.—There is a stocking made in England called the "Right and Left Stocking." These stockings are made to fit each foot just as a boot does, thus affording more freedom to the toes than can be obtained from stockings of the ordinary make and shape. They are also more durable, because their exact fit to the foot does not permit of any considerable rubbing or chafing. For these reasons they are much easier to the feet, and are especially desirable by those who have to walk much. The most of the stockings made in this country are abominable things, especially those made by machinery.

THE ANCIENT AND MODERN USE OF HONEY.—Honey was regarded by the ancients as a special gift of the Gods; accordingly their poets chanted its virtues in verse, and men made libations of it upon the tombs of those who had been dear to them. It was poured upon the altars and upon the heads of the sacrificial victims. We moderns prize it equally as much, and make a similar though more sensible use of it—we use it in libations upon buck-wheat cakes!

A NEW CURE FOR CONSUMPTION has been introduced at Boston, called the "Atmospheric Treatment." It consists in immersing the body, below the neck, in a partial vacuum. It is thus relieved, in a measure, from atmospheric weight, while the air breathed is still of the usual density. It is claimed that the patient under these circumstances breathes fully and freely to the very depth of his chest, bringing into action portions of the lungs otherwise little used, and increasing accordingly the purification and revivification of the blood as it flows through the passages of the lungs.

LOOK TO YOUR GINGER.—A Boston chemist says that burnt sole leather enters largely into the composition of the ginger put up in packages.

IS IT ANY WONDER?—The average weight of a lady's dress which is supported from the waist is about 15 pounds. Is it any wonder that weak backs are so numerous? Put on suspenders, girls!

SALT WITH NUTS.—It is advisable always to use salt with nuts, as that is necessary to produce their easy digestion.

Caution in the use of Chloral.

Caution should be observed in the use of the new hypnotic (sleep-producing) known as hydrate of chloral, now so largely advertised, and which is coming into such general use. It is undoubtedly a most useful preparation, and one which will prove a great boon to man; but medical men do not yet fully understand its effect upon the human system. A writer in the *London Lancet* gives the following facts with regard to the effects of an excessive use of it: "The party had tried all other hypnotics; but found them either ineffectual to produce sleep or followed by injurious effects. But Chloral succeeded admirably, and he enjoyed the great luxury of sleep. Soon, however, he found that his dose of 20 grains was insufficient. One night he took a drachm at 11, but awoke hot and restless at one. He took another dose of the solution without lighting a lamp; and soon after, when in quite a stupid condition, yet a third large dose. He then sunk to sleep immediately, and slept till 10 o'clock, when he was awakened with difficulty. A servant had entered the room at six and found him snoring loudly. On attempting to rise, he found that he had no control over his legs from his knees down, and could not dress or walk without the aid of his servant. The rest of the body he had the use of. After a hearty breakfast the unsteadiness gradually wore off. On measuring the bottle, he found, to his astonishment, that he had taken, between 11 and 2 o'clock, seven drachms of chloral. A similar blunder with any other narcotic would have produced death. We hear of a case where chloral was given to produce anesthesia in a surgical operation, after which recovery was much less satisfactory than after chloroform."

DIAMOND FIELDS OF GEORGIA.—A correspondent of a Gainesville paper says: We are glad to see in the Northern and European papers that much excitement prevails on the subject of South African diamonds, which are now being found over a space of 1,000 square miles, of great value. This will react on our section, which, from every geological indication, and its peculiar mineralogy, will ultimately, when developed, yield more and finer ones than South America and Africa. Our opinion is predicated on the fact of over 40 having been picked up by the gold-washers in every deposit mine from Hall county, Ga., for 600 miles to Virginia, some of which were of much greater value than any yet found in Africa. All we want is a little capital—one or two thousand dollars—to develop the fact again and draw the attention of capitalists to the subject, who can introduce diamond miners, who understand washing them. By this course, I have no hesitancy in saying that, in six months, the most brilliant success would attend the experiment.

STRYCHNINE, ETC.—It is one of the phenomena of the animal system that different food and medicines frequently act differently upon different individuals. Strychnine, in particular, which is so deadly to human beings and to nearly all dumb animals, may be eaten with impunity by monkeys and goats. Similar conditions with regard to the effects of some other drugs upon certain animals are noticed. For instance, it is alleged that pigeons can eat opium with impunity, and goats tobacco; while rabbits are not injuriously affected by either belladonna, stramonium or hyoscyamus. It would, moreover, appear, from the first above mentioned fact, that monkeys are not quite so nearly related to man as some people seem anxious to prove them.

DANDRUFF IS CAUSED by wearing close and heavy hats or caps, by the application of oils or dyes to the hair, by excessive brain labor, or uncleanness, or by all these causes combined. To effect a cure, wear the hair short, let the head covering be as light and well ventilated as possible, avoid all applications of grease or dyes, exercise the brain less and the body more, and wash the head thoroughly two or three times a day in cold water, and follow each washing with a vigorous rubbing with the balls of the fingers. The better the general health is and the stronger the digestion, the less tendency there will be to this disease, as well as others.

Household Receipts.

FOR MAKING HARD SOAP.—Put six pounds of soda ash, six pounds of grease, and three pounds of lime into four gallons water. Boil the soda and lime in the water until the soda is dissolved, then pour it out and let it settle. When the dregs are all in the bottom, pour the top off into an iron pot, add the grease and boil until it is soap; when sufficiently thick, pour into pans to cool, and cut into bars.

TO MAKE SAUSAGES.—Thirty pounds of chopped meat; eight ounces salt; one-half an ounce of salt-petre; two tea-cups of sage, and one and three-fourths cups of sweet marjoram. Pass the two last through a fine sieve. If you prefer it, thyme and summer savory may be substituted for the latter.

DYSPEPTIC'S BISCUIT.—Take Graham flour (wheat coarsely ground, without bolting), two quart; corn meal sifted, one quart; butter, half a cup; sour milk to wet it up, and saleratus as for biscuit. Roll out and cut with a tea-cup and bake as other biscuit, and when cold they are just the thing for dyspeptics. And if the flour was sifted, none would refuse to eat them.

RAISIN PIE.—One cup chopped raisins, one-half cup sugar, one-half cup molasses, five round crackers rubbed fine, one-half cup butter, two tea-spoonfuls cinnamon, one tea-spoonful cloves, one-half tea-spoonful pepper, a little salt, one-half cup sugar, five cups boiling water.

STEAMED JOHNNY CAKE.—One cup molasses, two cups sour milk, two cups sweet milk, four cups cornmeal, one cup flour, one table-spoonful soda with salt. Steam four hours.

TO HARDEN A POKER.—The fire poker, by constant use, becomes soft, and is generally more or less bent. This arises from its being left in the fire and becoming hot, then being put on the fender, where it slowly cools, an operation which softens the best steel. When a poker has thus become soft and bent, it may be again hardened by making it hot two or three times, and plunging it every time into a pail of cold water. The sudden cooling of steel makes it again hard.

INDELIBLE INK.—The following recipe is from the *Deutsche Industriezeitung*: Dissolve four parts of aniline black in 16 parts by weight of alcohol, with 60 drops strong hydrochloric acid, and dilute the dark-blue solution with 90 parts by weight of water, in which six parts of gum arabic have been previously dissolved. This ink does not act upon steel pens, or suffer any alteration by alkalies or acids.

TO REMOVE STAINS—those of grass, grape-juice, and the like—from white garments, dampen the spot, and hold it over the fumes of a lighted sulphur match.

Mechanical Hints.

TO ENGRAVE FIGURES ON GLASS.—Cover one side of a flat piece of glass, after having made it perfectly clean, with bees-wax, taking care that every stroke cuts completely through the wax. Next make a border of wax all round the glass, to prevent any liquid when poured on, from running off. Now take some finely powdered fluate of lime (flour spar), strew it evenly over the glass plate, upon same side, and then gently pour upon it, so as not to displace the powder, as much sulphuric acid, diluted with thrice its weight in water, as is sufficient to cover the powdered flour spar. Let everything remain in this state for three hours, then remove the mixture, and clean the glass by washing it with oil of turpentine. The figures which were traced through the wax will be found engraved on the glass, while the parts which the wax covered will be uncorroded.

TO REMOVE LIME.—To remove lime which gathers in tea kettles, fill the kettle with water put in one-fourth of a pound of Spanish whiting, and boil until the lime is removed.

TO MAKE PLASTER OF PARIS STICK TO MILL STONES.—Various devices are employed to make plaster of Paris stick hard on mill stones, etc., among which the following are the most effective and practical: First, boil the plaster till the bubbling ceases, or till quite dry; then mix in a little powdered alum, then mix with water; apply quickly, as it sets rapidly, becoming very hard.

Another method is to mix the plaster with iron filings before wetting; this is the best, as any one can notice the plaster near the hoop of the stone to be much firmer than at any other part.

Life Thoughts.

BETTER be upright with poverty than unprincipled with plenty.

TENACITY of purpose is the indispensable condition of success in whatever you undertake. You must learn to hold it.

It is one of the worst of errors to suppose that there is any other path of safety except that of duty.

It is always in our power to make a friend by smiles; what a folly, then, to make an enemy by frowns.

DIFFICULTY excites the mind to the dignity which sustains and finally conquers misfortunes, and the ordeal refines while it chastens.

FAULTS.—If you would find a great many faults, look upon the outside. If you would find them in still greater abundance look within.

AN open mind, an open hand, and an open heart will find everywhere an open door.

TALENT alone, is only the rough metal; it is diligent industry which works it, and ascertains its real worth.

EXTERIOR beauty is a recommendation, written with such pale ink, that time effaces it.

THE manners which are neglected as small things are often those which decide men for or against us.

INDUSTRY will make a purse, and Frugality will give strings to it. This purse will cost you nothing. Draw the strings as Frugality directs, and you always will find a useful penny at the bottom.

GOOD BREEDING.—Good breeding and soft words have been not inaptly compared to cotton and other soft material placed between china or glass ware to prevent injurious collision.

THE PURSUIT OF HAPPINESS.—It is a great blunder in the pursuit of happiness not to know that we have got it—that is, not to be content with a reasonable and possible measure of it.

Beautiful Extract.

The influence of Christianity on society is not exerted through the cannon of the warrior, or the dispatches of the statesman, but in the sweet breathings of truth that come on the opening petals of the breast of infancy, like spice-laden zephyrs from the land of the blest—in the gentle words of love that fall in dewy freshness on the wandering ear of childhood, from grey-haired sires and sweet-voiced matrons—in the nameless tellings of high and holy things, wrapped in the deep, unutterable voices of the ancient eternities that come to the silent ear of youth, before the din and strife of the babbling world have stunned these inner senses of the soul—in the longing and wistful thoughts of things of deep, abysmal mystery that steal into the soul in its lonely musings in the solitary chamber—in the deep hush of the morning forest—in the awful silence of the hollow midnight—in the seasons of gloomy doubt and frantic effort to scale the prison wall of mystery and darkness that rises and closes in encircling silence around all—in times of heart-sickness and disappointment, when reaching forth the hand of warm, confiding trust, it grasps the cold and slippery skin of the adder—it is then that Christianity with its wonderful tellings of infinite things, comes with apocalyptic splendor and power, and revealing itself to the soul, creates those martyr spirits that stamp their lineaments on the enduring rock.

INDUSTRY is the natural sure way to wealth; this is so true, that it is impossible an industrious free people should want the necessities and comforts of life, or an idle, enjoy them under any form of government. Money is so far useful to the public as it promoteth industry; and credit, having the same effect, is of the same value of money; but money or credit circulating through a nation, from hand to hand, without producing labor and industry among the inhabitants, is direct gaming. —Berkley.

SWEET ANSWER.—A little boy and girl, each probably five years old, were by the roadside. As we came up, the boy became angry at something, and struck his playmate a sharp blow on the cheek, whereupon she sat down and began to cry piteously. The boy stood looking on sullenly for a minute, and then said: "I didn't mean to hurt you, Katie; I am sorry." The little rosy face brightened instantly. The sobs were hushed, and she said: "Well, if you are sorry, it didn't hurt me."

Scientific Press.

W. B. EWER.....SENIOR EDITOR.

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Two Editions.—We now issue a mining edition and a farming edition of the Press. The difference consists in changing the reading matter of the 6th and 7th pages. (All advertisements appear in both issues, affording an immense circulation.) Subscribers will please notify us if they do not receive the edition they prefer. Both editions furnished to one address for \$7 per annum.

San Francisco:
Saturday Morning, Dec. 17, 1870.

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Gold and Legal Tender Rates.

San Francisco, Thursday, Dec. 15, 1870.—Legal Tenders buying @90½; selling @91. Gold in New York to-day 111.

Mechanics' Institute—Quarterly Report.

The regular quarterly meeting of the Institute, which had been adjourned from the preceding Saturday, was continued on the 8th inst. From the reports, it appears that the late Horticultural Fair at the Pavilion netted \$1,579.72, and gave rise to a Horticultural Society. The President advised that additional premiums be offered for the Fair of 1871. The Mechanic Arts College lectures have thus far proved a great success. During the quarter ending Dec. 1st, 1870, 389 new books have been received; and on account of the increased attendance at the Reading Room, enlarged accommodations are desirable. The Committee on Ways, Means and Accounts reported the expenditures of the last quarter as \$3,131.43.

The Treasurer's report shows a gratifying increase in memberships and receipts. The receipts are as follows:

Institute Fund.....	\$3,138 75
Sinking Fund.....	1,679 61
Pavilion Fund.....	2,695 47
Total Receipts three months.....	7,563 83
Disbursements.....	5,584 72
Balance on hand.....	1,979 11

Notice was given of an amendment to the Constitution, providing for honorary membership, as proposed in the President's report. Mr. W. Williams was elected Trustee to fill a vacancy in the Board.

GIANT POWDER EXPLOSION.—A correspondent sends us the following from Nevada City, under date of December 8th:—Wm. Maltuan, one of our most extensive and successful hydraulic miners, was blown up and instantly killed by an explosion of giant powder this afternoon at about 3 o'clock. It is supposed he was drying some wet powder on the blacksmith fire. The shop, a large building, was completely demolished. The accident cast a deep gloom over the mining community hereabouts.

Asphalt Pavement.

There are few subjects of greater importance to residents of metropolitan cities than good pavements and roads, and this is especially the case in San Francisco. Upwards of a million dollars are annually collected from the property-owners here to keep their public streets in order, a purpose which signally fails of accomplishment for want of suitable materials. There is probably no other city in the United States in which there are so many experimental pavements in use, as here. We have Cobblestones, Russ, Macadamized, Nicholson, Stow, and several others,—not one in use filling the requirements of a really good pavement, which are solidity, durability, cleanliness, noiselessness and smoothness without being slippery.

The peculiar climate of San Francisco, with its long seasons of drouth and heavy rains, renders the matter of getting a proper wooden pavement one of great difficulty. We have a variety of kinds in use, but they have as yet failed to give satisfaction, and no process has been devised for properly preserving them. It is too much to say that none ever will be devised, but we must wait an indefinite time for future chemical discoveries before we can expect a suitable wooden pavement. One has only to read the answers to questions propounded by the Board of Supervisors to eminent engineers and scientists, to get an idea of the unsatisfactory state of our present knowledge of the subject. The Stow pavement has answered the required conditions here better than any other, yet this cannot be pronounced a success; and the new blocks being harder than the old ones, repairs are very difficult, to say the least.

Cobblestones are destructive to both animals and vehicles, and cannot be laid to retain a permanently even surface, necessary to insure good surface drainage. Moreover, such a pavement causes an intolerable noise, and requires continual repairs.

Macadamized roads are impossible in this vicinity owing to the want of material sufficiently hard to stand the wear of heavy teams. The best of the present macadamized roads, are but little better than mud banks in winter, and the source of dust during the summer.

The Russ pavement is a failure owing to the unequal wear of the blocks.

Planking is not only a temporary expedient, but the continued rotting of the materials is very injurious to the general health.

The streets of Paris, covered with asphalt, present the nearest approach to perfection of paving and paving material. There are in that city nearly 500,000 square yards of road, and upwards of 2,500,000 square yards of sidewalks made of asphalt. Much of it has been in use since 1854, and exhibits but little evidence of the immense traffic which has passed over it during sixteen years. The wear is so trifling that mud never forms, and dust is almost unknown in that city.

The French "Asphalt" is a very different article from the "Asphaltum," so abundant in this State. The French article is a peculiar form of limestone, containing a small percentage of bitumen, which, being subjected to heat sufficient to boil water, crumbles into a fine sand, and loses its carbonic acid gas. This bituminous sand while hot may be moulded into any desired form, and when cool is said to be as hard as any of the granites found on this coast. The advantage of such a material for paving purposes cannot be over-estimated, and it is being generally adopted by the metropolitan cities of Europe.

The "asphaltum" of this coast is composed of bitumen, oily and earthy matters, and consequently differs entirely from the French article.

Mr. Foye, a gentleman of great experi-

ence in such matters, after many experiments, has found that the bitumen extracted from the California asphaltum, combined in proper proportions with pure lime, makes an "asphalt" equal in every respect to the best French article. A caveat was filed, nearly two years since, for a patent for his process, and the patentee will soon be prepared to lay down genuine asphalt pavements in this city.

This gentleman claims that by certain mechanical contrivances of his invention, the bituminous gases, generated by heating asphaltum in closed tanks containing pulverized limestone, displace the carbonic acid gas of the limestone and convert the residuum into a material, that, while hot, can be moulded into any desired form, and is better adapted for paving, foundations of buildings and submarine work than ordinary cut stone; being impervious to moisture and capable of sustaining as great a pressure as the best granite. The product of this process is very different from the asphaltum used for sidewalks, as it contains neither sand nor pebbles.

It is much to be regretted that, in consequence of a dispute between the parties who lay down the asphaltum sidewalks, now in use, (made under what is known as the Skinner & Bonnett process) and Mr. Foye, (who claims that these parties infringe on his rights), there will be some delay in laying the new pavement.

The ground of dispute is that Skinner & Bonnett claim a "chemical compound" in their preparation of the materials, whereas Mr. Foye has been granted a patent for his process and product.

It is to be hoped the dispute may be soon settled, as it is imperatively necessary that a radical reform be introduced in our street pavements as soon as possible.

GOLD AND SILVER NEAR HOME.—On San Jose Creek, the head-waters of Fruit Vale Creek, about 3½ miles from Brooklyn and 13 miles from San Francisco, Mr. Albert Eldred is energetically driving a tunnel which is already in over 80 feet. A large vein of rock containing sulphurets has been struck, and we are assured that assays of this rock and of rock from neighboring veins have afforded satisfactory results. Mr. Eldred has some 400 acres of land in his ranch, on which the works are located. He has already over a ton of selected ore on the dump, which is to be brought to this city and treated. Although not over-sanguine as to the existence of rich gold and silver fields at our doors, yet we shall be interested to hear of the results obtained. Mr. Eldred is certainly working away with a will.

Mr. Geo. May, we are told, is at work on a ledge, a mile or so from Mr. Eldred's place, across the hills, and is taking steps for the immediate erection of a quartz mill. We should advise him strongly to develop his ledge before he puts his money into a mill.

MONTANA IRRIGATING CANAL CO.—This company has organized and has taken preparatory measures for constructing their new canal for irrigating and mining purposes from some point below the cañon on Jefferson River. The initial surveys are now being carried on. The *Helena Herald* (which, we see, commenced its fifth volume on the 1st inst.) speaks thus of the project: The company propose to build this canal with a capacity sufficiently large to carry fifteen thousand inches of water, tapping the Jefferson at a point that will give a convenient and ready flow to the artificial stream by way of the Crow Creek, Indian Creek, Beaver Creek, and Spokane valleys, and on to the Prickly Pear valley. Aside from the vast area of exceedingly rich gold placer ground, lying between Indian Creek and Helena, and which this canal will thoroughly cover, there are tens of thousands of acres of now worthless lands which can be brought under a high state of cultivation by the irrigating process, which this watercourse will render entirely feasible.

Significant.

There is a little fact connected with the establishment of our new paper, the PACIFIC RURAL PRESS, which we may be permitted to state here, as, although a private matter, it is one which has a general significance for our readers. The very first outside order received for that paper came from the mountain region—from Strawberry Valley, up in the extreme northern part of Yuba county. This shows how agriculture is creeping surely up into the higher regions, where it retains a strong foothold, and, while flourishing, benefits greatly the mining and other interests, and opens new fields of industry for our community.

We may be permitted to state another little fact in this connection. The order enclosed the money to pay for the paper—the first pecuniary aid received (a month before the first issue) in this way for the new enterprise.

THE LARGEST ARTIFICIAL GRINDSTONE ever successfully made, so far as we know or can learn, was made on Thursday of last week, at the works of the Pacific Stone Company, by the Ransome process. This is 12 inches thick and 5 feet 10 inches in diameter, and weighs over one and a half tons. It was manufactured for the Eureka File Works of this city. The company has filled quite a number of orders for grindstones for the foundries and other works in this city, and, we understand, give the best of satisfaction.

CONGRESSIONAL.—On the 13th inst., Mr. Julian, in the House of Representatives, introduced a petition from settlers on public lands, in Colusa County, California, protesting against the lands being taken from them by capitalists as swamp and overflowed lands. In the Senate, Mr. Carpenter introduced a bill amendatory to the act to confirm certain private land claims in New Mexico. This last was referred to the Committee on Private Land Claims.

COAL IN NEBRASKA.—The St. Louis Democrat, of Nov. 30th, says: The people of Omaha, and at other places throughout Nebraska, have become very much interested in the subject of procuring, if possible, a home supply of coal. To the present time the mineralogical researches in this direction have failed to discover any outcroppings, or any subterranean veins of sufficient thickness to pay for working. The State has therefore been forced to procure its fuel from the mines outside its boundaries. To further agitate the subject, an address was recently delivered before the Omaha Board of Trade by Dr. Hayden, geologist and mineralogist. He informed his audience that the coal of Nebraska is probably in the western rim of the great coal basin. By tracing the formation from surrounding States and Territories, it becomes apparent that in the vicinity of Omaha there can be no coal at any less depth than six or eight hundred feet. If a deposit were found at such a depth, and in a vein of sufficient thickness, it would pay for working. The speaker, in concluding his remarks, suggested the appropriation of six or seven thousand dollars by the city for settling the vexed question, as the result would be of the greatest importance to the residents and manufacturers in that vicinity.

COAL IN NEW MEXICO.—Mr. W. A. Wagner, late coal surveyor of the Union Pacific Railroad, has been engaged to survey and make a full report of the various coal mines on the Maxwell Grant. These coal mines will, beyond doubt, be a source of very great profit to the company. When a railroad passes through here, as it soon must, the demand for coal will be great and continual, and the yield to the company will be quite munificent. There are those, indeed, and practical men, too, who declare that the coal deposits on the grant are of themselves worth much more than the entire cost of the grant.—*Cimarron News*.

SUSPENDED.—We regret to hear that the *Press and Telegraph*, of Elizabethtown, New Mexico, has been suspended temporarily on account of private difficulties of a legal nature. It is announced by the editor that a new and improved paper will be issued in a few weeks.

Patents and Inventions.

Full List of U. S. Patents Issued to Pacific Coast Inventors.

[FROM OFFICIAL REPORTS TO DEWEY & CO., U. S. AND FOREIGN PATENT AGENTS, AND PUBLISHERS OF THE SCIENTIFIC PRESS.]

FOR THE WEEK ENDING DECEMBER 6TH.

DIRECT-ACTING STEAM-ENGINE.—William Davis Hooker, San Francisco, Cal.
TIME FOR TRACTION-ENGINE.—Oliver Hyde, Oakland, Cal.
SAWING-MACHINE.—Per Johnson, Columbia, Cal.
CUTTING FOR EARTH-BORING AUGERS.—Thomas Oreland, Lincoln, Cal.
CAR-COUPING.—Jay R. Palmer, Mariposa, Cal., assignor to himself and James H. Hatch.
BEE-HIVE.—Robert A. Williams, Colusa, Cal.
HARVESTER-RAKE.—Hiram H. Seoville, Oakland, Cal., assignor of one-half interest to Joseph A. Seoville.—Patent No. 23,613, dated April 12, 1859.

NOTE.—Copies of U. S. and Foreign Patents furnished by DEWEY & CO., in the shortest time possible (by telegraph or otherwise) at the lowest rates. All patent business for Pacific coast inventors transacted with greater security and in much less time than by any other agency.

Notices of Recent Patents.

Among the patents recently obtained through Dewey & Co.'s Scientific Press American and Foreign Patent Agency, the following are worthy of mention:

GENERATING GAS FROM HYDRO-CARBONS.—J. R. Smedberg, S. F. This matter has been the subject of so many patents that many are accustomed to look upon any new "improvement" with considerable mental reservation. It is therefore but justice, in the present case, to call attention to the excellent qualifications of Mr. Smedberg, who has had extensive experience, both theoretical and practical, in large gas establishments. Mr. S. has made many improvements in gas manufacture, has written some very good articles on the subject to our excellent cotemporary, the *Gas Light Journal*, and is now busy compiling his "Synopsis of British Gas Lighting." All this in addition to efficiently performing his duties as consulting engineer of the S. F. Gas Works. His process of gas-generation consists in subjecting the petroleum used to a very high temperature in the retort, by which the resulting gas is rendered permanent, and also in a novel manner of introducing the oil into the retort, so that the temperature of the latter may not be reduced in vaporizing the oil. It consists, moreover, in a peculiar self-regulating feeding-apparatus, by which the flow of the oil is rendered at all times uniform. A water-jacketed seat is employed to prevent the return of gas through the supply-pipe, and also to prevent the vaporization of the oil in the pipe by the heat.

SAFETY HALTER FOR HORSES.—Augustus Le Plongeon, S. F. Man, the ruler of the brute creation, sometimes finds his subjects growing restive under his sway. Lately the equine subjects in San Francisco have carried their restiveness so far as to bring their masters in ignoble contact with the earth, on occasions which have grown too frequent to be pleasant of contemplation. Hence, for this city at least, the present invention comes opportunely. This consists of two cheek-pieces, to one end of each is hinged a nose-piece, curved so as to fit over the horse's nose, just above the nostrils. There is also a jaw-piece fitting under the lower jaw. On the inside of the cheek-pieces are circular knobs or projections in the proper position for clamping upon each side of the nostrils. Proper springs keep these different pieces apart, and reins or straps, leading to the rider or driver, enable him to bring them into action. If the animal prove rebellious, by drawing upon these straps the cheek-pieces are closed on the horse's cheeks, thus pressing the knobs on his nostrils, the jaw-piece effectually closes his mouth, and the unruly subject is rendered decidedly incapable of further revolutionary acts.

SEWING THIMBLE.—A. H. Law, S. F. This ingenious device was illustrated in the Press of September 24th, and our readers will there find a full description.

IMMIGRATION TO NEW MEXICO.—A mass convention of the citizens of New Mexico was to have been held at Santa Fe, on Nov. 26th, to devise means of inducing immigration; also to make arrangements for the collection of statistics concerning the mineral, agricultural and other resources of the territory.

Curious Mining Economy.

The use of sperin candles in the mines underground is a cause of expense well known to all connected with mining. The attempt has been made to reduce this expense by substituting oil lamps, as used in Germany and elsewhere in Europe; but our miners, finding the candles more convenient, would not allow the introduction of lamps. The Mexicans, more ingenious in cutting down expenses, and being at the same time complete masters of their mines, have succeeded in reducing 50 per cent. the item of their dull-burning tallow candles, by simply refusing them to the *tanateros* (the men who carry the ore out of the mine). These fellows, being obliged to work for their living, have found quite a singular and effective method, which enables them to go through the drifts and shafts, with their burden attached to their heads, without candles.

Although their method is not very likely to be imitated in this country, it is nevertheless sufficiently interesting to be mentioned here. Mr. O. Hofmann, when in Trinidad, Mexico, observed a young *tanatero* coming out of the mine with a load of ore on his back, who was apparently blind of one eye. The next one who followed had the same misfortune, and Mr. Hofmann wondered at the singular coincidence of two one-eyed miners. But he was still more astonished when the third one appeared, exactly like the preceding two,—and this was not all; still more *tanateros* emerged from the shaft, one after another, each having only one eye open. Hofmann thought he was dreaming of the Arabian Nights.

The foreman, seeing his surprise, explained the matter. He said the candles belonging to the *tanateros* (who drill and blast), do not give sufficient light in the drifts, where it is consequently quite dark, but where, nevertheless, the *tanateros* see well enough not to run their heads against the rocks. But on emerging into daylight they would be blinded did they not take precautionary measures. For this reason, as soon as they approach the mouth of the shaft, at the point where they catch the first glimpse of light, they drop the eye-lid of one eye, and keep this down while discharging their ore, and until they have re-descended the shaft. When they are again in the dark, they open the eye, kept hitherto in reserve, and at once they see everything distinctly; while the other eye, previously open and blinded somewhat by the daylight, perceives nothing at all.

The correctness of this fact can be easily proved by covering one eye with a handkerchief, when the lamp or gas is lighted in the evening, spending about 10 minutes in the room, looking occasionally at the light with the other eye, and then going into a dark room. On removing the handkerchief, one can distinctly see objects with the previously covered eye which cannot be discovered by the other one.

PACIFIC LAW REPORTER.—We have lately received this journal, the name of which explains its scope. We should imagine that it would prove an invaluable paper for lawyers. The publishers announce that it is their intention to make it a reporter in every sense of the word, and not a law magazine expressive of editorial ideas. The *Reporter* will be issued once a week, with a daily supplement to every city subscriber free, at \$150 per month. Wm. Ayres & Co., Publishers.

U. P. R. R.—It is almost a certainty now, says the *Dallas Mountaineer*, that the Northern Pacific Railroad will pass through the Snake River Valley, instead of over the high mountains of the Pen D'Oreille like on Mullen Wagon Road routes. At the next session of Congress the company will ask to have the route changed.

MINERAL STATISTICS.—During the year 1869, there were raised in Great Britain 107,427,557 tons of coal, valued at \$134,284,410; 11,508,525 tons of iron ore, valued at \$18,662,800; 129,953 tons of copper ore, valued at \$2,539,560; 96,866 tons of lead ore, valued at \$5,945,150; 15,533 tons of zinc ore, valued at \$2,688,300; 14,725 tons of tin ore, valued at \$5,139,025; 75,948 tons of iron pyrites, valued at \$205,115; 1,200,000 tons of clays, valued at \$2,250,000; 1,250,000 tons of salt, valued at \$3,437,500; and of other minerals sufficient to bring up the total value to \$176,260,600. From the ores were extracted 5,445,757 tons of pig iron, 8,291 tons of copper, 73,250 tons of lead, 4,500 tons of zinc, 9,760 tons of tin, 831,891 ounces of silver and 18 ounces of gold, besides other metals. Total value of metals produced, \$88,228,835. The absolute total value of the metals and coal, with other minerals (excepting building stones, lime slates and common clays), produced in Great Britain in 1869, amounts to \$232,248,445.

AUBURN MILLS.—The *Reno State Journal*, a promising new paper, has been permitted to examine the books of the Auburn Mills, at Reno, and gives a list of certain lots worked there from various districts, to "show that the rich ores of the country are not yet exhausted." We should have preferred to see a representative list, with working results, etc., but from the material offered prepare the following. The first column gives the total number of tons and the last the average value per ton from the localities mentioned.

Tons.	Locality.	Per Ton.
55 1/2	Aurora and Mono Counties, Cal.	\$368 1/2
2	Kern District, Nevada	47 1/2
31 1/2	Salt Lake, Utah	67 1/2
10	Silver M. Co., Unionville	292
37 1/2	Mineral Hill, Nevada	571 1/2
8	Bull Run District, Nevada	300
59	Pinto District, Nevada	240 1/2
55	Battle Mt., Butte S. M. Co.	327 1/2
19 1/2	Enoch District, Nevada	241
8	Cope District, Idaho	291 1/2
158 1/2	Virginia City, Nevada	505 1/2

The lots range from 158 to 221,323 lbs. The lowest value per ton, in the lots selected by the paper referred to, was \$157 54; the highest, \$2,906 74,—that of a lot of 2,827 lbs. from Salt Lake.

LIGHT-HOUSE AT CAPE BLANCO, OREGON.—The Light-House Board give official notification that a *fixed white light*, of the 1st order of the system of Fresnel, will be exhibited on and after Dec. 20th, 1870. The tower is 50 feet high, of brick, painted white, and situated 200 yards from the extremity of the Cape. The dome of the lantern is red. The light is 256 feet above the mean level of the sea, and should be visible ordinarily from the deck of vessels 15 feet above the water, at a distance of 22 1/2 nautical miles. Angle of visibility over the water, 24°. The light-house is in latitude 42 deg. 50 min. 07.1 sec. N., longitude 124 deg. 32 min. 28.6 sec. West. The magnetic variation, in November, 1870, was 18 deg. 54 min. East, increasing 1 min. yearly.

TELEGRAPH VS. TIME.—When the Russian-American telegraph is completed, says the *London Engineer*, the following feat will be possible: A telegram from Alaska for New York, leaving Sitka, say at 6 40 on Monday morning, would be received at Nicolae, Siberia, at 1 6 Tuesday morning; at St. Petersburg, Russia, at 6 3 Monday evening; at London, at 4 23 Monday afternoon; and at New York at 11 46 Monday forenoon. Thus, allowing 20 minutes for each re-transmission, a message may start on the morning of one day, to be received and transmitted the next day, again received and sent on the afternoon of the day it starts, and finally reaches its destination in the forenoon of the first day, the whole taking place in one hour's time.

A CLOUD BURST IN MONTEREY.—The *Monterey Republican* of Dec. 8th says:

On Friday morning last the unusual phenomenon of a cloud bursting occurred near Mal Paso Creek, on the coast, sixteen miles south of this place. An enormous amount of water dashed to the earth with tremendous force, sweeping everything before it, and pouring an irresistible maddened torrent some ten feet deep through the previously dry canyon of Mal Paso. A substantial bridge was carried away, and timber and cattle destroyed, attesting the sudden floods.

All About the Norway Oats.

The Ramsdell or Norway Oats are attracting a large share of attention at the present time. Although we have had no personal experience in the cultivation of these oats, we have not been unmindful of the large share of attention they have received during the past two years, in every part of the country, and with such an array of facts as is now presented, it would be against both reason and common sense to record anything but a verdict in favor of this extraordinary grain. The testimony, as will be seen by perusing the advertisement alluded to, comes from every part of the Union, from most of the leading agricultural papers, and from individuals scattered all over the country, who have raised and fed these oats. There seems to be a most extraordinary degree of uniformity in all these affirmations, so much so that we feel fully justified in calling the especial attention of our readers to the matter at the present time. The origination and introduction to the world of a new and valuable variety of grain, or of fruit or vegetable or grass, or of whatever else contributes to the sustenance of man or beast is a matter of the highest importance to the world, and should entitle the originator to a higher medal of praise than even the most successful warrior, whose sole thoughts and aims of life are to work destruction to human kind; especially when in so doing so little is thought of betterment to the masses and so much of advancement to the elevated and pampered few. In this connection it may not be without interest that we should give the reader a brief account of the

Origin of the Norway Oats.

That origin, and the remarkable qualities claimed for them, affords another and most interesting illustration of the oft-times importance of *little things*, and the value of careful and minute observation in even the most common transactions and occurrences of life. We condense from the *N. Y. Tribune*:—"In the spring of 1864, Mr. D. W. Ramsdell, one of the most extensive and enterprising farmers of Vermont, had a single oat handed him, which had been found in a package of peas sent from the Agricultural Bureau at Washington. Its remarkably large and plump appearance so attracted the attention of Mr. R. that he planted it in his garden for experiment. Its germination of numerous stalks, their surprising growth and size, their ability to ripen as soon as the common oats, and, above all, their truly wonderful yield of 2,785 grains, being from four to six times that of the old kind, and being far superior in quality and weight, induced him to carefully preserve them for future experiment. After disposing of a portion of these oats to the Agricultural Bureau and to some of his friends, in the spring of 1865 Mr. Ramsdell sowed 2040 grains on land of fair quality, and was again rewarded by the still more wonderful and almost incredible yield of *three bushels and one quart*, while their tremendous growth was the surprise and admiration of all who saw them. By this time the fame of this wonderful oat began to spread; newspapers and those interested in agriculture were turning their attention to it, and letters were received from all parts of the country, many offering almost any price for a small quantity. It was discussed at the meetings of the agricultural societies, and such was the interest manifested that Mr. Ramsdell was invited to visit many of the state and county fairs of the New England and Middle States, to exhibit specimens and relate their remarkable history. And wherever so exhibited, the Norway Oats always received the highest prize, if consistent with the rules of the society; if not, honorable mention and hearty indorsement."

For further particulars about this remarkable grain we refer the reader to our advertising columns, and to a more extended notice in the Farming Edition of the *SCIENTIFIC PRESS*. Those who do not receive the Farming Edition can obtain Circulars by applying by mail or otherwise to this office.

THERE are reports of a new railroad to be built on an air line from New York to Council Bluffs, Iowa, opposite Omaha.

Our Agents.

OUR FRIENDS can do much in aid of our paper and the cause of practical knowledge and science, by assisting Agents in their labors of canvassing, by sending their influence and encouraging favors. We intend to send none but worthy men.

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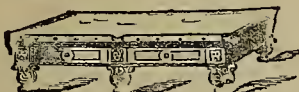
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Having been burned out at the late fire on Fremont street, we have removed our business to the above locality, where the manufacture of sash blinds, doors, frames, mouldings, etc., in connection with a general mill business, will be carried on by us as formerly, and where we shall be pleased to see all of our old friends and patrons, and as many new ones as may favor us with a call.

Thankful for past favors, and especially for the sympathy extended to us for our late heavy losses, we intend, as heretofore, to deserve the patronage of the public by strict attention to business, fair dealings, and justice to our customers. 15v21-3m

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Simonds Patent Collar Stud.

Every one who wears a "Butterfly" tie, knows well the vexation incident to fastening the loop of these ties over the common collar stud or shirt buttons. This stud while serving every purpose of the common article makes this task as easy as hanging one hat on a nail. The loop slips readily into the slotted bulb, and cannot escape by accident, thus preventing the loss of the tie, now so common. They are well plated with gold. It is very seldom that a patent is offered which affords a larger profit than this one. Parties buying the right to a town, county or state, will be furnished with the studs at what they cost to manufacture. A sample will be sent to any one by mail, on the receipt of the retail price, fifty cents.

Improved Construction of Roof for Tobacco and Fruit Drying Houses.

Persons who are interested in the drying of fruit or tobacco, can fully appreciate this new and useful invention. The object of the invention is to construct the two inclined sides of the roof of a Tobacco or fruit-drying house, so that the sides can be easily and quickly thrown into a vertical position, so as to expose the fruit or tobacco to the drying effects of the sun and air. By the use of this simple device, the labor and expense of handling the tobacco leaves, and changing them upon the racks, is avoided. In California and Oregon, this invention can be used to great advantage in fruit drying. In time of rain the sides of this roof can be almost instantly lowered to protect the fruit from dampness. This invention has been recently patented by M. de K. Cutts, of Richmond, Va., and a full set of drawings, and Letters Patent, can be seen at our office. Here is an opportunity for a profitable investment, as we are authorized to dispose of rights at very low prices. Full particulars can be obtained from any of our traveling agents, or by calling at our office.

NEW HOSE COUPLING.

This coupling is one of the most useful and perfect inventions of the day. It can be joined almost instantaneously and answers equally well for gas or water hose. Call and examine samples. The Right, to any town or city on the coast, will be sold at a reasonable price.

P. Davis' Wire and Picket Fence.

Although about two hundred different styles of fences have been invented and patented in the United States within the past ten years, yet this Fence, for GENERAL FARM USE, stands at the head of the list. This is a Virginia invention, and the actual cost of the Fence complete in that State is less than fifty cents per rod. Three men can put up six hundred yards per day. You men who are idle, why hang about the city talking hard times when you can make from five to eight dollars per day building this Fence? We will make a present of ONE FARM RIGHT in each county on the Pacific coast to farmers who will erect one hundred rods of the fence in good style within thirty days after the privilege is granted. We wish to employ several working men to travel in this State and Oregon. Price of territory, and circular with full description of fence sent on application.



New Gas Light.

This Light takes the place of the Candle, the Kerosene Lamp and Coal Gas. Each Lamp is a perfect Gas Factory, making its own gas as fast as it is required. It is a safe, cheap and beautiful light. Circulars and full particulars sent on application. A few good traveling agents wanted to sell this and other valuable Patents.

Steam Cooker.

This simple and practical Cooker can be attached to any Cooking Stove, and prevents the possibility of scorching or burning food. It facilitates cooking and saves fuel. Don't fail to call and see the model or send for descriptive circular.

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Central Pacific Railroad.

Time Schedule, December 5, 1870.

EASTWARD.		Express Daily.	Trains Daily.	Sunday excepted.	Mixed.*
San Francisco	Leave	8:10 A.M.	5:01 P.M.		5:30 P.M.
Oakland	Arrive	8:40 A.M.	4:41 P.M.		
Stockton	Leave	9:10 A.M.	4:11 P.M.		4:12 A.M.
Merced	Arrive	9:40 A.M.	3:41 P.M.		7:42 A.M.
Sacramento	Leave	10:10 A.M.	3:11 P.M.		9:04 A.M.
Marysville	Arrive	10:40 A.M.	2:41 P.M.		1:15 P.M.
Yuba City	Leave	11:10 A.M.	2:11 P.M.		5:55 P.M.
Colfax	Leave	5:25 P.M.			3:30 P.M.
Reedley	Arrive	5:55 P.M.			4:00 A.M.
Winnemucca	Leave	6:10 P.M.			4:15 P.M.
Battle Mountain	Arrive	6:40 P.M.			3:10 A.M.
Carlin	Leave	7:10 P.M.			4:04 A.M.
Edo	Arrive	7:40 P.M.			9:04 A.M.
Kelton	Leave	8:10 P.M.			7:30 A.M.
Ogden	Arrive	8:40 P.M.			4:04 A.M.

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3:00	Leave San Francisco, arrive	9:4
3:28	Leave Oakland, arrive	9:08
4:4	Leave Merced, arrive	8:10
5:35	Leave Stockton, arrive	7:45

P. M. A. M.	Local Trains.	A. M. P. M.
4:30	Leave San Francisco, arrive	12:35
5:15	Leave Merced, arrive	8:5
6:15	Leave Stockton, arrive	7:15

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New World	Trains	Trains	Trains
Leave S. Francisco	Arrive at Sacramento	Leave Sacramento	Arrive at Marysville
8:30 A.M.	12:45 A.M.	1:30 A.M.	2:15 P.M.
4:30 P.M.	8:15 P.M.	8:20 P.M.	9:30 P.M.

GOING SOUTH—DAILY (SUNDAYS EXCEPTED).

Train	Trains	Trains	New World
Leave Marysville	Arrive at Sacramento	Leave Sacramento	Arrive at S. Francisco
6:30 A.M.	7:50 A.M.	7:15 A.M.	10:30 A.M.
1:30 P.M.	2:50 P.M.	3:5 P.M.	7:15 P.M.

ON SUNDAYS.

10:15 A.M.	3:30 P.M.	2:30 P.M.	1:30 P.M.
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Mechanic Arts College Lectures.

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Climate of the Coal Period.

LECTURE V., DEC. 10.—Prof. Joseph Le Conte, in this lecture, referred to diagrams giving the land limits of this continent during the coal period. These show that then there was a much smaller extent of dry land than now, as was the case on all the present continents. Whether other continents, now submerged, existed, we have no means of knowing. The maps show us, moreover, that there was not so much elevated land, no mountains so high, as at present. On these peculiarities, the climate was undoubtedly dependent to a great degree.

Compared with that of the present age, the climate of the coal period was characterized by greater warmth, greater moisture, greater uniformity everywhere, and a more highly carbonated atmosphere. Our evidence of these facts are derived chiefly from the plants.

That there was greater warmth is shown by the fact that the plants were almost all of a tropical nature. Thus, ferns constituted about one-half of the flora in Great Britain, while now they constitute about one-thirtieth, and probably the ratio was as large for this country. Of the 1,500 known species of ferns, 1,200 are tropical. All the tree-ferns are tropical, all the arborescent club-mosses, then so abundant and which actually grew to great trees; all cycads and *Aracarie* exist now only in tropical regions.

That there was greater moisture is shown in the same way. The fern is the denizen especially of oceanic islands in tropical regions. Other indications are the great extent of coal swamps and the great succulence of plants of the coal age. The great uniformity of plants found in the coal measures in all parts of the world shows that there was a great uniformity of temperature at all places and at all seasons. Up as far north as 78 degrees of latitude, the tropical climate extended, as evidenced by the coal beds of Melville Island.

That the atmosphere was highly carbonated, charged with carbon, or rather carbonic acid, is proved by the luxuriance of the flora. Carbonic acid is the food of plants; they take it from the atmosphere, extract the carbon, and give back the oxygen. This highly carbonated condition favors more particularly the growth of vascular cryptogams—ferns and club mosses—then so abundant. Boussingault, by experiments, showed that the increase of carbon in the air up to a certain amount actually increased the general growth of plants, and especially that of ferns and club mosses, and this up to 5 per cent.; whereas the atmosphere now contains only about 0.05 per cent. As the whole of the coal was thus taken from the air by the plants, the large deposits of this article prove that the air must have been heavily charged.

Causes of these Climatic Conditions.

The moisture and uniformity are easily explained by the physical geography of the period—the great expanse of water and the absence of high mountains. High mountains serve to condense moisture and dry the air, and cause differences of climate. Their absence has a contrary effect.

In regard to the cause of the greater warmth, there are a number of theories. But such as that of the earth drifting through warm zones of space, or that of the decrease of the sun's heat, we will dismiss as unsupported by good evidence or reasoning. There are, however, two prominent theories which demand our attention—that of the greater internal temperature of the globe, and that of the distribution of land and water.

It is almost certain that the earth was once an incandescent fluid mass, which has gradually been cooling down. But it would seem that the difference between its temperature then and now has been greatly over-estimated. The temperature of the surface now is due almost entirely to external causes, being raised only about one-twentieth of a degree by the internal heat. As we descend into the earth we find a certain increase of warmth—about one degree for every 60 feet. Mr. Hopkins, of England, has shown that the ratio of increase from internal causes (one-twentieth to one or one to 20) would always be the same, whatever the temperature at the surface. If, for instance, internal heat caused the surface to have a temperature of 20 degrees, 60 feet down it would give a temperature of 20 times 20, or 400 degrees. Hence if the warmth of the surface during the coal period were higher, as it undoubtedly was, than now (or as high), and were due merely to internal causes, only a short distance down this heat must have been

enormous; at a depth of a few feet we should have had the boiling point; and it would not have taken long to get down to melted rock. These conditions hardly permit the existence of a flourishing vegetation.

During the coal period the warmth was undoubtedly greater than now, but probably not so very much greater. The process of cooling of the globe has been very slow. A calculation of the time which would now be required to cool down the surface one thirty-fourth of a degree (Fahr.), will give some idea of geological time. According to Poisson, this would take 100,000,000,000 years; and Mr. Hopkins has calculated that it must have required as long a time, supposing this the only mode of cooling, to have diminished the last two or three degrees.

The theory of the distribution of land and water is also hardly satisfactory. If we had all the land about the equator, and all the water toward the poles, we should undoubtedly have a greater general heat than we do. The globe heats at the equator and cools at the poles; the land heats up quicker than water, which is the poorer radiator. But in the coal period there was no such distribution of land, which is known to have existed in the temperate and sub-arctic regions.

A New Theory.

Until recently the lecturer had supported the idea of the warmth being the result of a combination of these two causes—the increased temperature of the globe at that time and the physical geography of the earth. This, although unsatisfactory, was accepted for want of something better. But the recent experiments of Prof. Tyndall, of England, have suggested a new theory. It is necessary here to recall some physical facts.

The common sunlight is composed of three sorts of rays—light rays, addressed to and affecting the eyes; heat rays, addressed to and affecting the general sensibilities; and chemical rays, not affecting us so directly, but producing chemical changes, as shown in photography, for instance. Now these three kinds of rays can be separated from one another by straining them, so to speak, through certain substances. That is, there are certain substances which will transmit one of these kinds, but are perfectly opaque to others. Again, there are substances which will transmit light with perfect ease, and also heat when accompanied by intense light, but will not transmit heat unaccompanied by light. The first we will call *light-heat*, the second *dark-heat*.

We have many familiar instances of this last assertion. Common glass admits the heat and light, the light-heat, of the sun. But a piece of glass held before a common fire stops much of the heat while transmitting the light, for here we have principally dark-heat. We all know how a room exposed to the sun can be kept warm in cold weather by keeping the window shut, or how a glass-house is kept much warmer than is the exterior air. The light-heat of the sun is transmitted through the glass and warms up the interior, but the heat reflected from the substances inside the room or glass-house is unaccompanied by much light, is dark-heat, and therefore cannot escape back through the glass, but is retained, imprisoned, so to speak.

Now the earth is a great conservatory of heat, for the atmosphere prevents the dark-heat reflected from it to escape, while transmitting the light-heat of the sun. Had we no atmosphere, the heat received during the day would be radiated back at night, and we should have an excessive degree of cold after dark.

There is another point to which we must attend. The constituents of the atmosphere are oxygen, nitrogen, carbonic acid and aqueous vapor. But there is a great difference between these as to their opacity to dark-heat. Oxygen and hydrogen are almost perfectly transparent, while carbonic acid and aqueous vapor are very opaque in this respect.

Now for our theory. We have seen that at the coal period there was a large amount of carbonic acid and aqueous vapor in the atmosphere, so large that one can readily believe that this will fully account for the greater warmth at that period, especially if we take the physical geography into account. As the form and extent of the dry land has changed, and the plants have drawn the huge amounts of carbon from the atmosphere and stored it up for man's future use, the moisture and carbonated condition of the air have decreased, and consequently the earth's surface has cooled.

As to the reason why the atmosphere then held so much carbonic acid, we have two possible causes—the original constitution of the atmosphere, and the great

activity of carbonic acid producers. These last are principally animal respiration, combustion and general decay of organic matter, carbonated springs, etc. But as these merely give back what they have previously received, we must recur to the original constitution of the air as the cause.

Recapitulation.

During the coal period the climate was warm, moist and uniform, there was but little circulation of the air and the atmosphere was heavily charged with carbonic acid. These conditions were favorable for plant-growth, but unfavorable for the life of higher animals. Accordingly we find no such animals then existing, but only cold-blooded ones, which have a great endurance of carbonic acid.

But in the process of time the most of this carbonic acid was drawn from the atmosphere by the plants and stored up as carbon in the immense coal deposits. The moisture was decreased by the great "Appalachian Revolution" referred to in the last lecture, which raised the land and drained the swamps. Thus the air was purified and the necessary conditions introduced which enable man now to inhabit the earth.

The Iron Deposits of the Coal Period.

We have previously seen how, in our coal measures, there occur alternations of shales, sandstones, limestones, and clays, with seams of coal and bands of iron ores. These bands occur repeatedly, but in no regular order, and vary from the thickness of a hand to that of 40, 50 or even 60 feet. They generally lie directly upon an impervious bed of under-clay.

We find here two kinds of iron-ore, both really the same condition of iron, the carbonate, but commonly separated, according to their occurrences, as clay-iron stone and black-band, the latter being shale impregnated with carbonaceous matter, and especially valuable for smelting, as the materials for slay, fuel and iron are here all combined. In all other strata the peroxide of iron occurs, but in the coal measures only the carbonate of the protoxide. The following table of the number of tons manufactured yearly in the great iron-producing countries will give an idea of the importance of the deposits.

	1845	1864
Great Britain.....	2,200,000 tons.....	5,000,000
United States.....	500,000 "	1,200,000
France.....	450,000 "	1,217,000
Prussia.....	300,000 "	.....

A wonderful mark of design is shown by the fact that, in Great Britain, nearly the whole of the iron ore is raised from the coal mines.

Accumulation of Iron Ore.

Of all chemical substances, that which has the widest and strongest affinities, is oxygen gas. We may say that the whole surface of the earth is oxidized matter covering, perhaps, unoxidized metals. The great antagonist to oxidation, in nature's laboratory, is life. In the growth of plants carbonic acid is deoxidized to carbon, and in death this carbon or organic matter still exercises the same influence, having a strong affinity to oxygen. Peroxide of iron (Fe_2O_3) and organic matter coming in contact, there is a tendency to a mutual action, the carbon (C) taking some of the oxygen (O) and becoming carbonic acid (CO_2) thereby changing the peroxide to protoxide (FeO) and these two products combining to carbonate of iron (FeO, CO_2). Fe_2O_3 is entirely insoluble in water, but FeO, CO_2 is slightly soluble in all meteoric water.

We have, then, the tendencies of natural forces to peroxidize the iron, the tendencies of the physical forces to distribute this, and the tendencies of the organic forces to deoxidize and carbonate it. These are continually working against one another. Thus, the waters carry Fe_2O_3 in contact with organic matter; FeO, CO_2 is formed and dissolved in meteoric water containing an excess of CO_2 ; chalybeate springs result, in which the iron is again exposed to contact with the air and oxidizing influences, oxidized and deposited, forming often the bog-iron deposits in low swampy places,—unless there is an excess of organic matter when we get carbonate of iron deposits.

We can find plenty of illustrations of this. If we examine the decaying stump of a tree which has grown in red clay, we find that this clay has been or is being bleached, the red color being due to Fe_2O_3 , which is changed to soluble FeO, CO_2 and removed. In some localities red soil is common, but never where forests grow, and never in swamps. Beneath our ordinary peat bogs we often find hard beds of iron ore, which is always FeO, CO_2 . Where we find red sandstones, experience has shown that we need expect no coal and but few fossils; the sandstones of the coal pe-

riod are all bleached to a gray color. We have these conditions:—where there is no organic matter, we find Fe_2O_3 disseminated in red rocks; where we find but little organic matter, we may have FeO ; where we find an excess of organic, we always have FeO, CO_2 .

The only doubtful point is the exact mode in which the accumulation of iron ore took place in the coal measures. Dana's theory is that it was collected as now in peat bogs:—meteoric water leached the rocks and carried the iron into the swamps. Roger's theory is that the Fe_2O_3 distributed in the bed rock strata was deoxidized and dissolved by gases and by water, which last percolated down until it came to an impervious bed of under-clay, on which it deposited the iron.

Iron ore is the mark and measure of previous life, of which we have three signs:—the existence of coal, that of iron ore, and that of fossils.

Conclusion.

We have seen that the tendency of chemical and physical forces is to peroxidize and distribute our iron so that it is not available to men; that of the organic forces is to deoxidize and accumulate it in stores for man's benefit.

Organic matter is so much material taken from the atmosphere and stored up in plants, etc. The rate of this is so great and the quantity to be thus used so small, that it would not be long before all our carbon would be laid away, were it not returned again whence it came. This is done in various ways, by the respiration of animals, which have taken their carbon from the plants, by combustion, decay, etc. Thus we have a constant circulation, often lasting from generation to generation.

But this is not a mere circulation without results. The phenomena of life, of mental and moral activity are some of the results achieved. A portion of the organic matter stops for a while on its cycle and forms our coal beds; another causes the accumulation of iron ore; still another writes its epitaph on the leaves of nature's book, telling its own story in the fossils, where it has compelled mineral matter to take its place, molecule by molecule.

This lecture closed the series on the coal measures. The next two, also by Prof. Joseph Le Conte, will treat of mineral veins.

WHY THE RAIN FELL FOR FIVE DAYS

UPON A GROUP OF GRAVES IN ALABAMA.—Some days ago, says the *Charleston News*, we published an account from Mobile of a mysterious dropping of rain upon certain graves in the cemetery near that city. The mystery is thus solved:

EDITOR "REGISTER":—Having occasion to visit a sick person near the Catholic graveyard, curiosity prompted me to make some inquiry about the phenomenon of rain falling in a certain yard. It is all due to a young leafless wild cherry tree standing in an adjoining yard. This is not uncommon at this season of the year with the wild cherry, crape myrtle and swamp poplar trees. It is caused by the sap ascending, after the leaves have fallen off, in great quantities, from some atmospheric cause.

The little scar left on the branches when the leaf falls off coats over with gum; the sap rises and collects under the coat, and by a "vis a tergo" action bursts the coating, and many of them at a time produce a very fine shower. There are other phenomena of this kind in and about the city. One (a poplar tree in Holly's garden) now, or was about a week ago, giving forth quite as much water as the one in question. A crape myrtle on the old shell road has been showering every fall for many years.

MOBILE, Nov. 3, 1870. H.

As having a curious affinity with the above paragraph, the *Bulletin* reproduces an extract from the Holly Springs (Miss.) Reporter:

A singular phenomenon may be witnessed on the farm of M. C. Pegues, five miles southeast of Holly Springs. A black gum tree, about 30 feet high, growing on the hillside, surrounded by other trees, has been for years a source of wonder to many in this neighborhood, and has gained for itself the name of "Raining Tree." On Saturday last several persons visited this remarkable tree.

The day was perfectly calm, warm and cloudless, with the exception of a few clouds in the south. Immediately under, and a short distance beyond the branches of the tree, a gentle rain was falling continuously, saturating the ground beneath, and nowhere else was a particle of moisture visible. The water collected in fallen leaves had the appearance and taste of rain water.

PORTLAND, OREGON, Nov. 24th, 1870.—Dewey & Co.,—Gentlemen,—It is a Thanksgiving to day, and I think it is my duty to write you a letter of thankfulness, for the trustworthy and business like manner in which you have attended to my business. Four inventions illustrated by valuable models, which I place in your hands, together requiring years of hard study, have been protected by valuable patents through your agency. Dewey & Co., are the only Patent Agents that I shall ever employ to obtain Letters Patent for me so long as I live, and I thank you sincerely for your honorable duties to me. I shall soon place four more cases in your hands for prosecution. Again thanking you, I remain, Yours &c., THOMAS HILL.

SUCCESS IN BUSINESS.—SUCCESS IN THE BUSINESS world usually depend upon being thoroughly prepared for its duties. Young men! if you would succeed in your business career, secure a good practical business education. This question being settled, the next is where to go. Why, go to the best, of course. Go to HEALD'S BUSINESS COLLEGE, located in the new College Building, 24, Post Street, San Francisco. This is the only school upon the Pacific coast where young men can depend upon being thoroughly fitted for Bankers, Merchants, Clerks, and Book Keepers. This school is connected with the "International Business College Association" or Bryant & Stratton chain. Its scholarships are good for tuition in any of the forty colleges located in all the leading commercial cities of the United States and Canada. There are many interesting features about the school which can not be discussed here. Call at the College and examine its workings. If unable send for circulars and HEALD'S COLLEGE JOURNAL, which will be sent free upon application. Address, E. P. HEALD, President, Business College, San Francisco, Cal. 23v22-3ms

SOZODONT.—All denturists had their drawbacks, until the salubrious Bark of the Soap Tree was brought from the Chilian valleys, to perfect the fragrant Sozod. NT, the most wholesome, reliable and delightful article for the Teeth that a brush was ever dipped into.

"SPALDING'S GLUE," always up to the sticking point.

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THOMAS O'NEIL Ornamental Glass Cutter, No. 10 Ste venson street, up stairs. Stained, Ground and Ornamental Cut Glass to order on reasonable terms. 14v20

FROM A READER.—Duncan's Mill, Sonoma Co., Oct. 10, 1870.—Messrs Dewey & Co: Don't stop my paper. Your journal is very valuable. No better investment for \$4. Respt. B. C. B.

CONTINENTAL Life Insurance Co., 302 Montgomery street, corner of Pine.

MARAVILLA COCOA.—For Breakfast.—The Globe says: "Various importers and manufacturers have attempted to attain a reputation for their prepared Cocoas, but we doubt whether any thorough success has been achieved until Messrs. Taylor Brothers discovered the extraordinary qualities of 'Maravilla' Cocoa. Adapting their perfect system of preparation to this finest of all species of the Theobroma they have produced an article which surpasses every other Cocoa in the market. Entire solubility, a delicate aroma, and a rare concentration of the purest elements of nutrition, distinguish the Maravilla Cocoa above all others. For homeopaths and invalids we could not recommend a more agreeable or valuable beverage." Sold in packets only by all Grocers, of whom also may be had Taylor Brothers Original Homeopathic Cocoa and Saluble Chocolate. Steam Mills—Brick Lane, London. 5v20-1y

THE PRESS is just such a journal as the people of this valley should patronize—it ought to go to every residence. It is devoted to the agricultural and mining interests, mechanic arts and general industrial progress. The subscription price is \$4, which, considering that the Press is one of the largest and ablest journals of its class in the Union, we consider very reasonable.—Every business man of Bozeman, will we are satisfied, give Mr. Murray his name, and we hope such of our country friends as he interviews will be equally liberal. PICK & FLOW, MONTANA.

TO MINERS, MILLMEN AND METALLURGISTS. Kustel's new work on the Concentration of all kinds of Ores, and the Chlorination Process, for Gold-bearing Sulphurets, Arseniurets, and Gold and Silver Ores generally, is the best and most complete work issued. It contains 120 diagrams, illustrating machinery, etc., which alone are of the greatest value. Price, \$7.50, postage paid. Published by Dewey & Co., publishers of the Scientific Press, San Francisco.

SCIENTIFIC PRESS—three numbers—terms \$4 per annum—San Francisco. Constant improvements are being made in this publication. Illustrated mechanics receive liberal attention. Of late, an edition exclusively devoted to agricultural matters is issued simultaneously with that devoted to mining and scientific affairs generally. The growth of the paper and multiplicity of subjects embraced in the table of contents give evidence of an increased patronage and a corresponding industry to maintain its high character.—Colorado Herald.

FOR SALE.—An account due this office for advertising for A. Jackson, of La Crosse, Wis., will discount 99 per cent. if necessary, 18v21 1y

New Advertisements.
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—THE—
California Peat Company,
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Mining and Company Advt's.

Every Advertisement in this journal is published throughout its entire Mining, Agricultural, Monthly and Quarterly Editions.

Kincaid Fiat Mining Company, Tuolumne County, California.

Notice.—There are delinquent upon the following described stock on account of assessment levied on the 20th day of Oct. 1870, the several amounts set opposite the names of the respective share-holders, as follows:—
Names. No. Certificate No. Shares. Amount.
S. Card.....10 10 25 00
S. Card.....39 5 12 50
Win. A. Quarles.....15 10 25 00
Win. A. Quarles.....16 10 25 00
Ira P. Hankin.....33 10 25 00
Ira P. Hankin.....34 10 25 00
Ira P. Hankin.....65 5 12 50
Ira P. Hankin.....59 5 12 50
Win. H. Sharp.....35 10 25 00
Win. H. Sharp.....36 10 25 00
And in accordance with law, and an order of the Board of Trustees, made on the 20th day of Oct. 1870, so many shares of each parcel of said stock as may be necessary will be sold at public auction at the salesroom of J. C. Merrill & Co., 201 and 206 California Street, S. F., on the 3rd day of December 1870 at the hour of 12 o'clock M., of said day, to pay said delinquent Assessment thereon, together with costs of advertising and expenses of sale.
D. H. CROWE, Secretary,
Office 290 Clay street, San Francisco.
no26

KINCAID F. MINING COMPANY.—The above sale is hereby postponed until December 17, 1870, at the same hour and place. By order of the Board of Trustees.
D. H. CROWE, Secretary.

Mahogany G. & S. M. Company.—Location of Works, Silver City, Owyhee County, Idaho Territory.

Notice.—There are delinquent upon the following described stock, on account of assessment No. 1, levied on the 2nd day of Nov. 1870, the several amounts set opposite the names of the respective shareholders, as follows:—
Names. No. of Certif. No. Shares. Amount.
George Hearst.....24 1,0 200
M Herman.....20 200 400
J S Van Slyke.....26 40 80
C S Miller.....27 760 1520
A L Frank.....23 50 100
A L Frank.....28 350 700
And in accordance with law and an order of the Board of Trustees, made on the 2nd day of November 1870, so many shares of each parcel of said stock as may be necessary, will be sold at public auction at the office of the company, No. 2, Express Building, San Francisco, California, on Tuesday the 27th day of December 1870, at the hour of 1 o'clock P. M. of said day, to pay said delinquent assessment together with costs of advertising and expenses of sale.
Dec. 10-3w C. M. RICHARDSON, Secy.

Nevada Land and Mining Company.—Location of Works, Johnson & Latham Autolope and Clifton District, Elko County, State of Nevada.

Notice.—There are delinquent upon the following described stock, on account of Assessment levied on the sixteenth day of November, 1870, the several amounts set opposite the names of the respective Shareholders as follows:—
Names No Certificate No. Shares Amount
Henry R. Miller.....(unissued) 2000 80 00
And in accordance with law, and an order of the Board of Trustees, made on the sixteenth day of November, 1870, so many shares of each parcel of said stock as may be necessary, will be sold at public auction at the Office of the Company Room 5 No. 302 Montgomery street, San Francisco, Cal. on Saturday the 7th day of January 1871, at the hour of 1 o'clock P. M. of said day, to pay said delinquent Assessment thereon, together with costs of advertising and expenses of s.e.
WM. H. WATSON, Secretary,
Office, Room 5 No. 302 Montgomery St., San Francisco.

Providence Gold and Silver Mining Company.—Nevada County, California.

Notice is hereby given that at a meeting of the Board of Trustees of said Company, held on the 12th day of November 1870, an assessment of one dollar per share was levied upon the capital stock of said Company, payable immediately in United States gold and silver coin, to the Secretary.
Any stock upon which said assessment shall remain unpaid on the 21st day of December 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before will be sold on Thursday the 6th day of Jan. 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.
J. M. BUFFINGTON, Secretary.
Office, No. 37 New Merchants Exchange, San Francisco California, nov19,

Silver Sprout Mining Company.—Location of Works and Mines, Kearsage District, Inyo County California.

Notice is hereby given, that the following named shares in the capital stock of the Silver Sprout Mining Company, designated by the name and number of certificate of each parcel of said stock, were sold as by law provided, at public auction, on the first day of December 1870, for delinquent assessments thereon, and will not be transferred by the Company.
Names No. Certificate No. Shares
Brown, B L.....11 10
Cleaveland, R H.....24 10
Devlin, J D.....12 10
Davis, James H.....20 40
McLaughlin, J W. (unissued) 1000
Mott, E B Jr.....29 200
Stowell, Chas E.....22 1000
Wade, Wm N.....(unissued) 220
T. B. WINGARD, Secretary,

Washington Mining Company.—Location of Works and Mine, Mariposa county, State of California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 12th day of December 1870, an assessment of \$3 per share was levied upon the capital stock of said Company, payable immediately in United States gold coin, to the Secretary at the office of the Company, No. 226 Front street, San Francisco.
Any stock upon which assessment shall remain unpaid on the 16th day of January 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday the 6th day of February, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of the Trustees
T. B. WINGARD, Secretary.
Office, 206, Front street, San Francisco, California.



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Literary and Family Newspaper,
AS WELL AS THE
Organ of the Masonic Fraternity on the Pacific Coast.

ENDORSEMENT OF THE GRAND LODGE.
The following resolution was unanimously adopted by the M. W. Grand Lodge, F. & A. M., of the State of California, at its Annual Communication, October, 1870. Whereas, in the opinion of this Grand Lodge, a well conducted Masonic Journal is of great benefit to the craft, in disseminating Masonic information among the fraternity, as well as furnishing a medium for general Masonic intelligence. Therefore,
Resolved, That this Grand Lodge, recognizing in the Masonic Mirror, edited by Brothers Amasa W. Bishop and Edwin A. Sherman, and published by the Masonic Publishing Company of San Francisco, a Masonic Journal of the character above set forth, do hereby recommend the said Masonic Mirror to the craft generally, as worthy of their most favorable consideration and support.

ENDORSEMENT OF THE GRAND CONSISTORY.
At the communication of the M. P. Grand Consistory, Ancient and Accepted Scottish Rite of Freemasonry in and for the State of California, held October, 1870 at San Francisco, the following resolution was unanimously adopted: Resolved, That the MASONIC MIRROR, published in this city be the official organ of this Grand Consistory.

TO ADVERTISERS.
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Scotch and Eng. Pig Iron, per ton.....@ \$37 50

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Refined Bar, had assortment, per lb.....@ — 03

Refined Bar, good assortment, per lb.....@ — 04

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Plate, No. 5 to 9.....@ — 04½

Sheet, No. 10 to 13.....@ — 05

Sheet, No. 14 to 20.....@ — 05½

Sheet, No. 24 to 27.....@ — 06½

CORRUG.—Duty: Sheathing, 3½¢ per lb.; Pig and Bar, 2½¢ per lb.

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TR. PLATES.—Duty: 25¢ cent. ad valorem.

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Plates, 10 Charcoal.....@ — 10 50

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STEEL.—English Cast Steel, per lb.....@ — 15

QUICKSILVER.—per lb.....@ — 80

LEAD.—Pig, per lb.....@ — 7

Sheet.....@ — 11

Pipe.....@ — 11

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BORAX.....@ — 78

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CROSS' PATENT BOILER FEEDER AND SEDIMENT COLLECTOR.

WILCOX'S PATENT WATER LIFTERS,

Danbar's Patent Self-Adjusting Steam Piston PACKING, for new and old Cylinders.

And all kinds of Mining Machinery.

Front Street, between N and O streets, 14-17

SACRAMENTO CITY

ESTABLISHED 1851.

PACIFIC IRON WORKS,

First and Fremont streets, 12-14

SAN FRANCISCO!

IRA P. RANKIN, A. P. BRAYTON,

GEO. W. FOGG, Superintendent.

Steam Engines and Boilers,

MARINE AND STATIONARY,

IRON AND BRASS CASTINGS

Mining Machinery of Every Description,

And all other classes of work generally done at first-class establishments, manufactured by us at the lowest prices, and of the best quality.

Particular attention paid to Jobbing Work and Repairs.

N. B.—Sole Agents for sale of HUNTOON'S CELEBRATED PATENT GOVERNOR.

18-20-21m

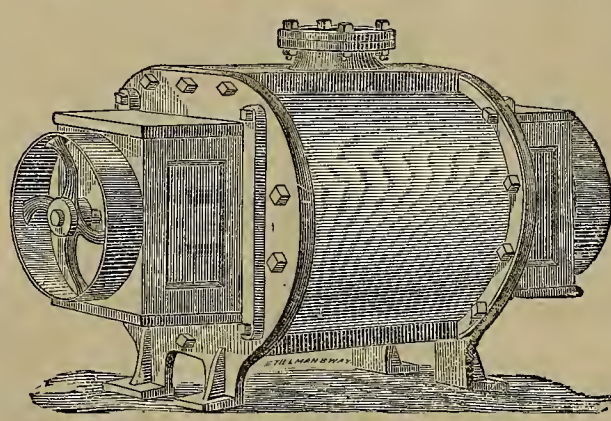
GODDARD & CO

ROOT'S PATENT FORCE BLAST ROTARY BLOWER.

MANUFACTURED BY KEEP & BARGION,

At the Globe Iron Works, Stockton, California.

Awarded the First Premium at the Paris Exposition.



Patented Nov. 1st, 1864; July 21, 1866; and Oct. 9, 1866.

ADAPTED FOR Smelting, Foundry, Mining and Steamships.

REQUIRES Fifty Per Cent. LESS POWER Than any Blower Now in use.

One of these Blowers may be seen on exhibition at W. T. Farratt's Brass Foundry, corner of Mission and Fremont street. They are also in use at the Almaden Quicksilver Mine; Gridley's Foundry, Gold Hill, Nevada; Zema Iron Works, San Francisco, and many other places.

CAUTION.—Purchasers will find it to their advantage to apply direct to the Stockton Agency, as certain parties, not authorized to manufacture the Blower, have put in the market machines of inferior construction, which do not answer all the requirement of the genuine article.

Quartz, Saw and Grist Mill Irons, Steam Engines, Horse Powers, High and Low Pressure Steam Engines, Steamboats and Propellers, made at short notice.

For circulars and further information address

4-16-3m

KEEP & BARGION,

Globe Iron Works, Stockton, Cal.


CAMERON'S STEAM PUMPS.

PICKERING'S Engine Regulators.

GIFFARD'S INJECTORS.

BARTOL'S STEAM TRAP.

SURFACE CONDENSERS.

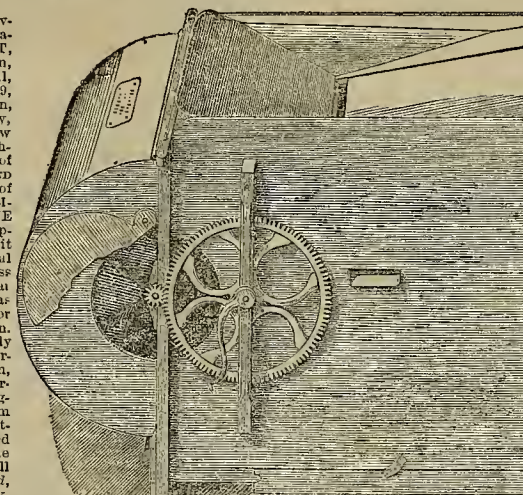


DAVID STODDART,

114 BEALE STREET.

NOVELTY MILL AND GRAIN SEPEARATOR.

THE undersigned having purchased of the Patentees, WILTS & SWIFT, of Hudson, Michigan, their right to this mill, Patented June 22d, 1869, for California, Oregon, Washington Territory, Montana, Utah, New Mexico and Arizona, wishes to call the attention of FARMERS, MILLERS AND GRAIN DEALERS to one of THE GREATEST IMPROVEMENTS OF THE AGE for cleaning and separating grain. While it combines all the essential qualities of a first-class FANNING MILL, it also far exceeds anything that has ever been invented for the separation of grain. It has been thoroughly tested on all the different kinds of mixed grain, separating all the different seeds in almost a magical manner, placing them in their different compartments in the mill arranged for their reception, at the same time taking out all the Mustard, Grass Seed, Barley and Oats, and making two distinct qualities of wheat if desired, thereby selecting superior, large plump and perfect kernels for SEED WHEAT, and all the small and cut kernels, such as merchantable wheat, is deposited in another compartment. By the use of this fan, as the cut or shrunken kernels will never germinate. The above mentioned Novelty Mill is the only mill known to possess all these superior qualifications, and was exhibited and tested at the last Michigan State Fair held at Jackson, Michigan, September 21, 22, and 23, 1869, and bore away the palm over some thirty other different mills from all parts of the United States, including the famous Dickey Mill of Racine, Wisconsin. All who have witnessed here the operations of the NOVELTY MILL, declare it perfection, and the most beneficial invention to the Farmers, Millers, and Grain Dealers ever introduced on the Pacific Coast. The Farmers in Santa Clara County, are loud in its praise, and also in other parts of the State where it is being introduced. No. 1 Mill, complete, is capable of cleaning 25 tons of grain per day; No. 2 Mill, 15 tons; No. 3 Mill, 8 tons. A large number of recommendations and certificates of the practical working of the mill will be furnished. Circulars containing references sent free by mail. N. B. Town, County, or State Rights for sale on favorable terms. For further particulars apply to



R. STONE, 422 Battery Street, San Francisco.

11-21-3m

GEO. T. PRACY'S

MACHINE WORKS,


109 and 111 MISSION STREET, SAN FRANCISCO.

MANUFACTURER OF

PRACY'S IMPROVED

PATENT STEAM ENGINE

GOVERNOR.



These Governors are the most sensitive built, running at a high velocity and maintaining a uniform speed.

SOLE AGENT FOR

L. W. POND'S CELEBRATED TCO S,

— SUCH AS —

Lathes, Planers, Drills, Boring Mills, Milling Machines, Etc.,

Which I will offer at very low rates. Also,

MORSE'S TWIST DRILLS, AND CHUCKS OF ALL KINDS.

MANUFACTURER OF

Steam Engines, and Mill Work Generally.

Sole Agent for TAFT'S PATENT SHEARS AND PUNCHES. 3-21

MACHINERY

— AT —

GREATLY REDUCED RATES.

Miners' Foundry & Machine Works,

235 TO 241 FIRST STREET, SAN FRANCISCO.

This Establishment is now working upon the CO-OPERATIVE PLAN, And are thereby enabled to manufacture MACHINERY, CASTINGS & BOILERS AT EASTERN PRICES, And better adapted to the wants of the Pacific States. Ascertain our prices before purchasing. 8-20q

CALIFORNIA BRASS FOUNDRY,

No. 125 First street, opposite Minna, SAN FRANCISCO.

ALL KINDS OF BRASS, Composition, Zinc, and Babbit Metal Castings, Brass Ship Work of all kinds, Spikes, Sheathing Bolts, Solder Braces, Hinges, Ship and Steamboat Bells, and Gongs of superior tone. All kinds of Cocks and Valves, Hydraulic Pipes and Nozzles, and Hose Couplings and Connections of all sizes and patterns, furnished with dispatch. 8-21 PRICES MODERATE. J. H. WEED, V. KINGWELL.

California File Manuf'g Co.

437 BRANNAN STREET, bet. Third and Fourth. W. WUSTHOFF, L. KRAMER.

REAPER AND MOWER SECTIONS, BARS AND KNIVES COMPLETE.

At a saving of 50 per cent. New Files of every description on hand and made to order. Old Files re-cut, and warranted equal to new. Orders from the country promptly attended to. 9-19-47

McAFEE, SPIERS & CO.,

BOILER MAKERS

AND GENERAL MACHINISTS,

Howard st, between Fremont and Beale, San Francisco.

Flue or Tubular Boilers, with plain circular or spiral courses. Upright Flue or Tubular Boilers, Locomotive and Marine Boilers, and Wrought Iron Tanks of every description.

Hydraulic Pipe supplied at reasonable rates. In ordering, give the quantity of water to be supplied, height of the fall, and total length of pipe, so as to enable the firm to determine the diameter of the pipe and thickness of iron to be used.

Repairs.—Boilers, Smoke Stacks, Pipes, etc., put in repair with promptness.

To Boiler Makers and Machinists in the Interior.—The firm is prepared to furnish estimates of Boilers, supply new Heads, drilled and punched, and attend to the selection and forwarding of Iron for Boilers, Pipes and other purposes.

Plans, Drawings and Specifications.—The firm is prepared to make out Plans and Specifications, receive estimates, and superintend the Erection of any Machinery that may be entrusted to their care.

To Inventors.—The firm is prepared to assist in developing the plans of those who have the ideas but not the practical experience necessary to put the same in form, by making drawings of their inventions, giving them the benefit of their practical knowledge in the construction of Machinery, and attending to the manufacture and introduction of their inventions. 11-18

NELSON & DOBLE,

AGENTS FOR

Thomas Firth & Sons' Cast Steel.







MANUFACTURERS OF

Sledges, Hammers, Stone Cutters', Blacksmith's and Horse-Drawn Tools.

13 and 15 Fremont street, near Market, San Francisco. 10-14-17

[ESTABLISHED 1820.]

WILLIAM J. YOUNG & SONS,

Mathematical Instrument Makers,

No. 43, North Seventh St. Philadelphia Pa.

Having increased their facilities, expect in future to keep on hand a full supply of Transits, Levels, Compasses, Solar Compasses &c. Manufacturers of Young's celebrated Shifting Tripod for Transits. Original manufacturers of Burts Solar Compass. 14-21-2m

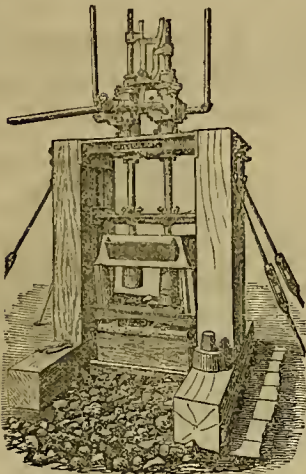
New York Metal Market.

[CORRECTED WEEKLY FROM THE AMERICAN ARTISAN.]

NEW YORK CITY, Saturday, Dec. 3, 1870.			
IRON.			
Pig, Scotch, No. 1 (cash), per ton.	\$33 00	@	\$36 50
Pig, American, No. 1 (cash).	33 00	@	34 00
Pig, American, No. 2.	29 00	@	31 00
Swedish, ordinary sizes.	110 00	@	125 00
Common.	75 00	@	80 00
Refined.	77 50	@	95 00
Rolls.	95 00	@	120 00
Horse-shoe.	95 00	@	—
Hoop.	105 00	@	150 00
Scrub.	97 50	@	125 00
Nail-rod, per lb.	7 60	@	7 1/4
Spring.	7 1/4	@	—
Tire.	8 1/4	@	—
STEEL.			
Bar, best cast, warranted, per lb.	17 00	@	18 00
Sheet, best quality.	14 00	@	—
Sheet, second quality.	16 00	@	—
Sheet, third quality.	14 00	@	—
Saw-plates, circular.	27 00	@	—
Double-shear, warranted.	23 00	@	—
Single-shear.	19 00	@	—
Montague & Co. (cast bars).	18 00	@	—
Machinery, round.	11 00	@	—
German, best.	11 00	@	—
German, good.	10 00	@	—
German, eagle.	9 00	@	—
Blister, warranted.	16 00	@	—
Blister, common.	15 00	@	—
Josiah & Sons', common.	17 00	@	—
Double-lined.	26 1/2	@	—
Stone ax-shapes.	26 1/2	@	—

Machinery.

THE WILSON Patent Steam Stamp Mill.



This extraordinary Mill, now so justly popular in the East, is now offered to the miners of the Pacific Coast. Having been in operation now for about two and a half years, the Company feel confident that the

WILSON STEAM STAMP MILL,
For Durability, Efficiency,
AND ECONOMY OF WORKING,
HAS NO EQUAL.

The Wilson Steam Stamp Mill is the only Steam Mill that has had the severe ordeal of practical working, and proved itself eminently successful. It is now in operation in several of the Eastern States and Territories, and gaining an enviable popularity. The whole machine is so simple as to be readily understood by the most ordinary minds. In fact, its simplicity is its durability. The expense of crushing rock or cement with this Mill is less than one-half the expense of any other Stamp Mill, and less than one-half the cost. For further particulars inquire of

FURMAN R. WILSON,
San Francisco.

Or of THE WILSON STEAM STAMP MILL CO., 326 Walnut street, Philadelphia, Pa.

NOTICE.—All persons are hereby warned not to manufacture or use any Steam Stamp Mills that are an infringement on the Wilson Patents, as they will be prosecuted to the utmost rigor of the law.

F. R. WILSON,
20919-1f Supt. W. P. S. S. M. Co., Philadelphia.

THE ASPHALTUM PRESSURE PIPE COMPANY,

HAVING ERECTED A MANUFACTORY of sufficient capacity to supply their Asphaltum Pipe in large quantities.

Are now Prepared to Take Orders
AND MAKE CONTRACTS.

This Company will manufacture Pipe and guarantee it to stand any pressure required; it is lighter than iron pipe and more durable, it is not affected by chemical action, cannot corrode, and being glazed imparts no disagreeable taste to water. To miners and farmers it is invaluable; any hole can put it down; it is twenty per cent cheaper than iron pipe and ten times more durable. For further particulars, apply at the office of the Company, Room No. 2, 615 Mark-t street.

27 Circulars sent on application.

16v21-1f

Gold Saving Amalgamated Plates.

Miners, Quartz Millmen.—Attention.

Best quality of Silver Plated Amalgamated Plates for saving fine particles of gold, furnished at the

San Francisco Plating Works.

655 Mission Street, Between New Montgomery and Third Streets, San Francisco.

E. G. O'NEAL, Proprietor.

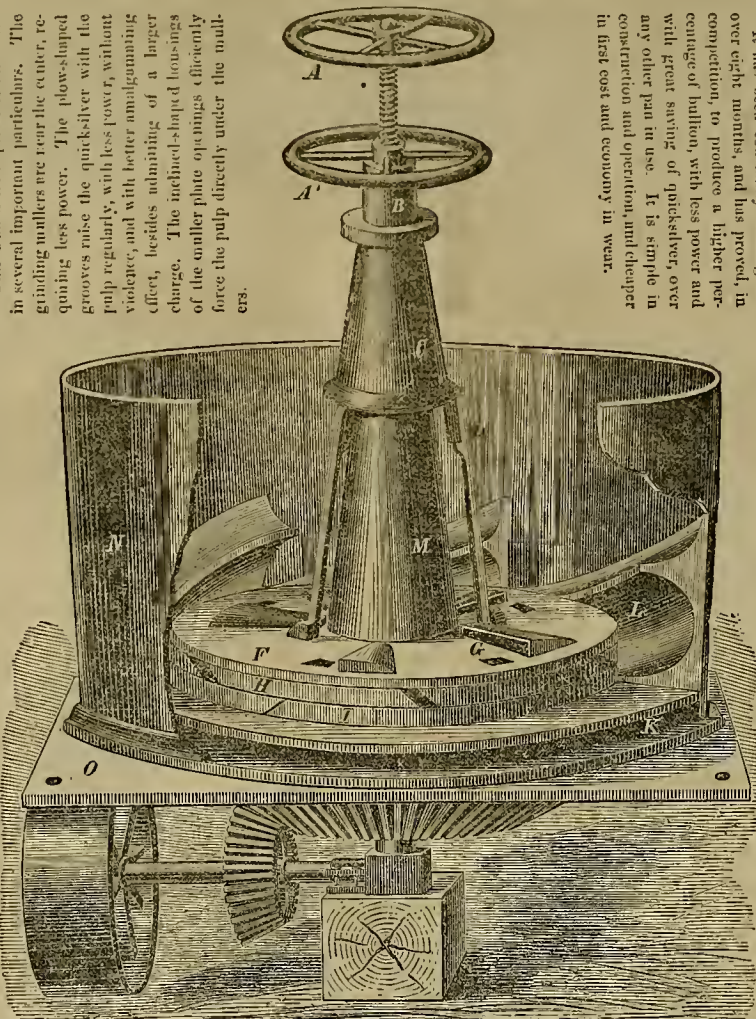
HAVLAND, HOOPER & CO., Agents, No. 335 Pine St.

27 Best means yet discovered for saving fine particles of Gold.

20v21-1f

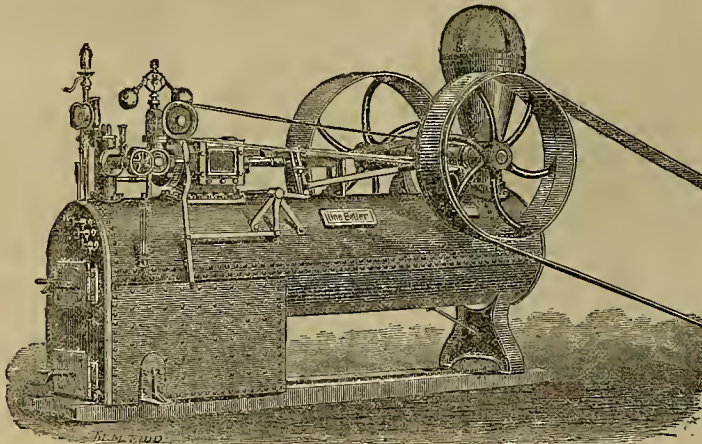
STEVENSON'S PATENT MOULD BOARD AMALGAMATING PAN.

This Pan is far superior to all others in several important particulars. The grinding rollers are near the center, requiring less power. The plow-shaped grooves raise the quicksilver with the pulp regularly, with less power, without violence, and with better amalgamating effect, besides admitting of a larger charge. The inclined-shaped housings of the miller plate openings efficiently force the pulp directly under the millers.



It has been constantly running for over eight months, and has proved, in competition, to produce a higher percentage of bullion, with less power and with great saving of quicksilver over any other pan in use. It is simple in construction and operation, and cheaper in first cost and economy in wear.

HOADLEY'S PORTABLE ENGINES!



3 to 20 Horse Power on Carriages and Beds.

These Engines are in use all over the United States, and are regarded as the best in use. They are self-contained Engines, without the running gear and appurtenances, for driving

Saw Mills, Grist Mills, Tanneries, Machine Shops, Planing Mills, Factories &c.,

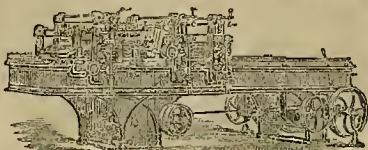
and for all other purposes under seventy-five horse-power, to which Stationary Engines are applied. For Agricultural uses they are unsurpassed. For Circulars or pamphlets, describing dimensions and price address

TREADWELL & CO., Sole Agents,

15v21-3m

SAN FRANCISCO.

WOODWORTH PLANERS.



Smith's Patent Wood-working Machinery of all descriptions. Sole Agents, BARRY & PLACE, 112 and 114 California St., San Francisco.

SEVERANCE HOLT & CO.,
MAUFACTURERS OF
Diamond-Pointed Drills

AND DRILLING MACHINERY.

For Mining, Quarrying, Shafting, Tunneling, Prospecting, Draining, Graveling and Submarine Blasting. Special attention given to Deep Boring for testing the value of Mines. Also to Boring Artesian Wells. Office, 318 CALIFORNIA STREET, San Francisco.

25v20-3m

The Stetefeldt Furnace.

For information of any description respecting this process,

APPLY TO

STETEFELDT FURNACE COMPANY.

STETEFELDT FURNACE COMPANY,

Duncan's Building, Room 1, California Street,

14v21-1y

San Francisco.

California Fire and Burglar Proof Safe.

At the late fire on Fremont Street, Oct. 18th, one of the safes, containing Miller & Hale's books and papers, stood the test PERFECTLY,—to whom all interested are referred. This safe is built at the

CALIFORNIA A TOOL WORKS,

147 Beale Street, bet. Mission and Howard. All kinds of Edge and other Tools made to order. Agricultural machinery repaired. Job grinding and polishing by steam. All work warranted. Orders promptly attended to.

J. WEICHBART, Proprietor.

CRAIG'S PATENT



IS THE VERY BEST
Ever offered to the public in shape of a
HYDRAULIC MACHINE.
At the hundred now at work will bear witness.

NOZZLE.

Caution to Everybody.

Be it known that the Hydraulic Chief, manufactured by F. H. Fisher, of Nevada City, Champion Nozzle, made by Thos. Watson of Nevada City, and Dictator, made by Richard Hoskin, of Dutch Flat, 27 Are infringements upon our Patents dated Dec. 8th, 1865, Dec. 7th, 1869, Dec. 28th, 1869, and that suits are now pending in the U. S. Courts which involve the working principles of each and all the above named contrivances, and that we will prosecute all responsible parties who make, sell or use, without our consent, any one or either of them.

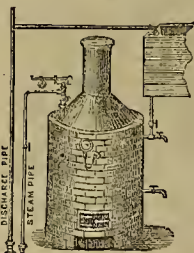
R. R. & J. CRAIG, PROPRIETORS,

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PRESCOTT & SCHIEDELL, Sole manufacturers,
Marysville Foundry.
11v21-3m

STEAM JET PUMP.

Blakeslee & Williams' Patent, for
Water, Oils, Acids, Etc.



The best cold water pump for filling tanks for stationary or portable Steam Engines. Also highly recommended for MINES, DISTILLERIES, SALT WORKS, STONE QUARRIES, and similar places, and saves the expense of putting up and running an engine.

We ask the attention of all proprietors of steam power to the following points of merit.—It is operated by steam taken directly from the Boiler into the Pump; it has no valve or wearing parts of any kind; it requires no belts, pulleys, or machinery of any kind; it operates entirely independent of an engine; it will not choke up with foul water; it costs much less to put up and start; it will not wear out in a lifetime, or require repairs; it is reliable, and certain to work at all times; it is not liable to injury from freezing.

Satisfaction guaranteed or the money refunded. Send for Circular. PARKER & HUNT, Southeast cor. Tenth & K Streets, Sacramento City Cal.

AGENTS—CHAS. F. BROCK, 117 California St., San Francisco; KEEL & BARGON, Stockton. 21v21-1f

Varney's Patent Amalgamator.

These Machines Stand Unrivaled.

For rapidity pulverizing and amalgamating ores, they have no equal. No effort has been, or will be spared, to have them constructed in the most perfect manner, and of the great number now in operation, not one has ever required repairs. The constant and increasing demand for them is sufficient evidence of their merits. They are constructed so as to apply steam directly into the pulp, or with steam bottoms, as desired.

This Amalgamator Operates as Follows.

The pan being filled, the motion of the miller forces the pulp to the center, where it is drawn down through the aperture and between the grinding surfaces.—Thence it is thrown to the periphery into the quicksilver. The curved plates again draw it to the center, where it passes down, and to the circumference as before. Thus it is constantly passing a regular flow between the grinding surfaces and into the quicksilver, until the ore is reduced to an impalpable powder, and the metal amalgamated.

Sellers made on the same principle excel all others. They bring the pulp so constantly and perfectly in contact with quicksilver, that the particles are rapidly and completely absorbed.

Millmen are invited to examine these pans and settlers for themselves, at the office, 229 Fremont Street, San Francisco.

JOS. THORNHILL,

BRICKLAYER AND CONTRACTOR.

Particular attention paid to all kinds of Fire Work, such as Boilers, Furnaces, Ovens, Grates, Ranges, &c. Orders left with C. W. WILKE, 47 Clay Street. JOS. THORNHILL, 1612 Mason St., near Green, will be promptly attended to.

24v21-3m

SONOMA R. R.—The last spike on the railroad between Santa Rosa and Petersburg was driven on the 11th.

After January 1st, THE SCIENTIFIC PRESS will be more specially devoted to MINING, MECHANICAL ARTS, INVENTIONS, AND HOME INDUSTRY.

The Date Paid to

By our subscribers is pasted on their wrappers, the last one or two figures represents the year. All are requested to send in the cash for a renewal of their subscriptions before their time expires. Don't wait to be notified.

1871. A NEW PAPER. 1871.

PACIFIC RURAL PRESS.

AN ILLUSTRATED PACIFIC STATES

Agricultural Home Journal.

SUBSCRIBE! GET UP CLUBS!

On the first Saturday in Jan. 1871, we shall commence the issue of a weekly newspaper, under the above title, of just the character needed in this new field of Agriculture and social progress. Annual Subscription \$4. Clubs of ten or more \$3 each. (Clubs may embrace new subscribers to the Scientific Press, also.)
Send for sample sheet and particulars.

DEWEY & CO.
Publishers, Patent Agents, and Engravers,
414 Clay Street, S. F.

FORWARD! FORWARD!

THE SCIENTIFIC PRESS. FOR 1871.

WILL BE SPECIALLY DEVOTED TO

Mining, Mechanic Arts, Inventions, and Home Industries of the Pacific States.

PRINTED ON NEW TYPE,

AND ITS

READING COLUMNS INCREASED,

AND

Otherwise Improved in Value.

The success of our improvements in 1870, and the reduction of our subscription rates to \$4 per annum, resulting in a large increase of subscriptions, has induced us to make the above announcement. To afford

EXTRA INDUCEMENTS

To subscribers who will send in their names and cash for 1871, direct to the office previous to the commencement of the year we will, (during this month of December only) accept \$3.50 as full subscription for one year.

CLUBS AT \$3 PER ANNUM

for each name, will be received when ten or more persons co-operate in sending us their cash in advance. Don't hesitate. Forward your own individual subscription. No one knows the real value of the PRESS until they read it. Use your copy of the paper to induce others to subscribe, (if you like it yourself), and in subsequent remittance for a club, we will allow you the difference first paid above club rates.

DEWEY & CO., Publishers.

Dec. 5th, 1870.

VICK'S FLORAL GUIDE For 1871.

THE FIRST EDITION OF ONE HUNDRED AND FIFTY THOUSAND copies of Vick's Illustrated Catalogue of Seeds and Floral Guide, is published and ready to send out—100 pages, and an Engraving of almost every desirable Flower and Vegetable. It is elegantly printed on fine tinted paper, illustrated with Three Hundred fine Wood Engravings and Two beautiful

COLORS PLATES.

The most beautiful and the most instructive Floral Guide published. A GERMAN EDITION published, in all other respects similar to the English.

Sent free to all my customers of 1870, as rapidly as possible, without application. Sent to all who order them for Ten Cents, which is not half the cost. Address

JAMES VICK,
Rochester, N. Y.

LICK HOUSE.

GRAND

MASQUERADE BALL TICKETS,

FOR

Wednesday.....Dec. 23th.

NOW READY FOR DELIVERY.

24-3t

JOHN M. LAWLOR & CO.

O. J. KING, T. B. KIMBALL, P. D. CODE,
P. D. CODE & CO.,

MANUFACTURERS OF

JELLIES, JAMS, PRESERVES, PICKLES,
KETCHUP, SAUCES,

Canned Fruits and Vegetables of superior quality.

621 and 623 Front Street,
Between Jackson and Pacific, San Francisco. [16p]

[ADVERTISEMENT.]

Interesting Fact for Farmers About Ramsdell's Norway Oats.

The New York Tribune, after giving a concise history of the these oats says: "Believing that we could not confer upon the agricultural community a greater favor than by ascertaining the production of this grain, we requested Ramsdell & Co., to furnish us with the original letters from the farmers in different parts of the country, who have grown them during the past year; a request which was cheerfully complied with: After some weeks of careful examination of this voluminous correspondence, we have satisfied ourselves of the genuineness of these letters. They are from farmers residing in every part of the United States.

By adding up the results in many hundred cases where the rate per acre was distinctly stated, we have found the average to be *seventy eight bushels* to the acre. The average yield of the ordinary oat, during the past five years, as estimated by the Commissioner of Agriculture, is from thirty to thirty-two bushels per acre. An examination of the correspondence from which this table is prepared, goes to show that the straw of this variety is more nutritious than common oat straw, and we recommend it as a valuable addition to what we now have for early feed in green soiling cattle.

Beware of Spurious Seed.

Nearly or quite all the unfavorable reports which have come to the ear of the public with regard to these oats, have been due directly to spurious seed; the high price that the Norway oat bears, operating as an inducement to swindlers. Buy no seed unless genuine. See below from whom and how to get it in this city.



PRICES.

By mail, postage paid, 2 lb. packages, 75 cts.; 5 lbs., \$1.75. By express (not prepaid), 16 lbs., \$4; 32 lbs., \$7.50. In large quantities at still greater reduction.

CLUBS.—We advise parties desiring to buy small quantities only, to unite with their neighbors in a joint order, making the cost less for cash.

OUR AGENTS will receive orders for these oats on the above terms.

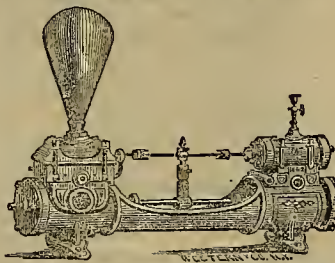
CLUBBING WITH THE PRESS.—Until Feb. 1st, for a club of ten or more, cash in advance, subscribers for the PRESS, at \$3 each per annum, we will furnish the getter up of the club (for his own use or distribution) one lb. of Ramsdell Norway Oats for each name; or 1 lb. for each name and \$4 for a less number than ten subscribers; and if the club is afterwards increased to ten, we will credit the amount paid over \$3 each on receiving subsequent remittances.

For these Oats, in large or small quantity, send direct to the Pacific Rural Press office, 414 Clay St., San Francisco, DEWEY & CO., Agents.

Pacific Insurance Company
No. 422 California St.,
San Francisco.
Cash Assets \$1,750,000.
Fire and Marine Insurance.

J. HUNT, President.
WM. ALVORD, Vice-President.
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KNOWLES' PATENT STEAM PUMPS.



Seldon's Steam Packing for Stuffing Boxes. All kinds new and second-hand Machinery in stock and supplied.
No. 9, First Street, near Market, San Francisco, Cal.
23v21-3qsl6p

PAPER-BOATS.

Have been rowed by the winners of NINE races since their introduction in 1868. In January next, will be published our ILLUSTRATED CATALOGUE AND OARSMAN'S HANDBOOK FOR 1871, which in addition to containing fine wood cuts of our boats and latest improved models, will give

A complete list of all the Boat Rowing and Sporting Clubs in the U. S. and Canada, besides much other information of interest to oarsman. Every one interested in boats or rowing should have a copy. For catalogues, circulars and price list, address
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Vessels, Apparatus, Sheet, Wire, Etc., Etc.
For all Laboratory and Manufacturing Purposes
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Platinum Scrap and Oro purchased. 5v20-1v16p1

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Arthur.....	5 00	Year, Month, or Number.
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Harper's Weekly....		
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RIDER'S Automatic Cut-off Vertical Engines

Manufactured by the
Albany St. Iron Works,
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References on application. E. E. ROBERTS & CO.,
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San Francisco, Saturday, December 24, 1870.

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Number 26.

Farming Edition.

Bucket-and-Plunger Steam Pump.

On account of the care necessary in using direct-acting steam pumps, many attempts have been made to produce a fly-wheel pump which should be capable of being manufactured as cheaply as the common ones. One of the latest attempts, which is claimed as a success, is hereby illustrated, and with it we give the description furnished us.

The inventor, Mr. William Wright, has had a very considerable experience in the matter of pumping engines, and has made certain improvements which have been introduced into the Hartford, St. Louis, and Brooklyn engines. In the machine illustrated, he has produced a vertical steam pump composed of the parts of a simple slide-valve and eccentric steam engine attached in a novel and compact manner to a bucket-and-plunger pump, which discharges water at both strokes of the piston.

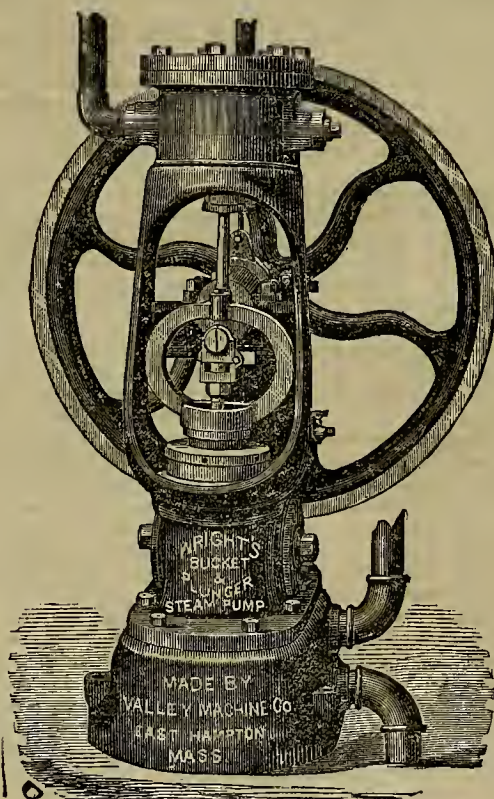
The cylinder of the pump is directly beneath the steam cylinder. The piston-rod is connected, in the manner shown, with the trunk of the pump-piston, at whose lower end is pivoted the pitman connecting with the crank-shaft, this latter operating by a suitable device the slide-valve of the steam chest. The outlet-valve communicates with a chamber above, and this connects with the air-chamber at one end, and, at the other, with that part of the pump cylinder above the piston. The outlet pipe is at the bottom of the air-chamber. These parts are so arranged that the pump operates as follows:

The several channels or passages being full of water, and the plunger or pump piston being at its upward stroke, the water entering through the induction-valve will of course have filled the pump-cylinder below the plunger, while water that had previously entered the pump cylinder above the piston from the chamber over the outlet-valve, will be forced back into the same; this being only equal in quantity to one-half of that drawn in through the induction-valve during the upward stroke of the pump-piston, owing to the reduced area of the upper annular face of the plunger as compared to the lower face of the latter. This water from above the pump-piston, passing through the intermediate chamber, to the air-chamber, escapes therefrom to and through the outlet-pipe at the bottom. On the return or down stroke of the plunger, the water under the same in the pump-cylinder is forced—the inlet-valve closing—up through the outlet-valve into the chamber above, from which one-half of the water thus drawn in by the up-stroke passes into the pump-cylinder above the piston, while the other half is forced into and through the air-chamber to the outlet-pipe. It will thus be seen that the pump, although drawing in water only during its upward stroke, discharges it during both the up

and down stroke, one-half the entire quantity being expelled at each.

The pump is manufactured with special reference to simplicity and ease of repair. The water-valves, which are of either metal or rubber, are placed, in such position that access can be had to them by the simple removal of bolts, and without disturbing any of the pipes; the bearing surfaces subject to wear are either lined with Babbitt metal or fitted up with adjustable boxes, so that the wear can be taken up easily, or the bearings replaced at very little expense. These pumps are made by special machinery, and with uniformity of workmanship, which allows of any part being quickly and cheaply replaced when worn out or

THE SAN JOSE BEET SUGAR PROJECT.—The committee appointed at a meeting of the citizens of San Jose to investigate the Alvarado Beet Sugar Enterprise have made their report, upon the strength of which a company has been duly organized for the purpose of establishing a Beet Sugar factory in that city. The capital stock has been fixed at \$200,000, divided into 2,000 shares of \$100 each. W. C. Wilson, Tyler Beach, L. Archer, J. Q. A. Ballou and C. H. R. Page have been appointed a Board of Trustees to manage the concerns of the company for the first three months. The books of the company will be at once opened for subscription to the capital stock. It is to be hoped that the enterprise will not be sl-



WRIGHT'S PATENT BUCKET-AND-PLUNGER STEAM PUMP.

broken by accident. They are manufactured solely by the Valley Machine Company, East Hampton, Mass. They are made of all sizes, from the smallest boiler-feeder to large pumping apparatus for supplying towns with water, and for use in mining and similar operations.

COAL MINE ON FIRE.—By a telegram from Medicine Bow, Wyoming, dated Dec-20th, it appears that the Wyoming Coal company's mine, at Carbon Station, has been on fire for about two weeks, and became untenable on the 18th inst, when a number of explosions occurred, doing considerable damage. The fire was still raging and "there is no possibility of extinguishing it, since the whole town was supplied with water which came from the shaft."

lowed to flag; but will be carried forward to an early accomplishment for San Jose, what the Alvarado enterprise has done for that locality.

We may state in this connection that we shall give, in our next issue, some important particulars with regard to a new and improved process for extracting the saccharine matter from beets, which has recently been most successfully introduced into a large number of beet root sugareries in Germany, and by which both the cost of machinery and expense of manufacturing has been greatly reduced.

COAL SPECULATION.—It would appear that certain parties in this city have obtained control of every pound of coal here, and the consequent rise in price is very hard on the poorer classes.

U. S. Land Commissioner.

The reports continually multiply that Commissioner Wilson of the Land Office is to be removed from his position. It may be that these rumors are set afloat by designing persons without any real authority; but removal from office to make room for some politically inclined individual is so possible now-a-days, and this particular removal would be so injurious to the interests of a very large part of the population of our western coast, that we cannot refrain from another expression on our feelings of the subject.

Commissioner Wilson has filled his position in a most acceptable manner. There are but few government officers, as far as our knowledge goes, who have shown on all occasions so obliging a spirit and so full an acquaintance with the subject in question. Wherever there has been any uncertainty on any particular point in land matters, it has only been necessary to address an enquiry to the Commissioner, who has always proved himself ready and capable of giving a full, direct and satisfactory answer.

Commissioner Wilson has grown old in his position. He has worked up from the lower grades and has become acquainted with all the details of the office. We believe that consequently there can be but few who know an equal amount concerning land matters; and these land matters are now especially of the highest importance. They are being gradually shaped into form, and the substitution of another Commissioner will be very apt to introduce confusion and disorder.

We have never seen Mr. Wilson and know him only by his acts. But we believe that a better man can not be found for his position, and that it will be exceedingly difficult to discover one as good. As reward for honest and long-continued discharge of one's duty seems to be an unsupposable thing in government dealings, we say nothing now, although thinking considerable. But we protest against directly injuring the interests of the people for the pleasure of politicians; and removing the present Commissioner cannot be otherwise than an injury to our community.

NEVADA METALLURGICAL WORKS.—Messrs. Riotte and Luckhardt, both well known to many of our readers as gentlemen of the greatest experience and ability, have started an establishment, in this city, for assaying and treating ores. They are prepared for making working tests by any process, and guarantee returns. We can recommend them to the attention of our mining readers.

A BOSTON NOTION.—We see noticed a device by which a pair of runaway horses may, by a simple movement of the driver's foot, be instantly released from the carriage and permitted to go their way; leaving the occupants quietly sitting in safety, and serenely contemplating the fleeing crowd in front.

Communications.

IN THIS DEPARTMENT we invite the FREE DISCUSSION of all proper subjects—correspondents alone being responsible for the ideas they advance.

Notes of Travel in Colusa County.

[WRITTEN FOR THE PRESS.]

Colusa county is bounded by Tehama, on the north, Butte and Sutter on the east, Yolo on the south, and Lake and Mendocino on the west. It is about 60 miles in length by 45 in breadth. The western part, constituting about one-third of the county, being covered by the Coast Range, is hilly or mountainous; the balance is nearly all level, and will show as good average crops, (where cultivated) as any county in the state. The principal difficulty in this county is that ten or twelve capitalists own nearly the whole of it, and with but one or two exceptions (which I will mention further along in my letter) are buying more land, and refusing to sell except at exorbitant figures,—which policy, if persisted in, will depopulate the county. Colusa contains at present less than 10,000 inhabitants; while it has room for and will support well, a population of 50,000, allowing to each 160 acres of the now unoccupied (or at least uncultivated) lands.

Jacinto.

Jacinto is a small village situated on the west bank of the Sacramento river, some 15 miles nearly south of Chico (in Butte county), and 28 miles north of the county seat, Colusa. H. J. Glenn, Esq., owns, at and around this village, the largest tract of land, possessed by any one individual in this county. He holds in round numbers, 37,000 acres, 80 per cent. of which is good arable land, and is still purchasing. He re-lets to the Gupton Bros., and three other parties, a portion of this immense tract; and this last year they put in 1,000 acres of barley, which yielded 30,000 bushels, and 6,000 acres of wheat, which produced 138,000 bushels. Mr. G. employs himself about 20 men, and some 40 more are employed by his renters. He also has the farm stocked with 1,500 head of steers and oxen, 2,000 head of loose cattle and 125 head of horses and mules. This entire tract is enclosed, requiring over 100 miles of fencing. Next adjoining on the south, are the possessions of Mr. A. Montgomery. Very unlike his neighbor on the north, Mr. G., who buys all the land he can get, Mr. M. sells it. This latter named gentleman had at one time about 26,000 acres, but has sold to permanent settlers, until now his possessions amount to only about 9,000 acres, the southern boundary of which begins about 3½ miles north of Princeton and runs 4¼ miles north of that point. As an evidence of the prosperity and rise of real estate in this county, Mr. M. offered 10,000 acres of the above named tract in 1866 for the sum of \$5,000, or about 50 cents per acre, without a purchaser; for this he this year received \$6 per acre, and the land is now held at \$10. He will have this year some 3,000 acres in grain on the shares, for he farms none himself personally. Some pay him a portion of the crop; others a money rental; and to a number who were wholly without funds the seed and farming tools have been furnished. It is said of Mr. M. that he has done more to benefit the renters and small purchasers, than any other land owner in this county; none have been turned away who had a willing hand for work. The lands which he has sold have been delivered to the purchasers under similar conditions to suit their circumstances. Between himself, his tenants, and purchasers, this year 20 miles of board fence will be erected, which will cost an average of \$700 per mile.

Princeton and Vicinity.

Princeton, a thriving little village of about 150 inhabitants, is also situated on the west bank of the Sacramento river, 14 miles north of Colusa and at or near the center of what is known as the Larkin Children's Grant, containing 10 leagues of land granted them by the Mexican government. All of this has been sold to other parties, except 6,000 acres which is owned by Mr. Frank R. Larkin, who is showing a great public spirit here, and to whom this place owes at least one half its present improvements, consisting of a splendid grist mill, brick store, fine hotel and steamboat landing.

Boggs' ranch, about two miles south of Princeton, is the home ranch of Mr. John Boggs, and consists of about 6,000 acres of excellent land. Mr. B. is largely interested throughout this county, and, in fact, throughout the state. He has upon this home ranch

the finest brick farm house in the state, which cost some \$20,000 to erect. His out-buildings equal or excel any others in the county. He has about 4,000 acres under fence, and raised some 15,000 bushels of grain this year. The farm is stocked with 5,000 head of cattle, 1,000 head of hogs, and 200 head of horses; of the latter, some are the fastest upon our California turf. He has refused for his horse "Jerome", 5 years old, \$8,000. He is also the owner of "Latham", 5 years old, and the stallion "Black Bird," who beat all competitors at the last State Fair, is 7 years old, and is valued at \$10,000. Several others of less note are worthy of mention, but the usual apology will suffice, (i. e.) space and time.

Calden's Ranch, consisting of 2,400 acres of land, 1,000 of which is under fence, is owned by A. Calden Esq., and is situated 5 miles south of Princeton. Mr. C. had 400 acres in grain this year. It is stocked with some 700 head of hogs, and 60 head of good horses, among which is the stallion "Flying Morrill," valued at \$7,000.

Colusa.

Colusa, the county seat of this county, is situated on the Sacramento River, some 35 miles north of Knight's Landing, and 27 miles west of Marysville, and ranks among the prosperous agricultural camps of the state. Waterworks were erected here in May last by J. B. Cooke & Co., who have laid 6,700 feet of asphaltum and cloth pipe for mains (two, four, and six inches in diameter), and about 6,000 feet of iron sewer pipes, supplying 150 taps. The supply tank is 18 x 36 feet, and 7 feet deep, elevated 57 feet; the water is drawn from the Sacramento River by a Wilcox steam and water lifter of a capacity of 20,000 gallons per hour. Ten two-story brick business houses have been erected here during the past year, one of which, built by the Bank of Colusa County, cost \$20,000. This bank was organized and commenced business Sept. 15th, 1870. Its capital stock is \$200,000. A majority of the stock is held in the county, the balance by capitalists and bankers throughout the state. The bank is in good repute with the citizens, who feel very proud of its success. W. F. Goad is President and W. P. Harrington, Jr., is cashier.

The high rent of both business and dwelling houses is a matter of complaint here, and not a building is vacant. A large and commodious two-story brick school-house is now in course of erection, which will cost over \$10,000; also in course of erection is a new brick City Hall and Police Station. Jones & Gage own a fine flouring mill here, with one run of four-foot burrs for wheat, turning out 65 barrels of flour per day; also one run of burrs for corn, with about the same capacity.

Col. Geo. Hagar is considered one of the land men of this county, and still retains a portion of the "Jimeno Grant," which contains eleven leagues, commencing in the vicinity of Knight's Landing, in Yolo County, and running to some 7 miles north of Colusa; one company expects to spend some \$200,000 for reclamation purposes this winter on a portion of this same grant (which I will illustrate in my next). The town of Colusa is situated upon this grant, and, like many other towns in the state, has its conflicts about titles. Its site is also covered by the Colus Grant, owned by Col. C. D. Sample; and the legal war between these two Colonels is equal to the ancient war of the Roses. Judge S. C. Hastings, of San Francisco, owns about 2,300 acres of this Jimeno Grant, which is considered among the best in the county.

Ranches of the Plains.

McCune & Garnett own 5,600 acres of fine land which they re-let to Jacob Roderick & Bro. (2,600 acres), and to Wm. Ash (3,000). This tract is situated 10 miles south-west of Colusa. These latter named gentlemen are farming the same very extensively, using every implement that assists the farmer, from a gang-plow to a Hoadley engine. They employ from 12 to 25 men each regularly.

W. H. Williams owns 5,000 acres next adjoining as a stock ranch, 2,500 acres of which is under fence, and is stocked with 5,000 head of sheep and 100 head of cattle.

H. B. Turman Esq. is running the Pulsifer farm, situated 15 miles west of Colusa. It contains 2,200 acres, 1,200 fenced, 500 of which were in grain the present season.

Bear Valley—Sulphur Springs.

Bear Valley is a fine tract of land situated about 33 miles west of Colusa, in the high hills or mountains of this county. It is about 10 or 11 miles long, and from 1¼ to 3 miles wide.

Some 25 farmers and stock-raisers own and cultivate the same. The mail facilities are very meagre for this section. Colusa, 30 or 35 miles away, is the nearest post office; but I was informed that the government has consented to the establishment of a post office here, and another at the Oak Park ranch. At present each family in this section has to pay private parties from \$6 to \$12 per year for the delivery of their mail matter from Colusa once a week. The feeling now in this section is, if the government advertises for bids to carry the mails here, that bids will be put in as low as \$600 per annum for a weekly mail, or \$1,200 for one three times a week.

Sulphur Springs, 35 miles west of Colusa, has become an extensive place of resort for invalids. Two good hotels, situated one mile apart, and owned by D. P. Coon and W. Clark, are doing a good business. The hotel and bathing houses formerly owned by Wilber, were destroyed by fire some time since. The sulphur works, together with the prospecting for cinnabar in this vicinity will receive attention from me in a future article. The amount that has been sunk in prospecting for oil here I will agree to say nothing about. Knight's Landing and vicinity in my next.

L. P. Mc.

All About Montana.

[WRITTEN FOR THE PRESS.]

You may consider this letter, if you please, a postscript to my others from Montana. On reviewing what I have written, I see that one subject of the greatest importance to the territory has been passed by without sufficient notice; and although I have nothing particularly novel to say, yet my letters would be incomplete without special reference to the Northern Pacific Railroad.

This road, from Lake Superior to Puget Sound, must pass through the rich regions of Montana, whatever special route may be selected. The old plan was to run it more to the north, taking advantage of the lowest passes of the ranges below the British boundary line. One projected line crossed the Yellowstone at Coal creek, followed this river some distance, crossed the Musselshell River, thence down Deep Creek to the Missouri, crossed the Rocky Mountains at Lewis & Clarke's or Cadotte's Pass, proceeded down the Big Blackfoot to the Hell Gate, and thence ran down the Clarke's Fork of the Columbia, where it passes out of the territory. Another line was run down the Yellowstone to the Big Bend, over Bozeman Pass to the Three Forks of the Missouri, up the Jefferson to Wisdom River, through Deer Lodge Pass, down the Deer Lodge and Hell Gate Rivers to the mouth of the Big Blackfoot. The latest and, as it now seems, most probable route is that of the Snake River.

The distance from Puget Sound to Chicago is claimed to be some 550 miles less than that from San Francisco to Chicago. The engineering difficulties are said to be less and the country much better. Timber is abundant for fuel and construction along the line, there is water everywhere, coal of good quality is found, and the agricultural lands thus opened are extensive and excellent. There are, moreover, large mineral districts to be developed. Such a road would soon enable Montana to supply Chicago with the most excellent meats; at least, so think the ranchers of this splendid stock-raising country.

There is naturally considerable feeling between the inhabitants of the northern and the southern parts of the territory with regard to which is the best route for the railroad. I am free to confess that my engineering qualifications, as well as my knowledge of the difficulties and advantages connected with either line, are insufficient for me to give a judgment on the subject. But I do know that it is a matter of great importance to all parts of the territory to have the road built and equipped as soon as possible. It might, perhaps, on the whole, reasoning on general principles, be best to have the northern route selected, because otherwise the upper portions of Montana would be left at an unfair distance from any grand trunk line; and the southern portion could in any case form an easier connection with such lines, and would, in this case, be able to connect with both routes. But I do not care to participate to any extent in the discussion going on between the various districts. I imagine, moreover, that the company will act rather independently in selecting its route.

People say that this Northern Pacific Road

will deflect from the middle route the principal part of the Asiatic trade. The ocean currents are such that vessels from Asia, destined even for San Francisco, are compelled to make nothing up as far as Puget Sound. This is an important item for the company. But without this, I believe the capabilities of the country to be traversed are such that the line will soon pay fairly, if properly managed. Montana alone will bring to its aid immense resources. Settlers will flock to its rich agricultural lands; stock-raisers will have an immense market brought to their very doors; the miner will be able to obtain his supplies and forward his bulion at much cheaper rates. While diminishing the present prices, it will increase out of proportion the sales. Immigrants will go where a railroad runs, but will hesitate to venture long distances from the track of the iron horse. Capital will pour into the country as soon as travelers can know by personal experience of its true resources, and from north and south, from east and west, from mountain and plain, will come the busy hum of industry.

Thinking, as I do, that the speedy development of Montana depends to a very great extent on the early building of this road, I could not close my series of letters from the territory without saying a few words on the subject, even if these words should be considered commonplace repetitions.

W. H. M.

Submarine Torpedoes.

There is no subject of more immediate interest to engineers than the construction and use of submarine torpedoes. This is especially appreciated in England, where submarine engineering forms a distinct branch of instruction in the military service. The utility of devices of the class indicated is more likely to be proved, in the event of war, in the defense of harbors, and in such will not be confined to fixed torpedoes (as was the case at Charleston during the late war, and also at Sebastopol some years previous), but will include the employment of those capable of travel and guidance under water. It is evident that such an appliance striking an armored vessel below the plating would sink her as readily as an old wooden line of battle-ship would sink if struck between wind and water by a ten-inch shot.

At the first meeting of the third session of the New York Society of Practical Engineering, this variety of projectile was very carefully considered in a valuable paper by Mr. Robert Weir, late of the United States Navy, who described the construction of a new submarine rocket invented by himself, and tested in a series of practical experiments which were claimed to fully demonstrate the success and utility of the system.

His plan is to construct the torpedoes of thin, strong metal, making them in two parts,—the exploding shell and the propelling shaft or chamber. The shape of the shell is very much like a paraboloid conoid, rather long. This is filled with nitro-glycerine or gun powder, and a percussion cap is screwed upon the apex of the shell, forming a surface which will explode it when touching at almost any angle. The shaft or rear part is made tapering from the larger diameter of the shell to the rear, where there is a contracted opening. It is supplied with three keels or wings, at equal distances apart and on a true line with the axis of the torpedo. This shaft is ramed with rocket composition in the same way as rocket cases are filled.

The two parts are now screwed together, making a cigar shaped spindle. It is to be fired from below the water line from a guide or gun which is made with outboard and inboard valves. The outboard valve being closed, the torpedo is run into the gun, and a wooden sabot, with a hole in the centre of it, placed against its rear and fitting snugly in the gun. The projecting tube of the torpedo is supplied with a friction primer, which is carried through the breech valve by a wire. This valve is now shut and the outer valve opened, allowing the water to surround the torpedo in the gun to the sabot. The primer will ignite the composition and the pressure of gas acting against the sabot will force it with the torpedo out of the gun, when the sabot floats to the surface and the torpedo continues on its course propelled by the escaping gas like a rocket. Mr. W. thinks that these torpedoes would be excellent for harbor defense. Iron batteries stationed at intervals across a harbor's mouth and armed with these torpedoes would effectually close its entrance to an enemy. This paper created a very lively discussion in regard to the diabolic art.

We are pleased to learn that the Society is prospering and rapidly extending its influence. It has lately admitted a number of new active members, and among those on the list of honorary members may be mentioned Henry T. Brown, Gen. McClellan, W. P. Trowbridge, A. S. Hewitt and others.

Mechanical Progress.

PEAT FUEL FOR IRON WORKS.—The following is from the *Marquette Mining Journal*: "By far the most important enterprise, next to the development of our own mining interests, yet inaugurated, is the establishment of works for the preparation of *peat fuel* by the Lake Superior Iron Co. That peat fuel will prove better than either bituminous, anthracite or even charcoal, many well informed men believe. At other points the experiment has been tried, and with complete success, showing a large percentage of saving in the cost of fuel, while the iron produced has proved of very superior quality. It is not only in the reduction of iron ores that the value of peat has been shown, but in the refectory, the puddling furnace, the reverberatory furnace, the cupola and the forge. The heat it evolves is intense, and when properly condensed, being of much greater specific gravity than charcoal, it will bear, not only a greater blast, but a greater weight of ore. Mr. Dudley, of the Fishkill, N. Y., Iron Works, where peat has been used, says the heat is increased perceptibly, the amount of flux is lessened, and they make iron much faster, with twenty-five per cent. less cost than charcoal or anthracite. Mr. May, of the iron company at Maysville, Wis., says they have been using peat successfully, and he prefers it to any other fuel."

"From these premises it is argued, that our inexhaustible peat beds can be to us what the coal fields of Pennsylvania are to the iron interests of that state. Marquette county alone will be able to supply peat to a hundred furnaces for as many years to come, and would ultimately become the great iron center of the country."

T. H. Leavitt, of Boston, writes thus to the *Iron Age*,—in reference to peat fuel: "For the production of car-wheel iron and steel rails, it is claimed, by practical men who are now investigating the matter, that it is destined to prove of special value. Also, for iron for bridges, or other works subject to great tensile strain. Peat fuel from Lexington, has been used for melting and regning ordinary pig iron, producing an article of malleable iron, which, when cold, could be bent and twisted in all manner of shapes, exhibiting an astonishing degree of toughness and flexibility. I have seen wrought iron produced from the ore, by peat, in Canada, said to be of the very highest quality, and equal to the best Swedish iron; have seen it bent, when cold, and doubled up without a crack or flaw, the edges remaining smooth and sharp."

SKILLED ENGINE DRIVERS.—A competition between fourteen agricultural engine drivers took place at the recent meeting of the Faversham (Eng.) Agricultural Association. Mr. Aveling made a speech at the dinner afterwards, in which he gave the results. We quote from that speech which we find in part in *Engineering*: "The engine used for the trials was a portable of 8 horse power, to which was attached a friction brake similar to those used by the Royal Agricultural Society, and carrying a load equal to a duty of 8 horse power. The brake was fitted with a self-acting counter to indicate the number of revolutions obtained by each of the fourteen. Each driver was furnished with 84 pounds of coal and 8 pounds of wood; the height of water in the boiler was noted, and the difference in level at conclusion of trial was calculated at the rate of 500 revolutions per inch. The oil used was also accurately measured, the lubricators being filled up before the commencement of the trial by the driver who had just finished his run. The best driver obtained 8885 revolutions of the brake, which was equivalent to a consumption of 82½ tons in 250 days; the worst driver obtained only 6733 revolutions, equivalent to a consumption of 104 tons of coal in 250 days; the difference being 21½ tons per annum, or a value of 21. 10s. The smallest quantity of oil used was 1 oz., equivalent to a consumption of 17 gallons in 250 days; while the largest quantity of oil used was 3½ oz., equivalent to a consumption of 65 gallons in 250 days, so that the difference was 43 gallons, or a value of 13l. 4s. The results were as follows: Saving of coal per annum, 21. 10s.; saving of oil per annum, 13l. 4s.; total, 34l. 14s. Besides this, it must be noted that in ordinary work the worst driver would show a much worse result in comparison with the best. He thought these were questions involving either economy or waste which, to agriculturists, were of great importance, and deserved far more attention than was generally paid to them."

STREET CARS PROPELLED BY COMPRESSED AIR.—The *Chicago Times* describes a trial trip of the "pneumatic" car in that city. "The car is like an ordinary street car except as regards the roof, which resembles that of a palace sleeping car. In this are placed four hollow tanks, of copper, brazed together, of sufficient capacity to hold 150 cubic feet of compressed air, and of sufficient strength to resist a pressure of 260 pounds to the square inch. These tanks are charged by means of an air force-pump worked by a steam-engine. Beneath the seats, on either side, at one end of the car are two cylinders precisely the same as those of a steam-engine, connected with the wheels by cranks. After the filling of the tanks, which occupied but a few minutes, the company was divided. The first load consisted of thirty. The car started about the same as one drawn by a pair of horses, and bowled along at the rate of six miles an hour. The pressure on the gauge at starting was 175 pounds. After passing up the track for a mile, the car returned, making the last mile in a few seconds less than 10 minutes, and the gauge indicated that only 30 pounds of pressure had been used. The car was reloaded, and went another mile and one-quarter, when the pressure became exhausted. The tanks were only calculated to hold sufficient air to propel the car three miles. The trial was pronounced to be entirely satisfactory by the railroad men present, and some of them were quite enthusiastic in their praise of the invention."

THE BOTHWELL FLUX.—The New Haven correspondent of the *Iron Age* says: "On the 25th Oct., at the Birmingham Iron and Steel Works, a pile of 140 lbs. weight, composed entirely of *old files*, no other article of scrap steel entering into its composition, was heated with this flux applied, and in the absence of a steam hammer, worked in an ordinary alligator squeezer, and then rolled into a bar of 26 feet long, and 1½ inches square. This product of one heat compared favorably with the average German steel. * * The superintendent of the New Haven Spring Co., in order to determine the relative cost of the flux to that of borax, weighed out twelve ounces of each. With the borax were welded 12 sets of spring heads, or 48 heads. Amount of borax consumed, 7½ ounces. Twelve other sets of heads, or 48 in all, were then welded with the Bothwell flux, consuming 7 ounces."

The Philadelphia correspondent of same says of this, Dec. 8th: "Even with the present demand for steel, this flux furnishes a means of economical utilization of an article (scrap iron) hitherto difficult and costly to manipulate, and will save to every works using steel in quantity ten times its cost. As a perfect substitute for borax in welding, and at one tenth its cost, it is now working perfectly in the shops of the New Haven Spring Co., and in Bridgeport, and is rapidly being adopted by the shops throughout the country. With all these processes, and the continued progress made we are safe in predicting that the day of cheap and superior American steel is at hand."

CARVING MACHINE.—London *Engineering* for Nov. 4th describes Jordan's machine for producing carved decorations for ceilings, etc., which has recently been greatly improved. The bed-plate has two rails upon which runs a frame which has rails at right angles to the first, upon which the table runs. The workman can thus by means of two hand wheels and a treadle bring any point of a pattern placed thereon under a "tracer," which being done, several copies of the pattern are produced, one for each chuck bearing material to be carved. The decorations for the House of Lords were produced by this machine; a work which Sir Charles Barry said would have been impossible without it.

MACHINE KNITTING.—A single factory on the line of the New Haven Railroad, belonging to a New York house, employs 400 hands and represents a capital of \$200,000. It turns out more work than can be done by 7,000 hand knitters. All kinds of ornamental work can be done as well as by hand.

MANUFACTURE OF FIRE-ARMS.—The Winchester Repeating Arms Company made one single shipment to New York, from their works in Bridgeport, Conn., last week, of 3,500,000 cartridges, and over 6,000 guns. The company have an order for 1,000,000 more cartridges, to be filled in two weeks. They have just received another large order for their guns.—*Iron Age*, Dec. 8th.

Scientific Progress.

THE "CRITICAL POINT" BETWEEN THE LIQUID AND GASEOUS STATE.—A late number of Prof. Wurtz's *Chemical Repertory* gives a brief report of a meeting of the N. Y. Lyceum, from which we quote: "Prof. Seely explained his views regarding the recent wonderful discovery of Andrews, in experiments on liquefied carbonic acid, but applicable to volatile substances generally,—of a critical point of temperature for each substance, under sufficient pressure, at which its vapor occupies appreciably the same volume as the liquid, and at which there exists an intermediate condition between liquid and gaseous, and where small increase of temperature converts wholly into gas or vapor, and small decrease into liquid, without appreciable change of volume. Prof. Seely thought that the new fact could have been predicted from already known facts; namely from the observation of Regault that the latent heat of steam decreases about three degrees centigrade of rise, so that he calculated that at about 1700° C. we should have, in the case of water, a point, at which steam has no latent heat, and behaves merely like a gas. This he considered to be the critical point. Prof. Hyatt recalled in this connection, the old experiments of Cagniard de la Tour, who deduced from his results that the point at which water, as he supposed, remained liquid under sufficient pressure, was as low as a red heat, therefore much lower than Prof. Seely's calculation. Prof. H. Wurtz remarked that in the Sept. and Oct. nos. of the *Bulletin de la Société Chimique*, recently received, one of the Editors, M. Salet, points out that Drion, in the cases of chloride of ethyle at 170°, and sulphurous acid about 140°, had ten years before indicated precisely similar phenomena to those supposed by Andrews to be entirely new. This does not, however, detract from the fame of Andrews' discovery, no doubt made without knowledge thereof."

NORTHERN DRIFT IN NORTH WESTERN AMERICA.—Dr. Robert Brown, F. R. G. S., disputes, in *Silliman's Journal* for November, the general theory of the absence of this drift, giving as proof, the existence of boulders and rock-scratches. We quote briefly: "I combat this theory with extreme diffidence, knowing well from old experience the care and caution with which Prof. Whitney has proceeded in his remarkable geological survey of California, as well as in his earlier work on the shores of Lake Superior. * * As far as Alaska and California, and even Oregon and Washington Territory, are concerned, I must leave the question of glacial remains within their bounds, to observers more intimately acquainted with their country than I am, though I have a strong inclination to believe that what I say about other portions of the Pacific coast will hold equally good regarding them also. But with the coast of British Columbia and the whole of Vancouver Island I am very intimately acquainted, and can speak positively regarding the marked presence of true Northern Drift there; so that with every respect to the opinion of so distinguished a geologist as Prof. Whitney, I am compelled to dissent from his theory regarding the entire absence of glacial remains proper, from the Pacific slope of the Rocky Mountains."

THE NORTH POLE EXPEDITIONS.—Herr von Heuglia and Count Zeil, of the German Expedition, explored East Spitzbergen from July 15th to Sept. 15th. Herr A. Petermann, in a brief paper giving the main results of the expeditions of the present year says:—"Herr von Heuglia and Count Zeil have now discovered, 36 nautical miles to the east of Spitzbergen, a continent, extending from 79 deg. to 78 deg. N. lat.—therefore, from north to south, at least 60 (German) miles—which contains numerous sharply-pointed peaks, and which, in case it is really connected with Gillis Land, might at least equal Spitzbergen in size." This is claimed as the most important polar discovery that has been made for some years. Herr Heuglia has brought home with him from East Spitzbergen fourteen chests of geological, zoological, and botanical specimens. Herr Petermann announces that the Russian Expedition, which has been accompanied by the famous academician, Von Middendorff, has prosecuted interesting scientific researches between Novaya Zemlia and Iceland. Among other things, it is said, he has identified the Gulf-Stream as far as Novaya Zemlia at the very considerable temperature of +10 deg. Réaumur.

AURORA BOREALIS.—The following abstract of a paper upon this subject read before the American Association by Dr. Bradley of Jersey City is from the *American Chemist*: "Aurora Borealis is claimed to be one of the phenomena appertaining to atmospheric electricity which is caused by evaporation from the ocean. The evaporation of distilled water produces no electricity, but if the water contain an alkali or a salt, even in small quantity, there is chemical disaggregation, and the vapor is positively, while the solution is negatively, electrified. The average evaporation from the ocean equals about nine feet of water per annum. This reduced, gives the enormous amount of more than 2,000,000,000 tons per minute, consequently the vapors of the atmosphere, as a whole, are positively, while the earth and ocean are negatively electrified, and electrometers have shown that the higher we ascend, the more positive is the tension. According to the testimony of all observers, aurora borealis is always attended by a peculiar haze or veil, which, although allowing the light of the stars to pass, gives the sky a sombre aspect. This haze is now known to be composed of fine transparent icy needles. When such haze or particles of ice are precipitated from vapor highly electrified, the electricity becomes free and luminous. It is concluded, therefore, that the aurora arises from the electric discharges, which take place between the luminous icy particles which, in infinite numbers, communicate with the earth or moist air below."

COINCIDENCES OF COAST LINES AND MOUNTAIN SYSTEMS.—At the late meeting of the American Association Professor W. C. Kerr read a paper on "A Point in Dynamical Geology," a notice of which we copy from the *American Naturalist* for December:—"This paper called attention to the agency of the sun as a probable and sufficient explanation of the well-known and remarkable coincidences of the coast lines, mountain systems and chains of islands,—nearly all the great "feature-lines" in the physiognomy of the globe,—with the arcs of great circles tangent to the polar circles; the exceptions being generally arcs of great circles perpendicular to the former; inasmuch as the sun oscillates about (within 1° of) a position ($\pm 23\frac{1}{2}^{\circ}$ declination), which is approximately parallel to the above system of great circles, for more than one quarter of the year; and all the solar influences, mechanical (tidal), thermal, electromagnetic and chemical, being in full play for this long period, about this great dynamical plane which separates the luminous from the dark hemisphere, could not conceivably have failed to exercise a profound influence in outlining the rising ("becoming") features of the globe in its plastic and formative state. Similar considerations are applicable to the lunar influence, which was cumulative in the same direction."

DETECTION OF SULPHUR IN COAL GAS.—M. Ulex gives the following method: Let a platinum basin be filled with half a litre of water, and the basin be heated over a Bunsen burner until all the liquid has evaporated; the basin will be found to be coated, on the outside, where it has been struck by the flame, with a dirty, greasy-looking substance, which, on being washed off with pure distilled water and tested, proves to be sulphuric acid. The author further points out that the glass chimneys used with Argand gas-burners soon become coated over internally with a white substance, which, on being washed off with distilled water, will be found to be, on testing, sulphate of ammonia. The glass panes of a room wherein gas has been burned for a few evenings consecutively will, when rubbed with the fingers of a clean hand, impart to it a substance which, on the hand being rinsed in distilled water, will yield a precipitate of sulphate of baryta with chloride of barium, and a brick-red precipitate with potassium-iodide of mercury.

THE ECLIPSE.—Nature says that "should the weather be favourable, we may expect such a series of observations as has never been made of an eclipsed sun. As at present arranged, there will be four parties. Beginning with Spain, we have one to Cadiz, in charge of the Rev. S. J. Perry, and one to Gibraltar, under Captain Noble. The English branch of the Anglo-American Expedition will be under the charge of Mr. Lockyer; while there will be a fourth small expedition, under the charge of Mr. Huggins, to Oran; the Cadiz, Gibraltar, and Oran parties will leave Portsmouth on the 5th of December in the *Urgent*. The Sicilian party will leave London on the night of the 7th by the Brenner pass, a ship of war meeting them at Naples."

AGRICULTURAL DEPARTMENT.

SUBSCRIBERS TO OUR FARMING EDITION will receive the first number of the PACIFIC RURAL PRESS, January 7th, instead of the SCIENTIFIC PRESS. We suppose that they will prefer that sheet, but if any do not, we will transfer their name back to the SCIENTIFIC PRESS list and send back numbers when requested.

California Fruit Crop for 1870.

The *Bulletin* of Tuesday last gives a tabular statement of the California fruit crop for the past year, made up from statistics furnished by leading dealers in this city. As this is the first attempt to tabulate this business, the paper making the attempt acknowledges that the work has been very imperfectly done. For instance the grape product of the state is set down at less than 6,000 tons, which amount would scarcely produce one-fifth of the estimated wine product of the state, to say nothing of the immense quantities of this fruit which is consumed in its natural state. The grape crop has undoubtedly reached at least five times the amount set down, or 30,000 tons.

Still the details as given in this table are very interesting, and probably approximate quite near the truth with regard to the other fruits enumerated. Twenty-one varieties of fruits are named; and it appears that apples, apricots, cherries, grapes, peaches, pears and plums are raised in nearly every county in the state. Our Blackberries are chiefly from Alameda, Napa, Sacramento, San Joaquin, Santa Clara, Solano and Sonoma counties. Alameda and Santa Clara counties send us nearly all our currants. The best Fig counties are Sacramento, San Joaquin, Sierra, Solano and Yuba counties. The same counties also furnish us with the bulk of our Nectarines. The counties producing the largest quantities of Prunes are Alameda, Placer, Sacramento, Santa Clara, Sierra and Yuba. Our supply of Raspberries is chiefly due to Alameda and Los Angeles counties. Santa Clara is the banner county for Strawberries, the yield there being nearly 75 per cent. of the total product. Most of the Quinces raised come from Los Angeles, Santa Clara and Yuba counties. Nearly all the Oranges, Lemons, Limes and Citron, produced in the State are raised in Los Angeles county, while all the Cantaloupes and Watermelons are furnished by Sacramento county. The Gooseberry crop is light, scarcely reaching 100 tons, and Alameda probably raises more than any other county in the state.

It is safe to say that nine-tenths of all that is raised except grapes, seeks San Francisco for a market, and that at least one hundred tons of the quantity sent here decays or is otherwise wasted before it passes into the hands of consumers.

The aggregate value of the fruit raised in the state is set down in the table referred to at \$2,371,612. Twice that amount would probably be much nearer the correct figure. The table, as given, however, is valuable if for nothing but to call attention to the great importance of the fruit interest of the state. The consumption of fruit on this coast is increasing every year, and in a much larger ratio than the population. This fact, in connection with the improved demand for our home dried and preserved fruits, gives assurance that this great interest will be still more appreciated hereafter, and more fully and profitably developed.

A VALUABLE GATE LATCH.—A student in the Michigan Agricultural College has invented a gate latch for which he received \$10,000.

Cotton in California.

The letters which have recently been published by Col. J. L. Strong, on cotton raising in California, appear to be attracting an annual amount of attention throughout the State, and the fact that he is making preparations to plant 800 acres on his own account, the coming season, coupled with his known experience in cotton planting in the Atlantic States, and the extended experiments made by his brother in this State, affords abundant evidence of his confidence in the business. While it is possible that some of his calculations may be rather overdrawn, he has certainly presented sufficient data to warrant limited experiments in all those portions of the State where the soil and climate appear to be favorable to the undertaking. The costs of such experiments will be but trifling; while the possibilities of success are quite sufficient to warrant even much larger outlays than are required.

Notwithstanding the large scale upon which he proposes to enter upon the business himself, he does not advise those unacquainted therewith to do more than merely experiment, for the first year or two.

The raising of cotton requires actual, personal experience, and mistakes must unavoidably be made at the outset. If the enterprise is a large one such results will be likely to end in discouragement; while if it is undertaken on a small scale, the lesson taught by a failure may lead to certain and profitable success.

The idea thrown out by a cotemporary that the present excitement has been set on foot in the interest of a cotton seed speculation is not borne out by the facts in the case. No extravagant price is demanded for the seed, and the limited sale to be expected leaves no room for any money to be made in that direction.

Col. Strong is not a visionary man; but an experienced, practical cotton planter, and a very intelligent gentleman. He has passed through the experimental field in this State, through the agency of his brother, J. M. Strong, of Merced county, and has now come hither with the view of entering largely upon the business himself, and of introducing it into the state generally. With this end in view he will make California his future home, and is willing to impart to all who may desire to experiment in Cotton Culture, all the information that may be necessary to such undertaking. The Colonel has promised us a series of articles on the culture of Cotton, the publication of which we hope to commence at an early day. They will appear in both the SCIENTIFIC PRESS and in the PACIFIC RURAL PRESS, and will contain all the information needed to enable a person unacquainted with the business to institute a series of experiments, which will lead to a full and practical knowledge of the same.

A MARIN COUNTY DUCK RANCH.—Mr. Hugh McKennon has a duck ranch in Bolinas, Marin County, where he is now feeding about 2,500 of these birds. He has a very complete arrangement of buildings, pens, etc., for his flock. The ducks have constant access to a large pond of fresh water, and also to a part of Bolinas Bay. He sends during the egg season, an average of 1,050 eggs per day to this market, down to 250, as the season falls off. The ducks consume an average of 55 tons of the best wheat, during the year, and he is constantly renewing his stock by selling the old ones and raising young ones.

VALUABLE COW KILLED.—On Friday of last week a valuable Durham, thoroughbred cow, belonging to Dr. Holden, of Stockton, strayed from her inclosure and was run over and killed on the Northern Pacific railroad. She gave from 30 to 32 quarts of milk daily the last grass season, and was valued at \$400.

Agricultural Suggestions, Etc.

FROM OUR CALIFORNIA EXCHANGES.

[We propose to collect and give, from week to week, in the form of extracts and condensed paragraphs, the cream of such agricultural advice and remarks as we may find in our California exchanges. Such information, coming fresh, and generally from practical minds, cannot be without interest and value on this coast, where the conditions of farming are so diverse from those to which we have been accustomed in the Eastern States—and where we must consequently build up a new school of experience. Let us learn of one another.]

"That's What's the Matter."

The *Vallejo Recorder* says:—"The State, to be prosperous, must have her fields cultivated. They cannot be cultivated when they are held in the hands of monopolists. They are not likely to be properly improved unless the title is in the occupant. The high prices and the uncertainty in the titles, and the policy of keeping the grants in the hands of a few individuals, have injured our State more than all other evils combined. If there is anything that should be distributed among the people, it is the land of the country. Nature has so ordained that to bring forth a varied production the land must be divided into small tracts. Any people who pursue a different policy will be sure to experience its blighting effects, as we have done. All our natural resources, and gold in our mountains, have not been sufficient to overcome the bad land policy. Our cities have been at a stand, if not retrograding, during the last two years. They will continue to stand still, or grow less, so long as cheap land can be had in the Mississippi plains and we continue our bad policy. We will become prosperous when ever we can insure the immigrant that he can get good land, at a reasonable price, and be certain of his investment. Not until then."

Improved Tillage.

Every intelligent farmer will unhesitatingly admit that the system of tillage practiced in California is the most miserable in the world outside of countries where the people are wholly enlightened. The plan followed is to get the seed into the ground by the most hasty and inexpensive method possible, and then let nature take its course, and if a crop is obtained, well and good, and if results prove adverse to hopes and expectations, the seasons are charged with the failure, and sermons preached about the precariousness of agricultural pursuits; whereas, in fact, the sure road to success is that of deep and thorough tillage, a path in which but few appear inclined to travel. The farmer who merely scrapes the surface of his land year after year and continually raises the same kind of crop, has no right to expect a good yield, and a light gathering of grain on the harvest field may only be considered the legitimate reward for the efforts used in assisting nature. Land, like animated nature, can be exhausted; and it is simply nonsense to expect one or two inches of the soil on the surface of the land to produce a paying crop of wheat or any other cereal for a series of years in succession. Repeated shallow plowing has the effect of making the sub-soil as hard as a street pavement and utterly impervious to the small, thread-like roots of grains and grasses; hence the superior crops produced on new lands for a year or two after they are first brought under cultivation. We believe that the dawn of sure and permanent prosperity in agricultural pursuits in California is not likely to become visible until such time as "small arms" come in vogue, and individual labor be confined to a more limited area of ground than is the practice at the present time. We have heard practical agriculturalists contend that it is only farming, or rather grain-raising on a large scale that can be made to pay; that a sum of not less than two thousand dollars is required to be invested in agricultural implements and harvesting machinery, and that no person farming on a small scale can afford to invest such amount. This difficulty could be easily obviated by several combining in the purchase and use of harvesting machinery, or expenditure in purchase altogether avoided, as is already the case in many instances, by hiring the use of a reaper and thresher. —*Stockton Independent*

Farm Improvements.

A correspondent of the *San Jose Mercury* makes the following sensible and timely remarks upon the importance of the character of our farm improvements:—"Many of us have heretofore been in doubt about the title to our land. No one likes to put fine improvements upon land which he may be dispossessed of at any time. Consequently our houses, barns, fences, etc., have been of the meanest and most shiftless kind. Our wives and daughters have been discouraged and disheartened; for, shanty keeping is not housekeeping. But

now a new order of things is established. Our titles are perfected and we can go ahead with confidence, and whenever we build improvements let these words be uppermost in our minds; beauty, convenience and durability. Let us have no more dingy wood-colored houses; no more tumble-down stables and splinter fences. But when we build a house let it be shapely, with high ceilings, and good large windows, to let in the cheerful sunshine of heaven. Let it be painted a cheerful color, and have in front a neat flower garden where our wives and daughters can spend each day an hour or two cultivating the beautiful things God has given us. People who live in pleasant homes are apt to be pleasant in disposition. And then the children—think what an influence for good it exerts over them."

Eastward Fruit Shipments.

The shipments of California fruit to Colorado, the present season, has aggregated 750 tons, made up of apples, pears, plums, grapes, etc. The aggregate value of the same is put down at \$57,000—this to Colorado alone. Nevada and Utah have also taken immense quantities.

The shipments to Chicago in "refrigerator cars" has also been very large, and been attended with much greater success than was met with the previous season. Notwithstanding the misgiving with which the inception of this business was attended, it now promises to open up an immense source of wealth to this State, especially when we take into consideration the vast increased population of the Sierras and the Mississippi river, and which must even depend in a great measure upon California for its supply of fruit.

There is very little danger of overdoing the fruit business in this State if due regard is had in setting out orchards and vineyards, to the kind and quality of fruit raised for the special markets, which it is intended to supply. It costs no more and requires no more ground to raise good fruit than it does to produce that of inferior quality; while the price obtainable for the former is often twofold that of the latter, with a sure and ready market.

A GOPHER ENCLOSED IN A TURNIP.—A farmer's wife, in Contra Costa, cut open a turnip, and found a gopher dead in its center. The little fellow had eaten its way into the turnip, which had taken new life and closed the hole, or else be laid in its way and it grew around him—one of the two—the farmer's wife says. At all events, that gopher won't go for any more turnips.

THE GRASS VALLEY UNION urges the importance of introducing Eastern trees and birds into this State. Of the former it thinks that black walnut, ash, elm, etc., could be cultivated here with profit; and that mocking birds would prove a good addition to our ornithological family.

FLAX.—The *Monterey Democrat*, learned from Mr. Blanshenship the other day that he will be one of a party of three who will seed in flax one hundred and fifty acres of the Santa Rita Rancho.

THE ENGLISH FRUIT CROP, for this season, says the *Gardener's Chronicle*, has been the largest known to the present generation.

THE FIRST SHIPMENT OF ORANGES, this season, from Los Angeles, was received here, the past week, by the Orizaba. It consisted of 57 boxes from the Wolfskill orchard.

VINICULTURAL SOCIETY ELECTION.—At the annual meeting of the Buena Vista Vinicultural Society the following named gentlemen were elected Trustees: William Blanding, Chr. Christianson, William C. Ralston, O. C. Pratt, Charles Baum, John Bensley, Charles Kohler, B. E. Myers and Walter M. Rockwell. The Board was subsequently organized by electing W. Blanding, President; C. Christianson, Vice President; Supervising Committee—O. C. Pratt, W. Blanding and C. Kohler. M. Philipp, Secretary.

What I Know of Farming—No. 47.

Large and Small Farms.

There is fascination for most minds in naked magnitude. The young colonel, who can hardly handle a brigade effectively in battle, would like of all things to command a great army; and the tiller of fifty rugged acres has his ravishing dreams of the delights inherent in a great Western farm, with its square miles of cornfields, and its thousands of cattle. Each of them is partly right and partly wrong.

There are generals capable of commanding 100,000 men. Napoleon says there were two such in his day—himself and another; and these generally find the work they are fit for, without special effort or aspiration. So there are men, each of whom can really farm a township, not merely let a herd of cattle roam over it unfed and unsheltered, living and dying as may chance; the owners expecting to grow rich by their natural increase. This ranching is not properly farming at all, but a very different and far sulkier art. I judge that the farmers who can really till—or even graze—several thousand acres of land, so as to realize a fair interest on its value, are even scarcer than the farms so capacious.

But there is such a thing as farming on a large scale; and it is a good business for those who understand it, and have all the means it requires. The farmer who annually grows a thousand acres of grain, and takes reasonable care of a thousand head of cattle, is to be held in all honor. He will usually grow both his grain and his beef cheaper than a small farmer could do it, and will generally find a good balance on the right side when he makes up and squares his accounts of a year's operations. I could recommend no man to run into debt for a great farm, expecting that farm to work him out of it. But he who inherited or has acquired a great farm, well stocked, and knows how to make it pay, may well cling to it, and count himself fortunate in his possession. But the great farmer is already regarded with sufficient envy. Most boys would gladly be such as he is; the difficulty in the case is that they lack the energy, persistency, resolution, and self-denial requisite for its achievement.

We will leave large farms and farming to recommend themselves, while we consider more directly the opportunities and reasonable expectations of the small farmer.

The impression widely current that money cannot be made on a small farm—that in farming the great fish eat up the little ones—is deduced from very imperfect data. I have admitted that grain and beef can usually be produced at less cost on great than on small farms, though the rule is not without exceptions. I only insist that there are room and hope for the small farmer also, and that large farming can never absorb nor enable us to dispense with small farms.

I. And first with regard to fruit. Some tree-fruits, as well as grapes, are grown on a large scale in California—it is said, with profit. But nearly all our pears, apples, cherries, plums, etc., are grown by small farmers or gardeners, and are not likely to be grown elsewhere. All of them need at particular seasons a personal attention and a vigilance which can seldom or never be accorded by the owners or renters of large farms. Should small farms be generally absorbed into larger, our fruit culture would thenceforth steadily decline.

II. The same is even more true of the production of eggs and the rearing of fowls. I have had knowledge of several attempts at producing eggs and fowls on a large scale in this country, but I have no trustworthy account of a single decided success in such an enterprise. On the contrary, many attempts to multiply fowls by thousands have broken down, just when their success seemed secure.

Yet, I judge that there is no industry more capable of indefinite extension, with fair returns, than fowl-breeding on a moderate scale. Eggs and chickens are in universal demand. They are luxuries appreciated alike by rich and poor; and they might be doubled in quantity without materially depressing the market. Our thronged and fashionable watering-places are never adequately supplied with them; our cities habitually take all they can get and look around for more. I believe that twice the largest number of chickens ever yet produced in one year might be reared in 1871, with profit to the breeders. Even if others should fail, the home market found in each family would prove singularly elastic of reception.

This industry should especially commend itself to poor widows, struggling to retain and rear their children in frugal independ-

ence. A widow who, in the neighborhood of a city or of a manufacturing village, can rent a cottage with half an acre of southward-sloping sunny land, which she may fence so tightly as to confine her hens therein, whenever their roaming abroad would injure or annoy her neighbors, and who can incur the expense of constructing thereon a warm, commodious hen-house, may almost certainly make the production of eggs and fowls a source of continuous profit. If she can obtain cheaply the refuse of a slaughter-house for feed, giving with it meal or grain in moderate quantities; and according that constant personal, intelligent supervision, without which fowl-breeding rarely prospers, she may reasonably expect it to pay, while affording her an occupation not subject to the caprice of an employer, and not requiring her to spend her days away from home.

III. Though the ordinary market vegetables may be grown on large farms, the fact that they seldom are is significant. Cabbages, peas, pole beans, tomatoes, and even potatoes, are grown on small farms, as they always have been. There are sections wherein no cash market for vegetables exists or can be relied on; and here they will continue to be grown to the extent only of the growers' respective needs; but wherever the prevalence of manufactures or the neighborhood of a great city gives reasonable assurance of a market, they are grown at a profit per acre which is rarely realized from a grain crop. No less than \$100 per acre is often, if not generally, achieved by the growers of cabbage around this city; and this not from rich, deep garden-mold, but from fair farming land, under-drained, subsoiled, and liberally manured.

The careless, slipshod farmer may do better—that is, he will not fail so signally—in grain cultivation; but there are few more decided or brilliant successes than have been achieved within the last few years within sight of this city, and wholly in the tillage of small farms.

I trust I have here said enough to show that there is a legitimate and promising field for agricultural enterprise and effort, other than that which contemplates the acquisition and rule of a township, and that, while farming on a large area is to many attractive and aspiring, there are scope and incitement also for tillage on a humbler scale—for tillage that permits no weed to ripen seed, and no nest of caterpillars to flourish a month undisturbed—for tillage that achieves large crops and profits from small areas, and rejoices in that neatness and perfection of culture attainable only in the management of small farms.—*Horace Greeley.*

SAN DIEGO VS. NICE FOR INVALIDS.—Nice, on the Mediterranean, having recently been recommended as a place of residence for invalids, a writer to a New York journal states that, having spent several months in Nice for the benefit of his health, he can verify all that has been said of that city. He, however, considers it important that the people of the United States who do not desire to visit Europe, should know that San Diego, California, is decidedly preferable to Nice as a residence for invalids. He says that during the past extremely hot weather at the North, the thermometer at San Diego only reached 83 degrees Fahrenheit, and then only for three quarters of an hour at mid-day. He states that there are no frosts at San Diego, the thermometer seldom falling below 50 degrees, while it usually ranges 50 to 55 degrees. Complaints of the chest and lungs, and rheumatic affections, it is asserted, rapidly disappear in the climate of San Diego, while fevers are unknown.

ANOTHER MULBERRY PLANTATION.—The Lower Lake Bulletin says Messrs. C. Hallin and G. Amery have purchased a tract of land near the Pike County House, in Napa County, where they will immediately set out 10,000 mulberry trees, preparatory to entering largely upon the business of sericulture.

SULPHATE OF AMMONIA FOR WHEAT.—An exchange says that sulphate of ammonia is used in England as a fertilizer, on crops of wheat and grass, and with good results. The demand for it for this purpose is growing rapidly. It has been found very profitable when applied to sugar cane and beet roots.

AGRICULTURE is a theme which must always be one of the newest and freshest in the world. "Age cannot wither it nor custom stale its infinite variety."

HORSES and cattle are dying in Fresno county from eating some noxious weed.

S. F. Domestic Produce Market.

SAN FRANCISCO, Thursday, P. M., Dec. 22d.
FLOUR—Is still in small demand for export; although the demand for local trade continues fair. We note no changes in prices from last week. Standard Oregon brands are quotable at \$6.37@6.50; local brands—superfine, \$5.25@5.50; extra \$6.37@6.50. An improved demand for China is expected as the result of advices from the China steamer which arrived Tuesday.

WHEAT—Is without change. Sales have aggregated about 45,000 sacks. We quote the range of all kinds at \$1.95@2.15; good to choice shipping, \$2.12@2.15; choice milling, \$2.15. Liverpool quotations came through Tuesday 11s 3d@11s 4d. New York rates remain unchanged—\$1.62@1.65 per bushel.

BARLEY—Is still in fair demand, and prices have remained unchanged during the week. We quote \$1.25@1.35, from fair to choice. Sales of some 28,000 sacks are reported.

OATS—The market still continues inactive. Fair to good may be quoted at \$1.32@1.60.

CORN—Has advanced to \$1.65½ @ 100 lbs for good yellow, at which figure the latest sales have been made.

BUCKWHEAT—Nominal at \$2.50@3 from the wharf.

RYE—In limited demand. The latest sale is reported at \$2.12½.

FEED—Remains with but little change. We quote HAY a little easier at \$10@15 from fair to choice; STRAW, \$7@9; BRAN, \$28@30; MIDDINGS, \$35@40 per ton; OIL CAKE MEAL \$28.00.

HONEY—In good demand at the following rates: Los Angeles, 5-gal cans, \$12@16, and Potter's, 2 lb do, at \$4½ dozen.

POTATOES—Market firmer for all descriptions. We quote common \$1.40@1.75; Sweet, \$1.62@1.75.

HOPS—This year's crop is still quotable at 10@12½c.

HIDES—We quote Dry, slaughter's stock, 17@18½c; Salted; 8½@9½c. Sales during the week 1422 Cal. dry.

WOOL—No transactions of importance to report. We quote good shipping, at 15@17c; very choice, 18c; burry, 10@12½; slightly do, 13@14c.

TALLOW—Quotable at 7½@8½c; the latter an extreme figure.

SEEDS—California Mustard, none in the market; Flax 3@3½c, Canary, 7@8c.

BEANS—Quiet at the following rates. Bayo at \$2.25@2.50; butter, \$2.50 for small, \$3 for large; small white and pink \$2.00; pea and red \$2.25 per 100 pounds.

FRESH MEAT—Beef in good supply with something of an advance in prices. We quote prices from slaughterers to dealers:

BEEF—American, 1st quality, 10@17c @ lb.
Do 2d do 8@9c @ lb.
Do 3d do 6@7c @ lb.

VEAL—From 9@12c.

MUTTON—Steady at 7@8c @ lb.

LAMB—8@10c @ lb.

PORK—Undressed at 5½@6½c; dressed, 8½@9½c @ lb.

POULTRY, ETC.—The market is well stocked, and prices unchanged. Spring Chickens, \$5@6; Hens \$7@8.50; Roosters, \$7@8.50; Ducks, tame, \$6@7 @ doz; do wild, \$2@3.00 @ doz; geese, tame, \$2@2.50 @ pair; wild \$1.75@3 @ doz; tame Turkeys, 17@19c @ lb; Hare, \$2.50 @ 3 @ doz; Doves, 50c do; Quail, \$1.25@1.50; Snipe, 75c do; do English, \$1.50 do. Venison, 8@9c @ lb.

DAIRY PRODUCTS—Rule lower; California Butter, Fresh, in rolls, 40@50c; ordinary, 32@40c; Irkin, 35@42c @ lb. Cheese is in fair supply—California, new, 12@14c, Eastern, 17c. Eggs, California fresh 42@50c; Oregon, 37½@40c. California Lard, 11-lb tins, 12@13½c; Oregon, 13½@14½c, according to package.

FRUIT—We submit the following prices, for which we are indebted to A. Lusk & Co.: Apples, per box, eating \$1.25@2; cooking, \$1@1.50. Grapes, per pound, native, 4@5; foreign, 10@20c. Pears, per box, eating, \$2@3; cooking, \$1.25@1.50. Strawberries, per pound, 15@20c. Oranges, per M, \$35@50. Lemons, per box \$4; per 100, \$4. Cocoanuts, per case, \$1@8. Pine Apples, per doz., \$9.

CASE GOODS—In 2 lb cans, per doz., Apricots, \$4; Apples, \$2.50; Blackberries, \$4; German Prunes, \$4; Grapes, \$4; Peach, table, \$4; Peach, pie, \$3; Pie, assorted, \$3; Plum, table, \$3.50; Plum, pie, \$3; Pears, \$3.75; Quince, \$3.50; Tomatoes, \$2; Table, assorted, \$3.75.

GENERAL MERCHANDISE.

AGRICULTURAL IMPLEMENTS—Have been in good demand since the late rains, and a good demand is expected to continue for the season.

BAGS AND BAGGING—Are in moderate request only, and will not be until the approach of the coming season. We quote wool bags at 50@52½c. Oat Sacks 23x40, 12½c; 23x35, 18c; Potato Gunnies, 24½@25c; imitation Dondees, 19@20c.

BUILDING AND FENCING MATERIALS—We quote wholesale rates to dealers: Redwood Rough at \$18; do Siding, \$22.50; do Surfaced, \$30; Fencing Pickets, \$30; Oregon Rough, \$17; do Flooring, \$27; do Fencing, \$18; Laths, \$3@3.25, and Redwood Shingles, \$2.75 @ M.

DRIED FRUITS—In moderate request. We quote the market as follows: Cal. Dried Apples, 5½c; Oregon do, 6½c; Langue de Almonds, 25c; Figs, Smyrna, 15@20c; Prunes, Hungarian, 14@16c, for old and new respectively, @ lb; Raisins, layer, \$4.50@5; Currants, Zante,

14½@15½c, for old and new; Citron, 40@42½c. **PROVISIONS**—The stocks of all kinds of Cured Meats are in fair supply, and a good demand continues to exist. We quote jobbing rates as follows: Hams, California, at 13@13½c; Oregon do, 16½@17c; Bacon, California, 15@15½c; Oregon do, 16½@17c; Lard, California, 12½@13½c; Oregon do, in kegs, 12½@13½c @ lb.

[ADVERTISEMENT.]

Interesting Facts for Farmers About Ramsdell's Norway Oats.

The New York Tribune, after giving a concise history of these oats says: Believing that we could not confer upon the agricultural community a greater favor than by ascertaining the production of this grain, we requested Ramsdell & Co., to furnish us with the original letters from the farmers in different parts of the country, who have grown them during the past year; a request which was cheerfully complied with: After some weeks of careful examination of this voluminous correspondence, we have satisfied ourselves of the genuineness of these letters. They are from farmers residing in every part of the United States.

By adding up the results in many hundred cases where the rate per acre was distinctly stated, we have found the average to be seventy eight bushels to the acre. The average yield of the ordinary oat, during the past five years, as estimated by the Commissioner of Agriculture, is from thirty to thirty-two bushels per acre. An examination of the correspondence from which this table is prepared, goes to show that the straw of this variety is more nutritious than common oat straw, and we recommend it as a valuable addition to what we now have for early feed in green soiling cattle.

Beware of Spurious Seed.

Nearly or quite all the unfavorable reports which have come to the ear of the public with regard to these oats, have been due directly to spurious seed; the high price that the Norway oat bears, operating as an inducement to swindlers. Buy no seed unless genuine. See below from whom and how to get it in this city.



PRICES.

By mail, postage paid, 2 lb. packages, 75 cts.; 5 lbs., \$1.75. By express (not prepaid), 16 lbs., \$4; 32 lbs., \$7.50. In large quantities at still greater reduction.

CLUBS.—We advise parties desiring to buy small quantities only, to unite with their neighbors in a joint order, making the cost less for cash.

Our Agents will receive orders for these oats on the above terms.

For these Oats, in large or small quantity, send direct to the Pacific Rural Press office, 414 Clay St., San Francisco, DEWEY & CO., Agents.

Farmers' Gardens.

There are many anomalous features and inexcusable defects in the system of agriculture as practiced in California. We shall endeavor from time to time and in the appropriate seasons to point out some of these defects and suggest the remedies, in hopes that by so doing we may induce a better, more thorough and economical system of farming, and thus bring more profit to individual farmers, and comfort and convenience to their families, as well as increased prosperity to the common wealth.

One of the most striking of these features and one that requires attention at the present time is the almost entire absence of vegetable gardens throughout the great grain districts of the state. In many of these districts one may travel hundreds of miles through flourishing wheat and barley fields, passing the residences of well-to-do farmers and not see a solitary vegetable garden worthy of the name.

Californians, as a general thing, are too apt to exert all their energies in a single direction and trust all their chances of success—all their hopes of a fortune to the throwing of a single die. Greatly to the disadvantage of our agriculture this one idea system of farming has absorbed the attention and monopolized the energies of our agricultural communities. Wheat and barley have been and are still too much the exclusive product of the state.

No agricultural country can be assured of an uninterrupted and continuous prosperity unless it produces as near as may be all the necessities of life. As our agricultural industries are now situated two or three seasons unfavorable to wheat and barley would render by far the larger portion of our farmers poor if not completely bankrupt. As it is with a state or large community so it is with smaller ones, or with individuals and families. Those who depend for a livelihood upon the products of the soil should endeavor to produce as near as may be all the varieties of food they consume. Especially should no farmer in this state be without a well tilled and well stocked vegetable garden. One-half acre well prepared, planted and cultivated in a good variety of garden vegetables will administer more to the real wants, comforts, health and happiness of a family and will save more money to its owner than ten acres devoted to wheat, barley or other ordinary field crops.

Again, the garden is the place for experiments. It should be miniature an experimental farm. The man who really becomes interested in and cultivates a good garden, will become a better and more intelligent and successful farmer. By degrees he is led to study more closely the nature and wants of the soil—the treatment adapted to different kinds of plants and by degrees he applies the lessons learned in the garden to all his farming operations.

The garden is also a great economizer and utilizer of a farmer's time. Suppose that every farmer in the state had at the present time a good vegetable garden attached to his home, how many hours in the aggregate, now wasted in idleness, would be turned to good account—and how many more necessities and luxuries would be enjoyed by the families throughout the agricultural districts. How many dollars, now worse than wasted in bar rooms, and at idle games would be devoted to rendering our rural homes, more comfortable, beautiful and attractive.

Again, the farmer who cultivates a garden must of necessity, and by his own experience, learn the important fact that his success does not depend so much on the number of acres cultivated, as upon the manner of their cultivation, and not so much upon the quantity of any one crop produced, as upon the excellence and variety of his crops. The almost universal neglect of vegetable gardens among our farmers may be set down as one of the principal causes if not the principal cause that operates against a more general or universal success of the agriculturists in our state. Strange as it may seem, many of our grain farmers buy almost every article of food consumed in their families from one year's end to another. All the beef, pork, mutton, or other meats; all the potatoes, cabbages, turnips, onions, beans, peas, tomatoes, and other vegetables; all the fruit, and even butter and cheese used

in their families for the year, are bought, and have to be paid for out of the proceeds of a single crop of wheat and barley. Thus is kept up a constant drain upon their purses, every day of the year, from the time that one crop of grain is sold until it is time to sell another—and in many cases this drain becomes so great that the proceeds of the grain crop have to be anticipated, and debts accumulate.

Then, under such circumstances, if the crop of grain fails, what is the condition of the improvident farmer? Too many have already stared this condition of things in the face, and too many have been thus compelled to reap the reward of this imperfect and reckless system of farming so prevalent in our state. As a counterpart to this want of farmer's or kitchen gardens in the country, we find many extensive and well-cultivated gardens clustered about every city and town in the state, so that our markets are as well if not better supplied with vegetables, the year round, than any other country in the world. Our vegetable dealers, in all our towns and cities, are among the most successful and prosperous tradesmen in the state, and anomalous as it may appear, yet it is a fact, that more of the wealth of these tradesmen has been gained from the profits on sales of vegetables to the farmers of the country than to residents of the towns and cities.

The country pedlar is an institution that may be met with the world over. He generally travels from house to house among the farmers, selling dry goods, tinware, Yankee notions, and things of a similar character. In California we have this same indispensable institution performing the same duties and supplying the same wants. But here we have also a country pedlar of another character—one, under the circumstances, more useful and indispensable to the agricultural or grain districts than the one above referred to. He is peculiarly a Californian institution. He is in fact the grain farmer's portable vegetable garden. He buys his vegetables of the dealers in the towns and cities and peddles them about the country. As he deals in articles that everybody in the grain districts wants and scarcely anybody produces, his business is a profitable and prosperous one. But the fact that his occupation is necessary is a scandal to California agriculture. And the fact that our farmers pay the professional gardeners a good profit on all the vegetables they consume, and then pay the dealer and pedlar their liberal profits for handling and conveying them from point to point, is anything but complimentary to the energy, enterprise and skill of the farmers themselves. So long as such a state of things is allowed to continue, so long will farming in California continue to be an uncertain, speculative occupation, instead of, as it may be, a sure, safe, reliable and profitable business.

We are aware that many farmers claim that, under the dry climate of California, vegetables cannot be profitably raised in the wheat growing districts of the state. We are also aware that but a few years ago the same doubt was almost universal in regard to the growth of small grains on these same soils. Time and experiment have fully controverted the latter doubt, and we firmly believe that a little more time and a little more experimenting will as fully controvert the former. We believe the defect is not in the climate nor yet in the soil; and in our next we will endeavor to show that our belief is well founded. We will also endeavor to point out to our farmers the time for planting and mode of cultivation necessary to be pursued in order to succeed in making good vegetable gardens in the grain raising districts, and thus secure to all good, fresh and healthy vegetables from their own grounds.

The Profits of Farming.

In resuming our remarks on the "Profits of Farming," we would premise that the surest guarantees of success therein are industry and frugality. More farmers fail in being what they wish to be, or in gaining what they want, from lack of these requisites, than from any other cause.

Industry and economy, coupled with judgment, constitute the best capital with which a young man can start in life. If he has money, he may lose it; but early, well-formed habits of industry will never fail him, and will always stand in the place of money capital. But it is indispensable that his industry should be guided by judgment.

In seeking a farm a man should carefully calculate his means, the available labor force at his command, (size and character

of his family, perhaps,) his past experience, if he has any; the relative positions of his farm and the market where he must dispose of the products which he proposes to raise, and various other contingencies which will always present ample scope for the exercise of judgment.

We have already shown what can be done in wheat culture; but for permanent success we should prefer diversified farming, which may be commenced on even a very small scale—in fact without any capital at all beyond the industry and economy already spoken of.

Profits of Poultry Raising.

An instance of success in this industry was recently brought to our notice, in which a poor man secured a good start in two years, with less than one hundred dollars to begin with. The case was that of an industrious German, who took up some government land within a few miles of Marysville, built a little cabin, purchased a few chickens and turkeys for a start, which were enabled to pick their own living among the bushes, while the industrious proprietor hired out to his neighbors when he could get a job, and cut wood on his claim when no work was to be had. In the meantime his chickens and turkeys grew and increased so that at the end of eighteen months, (covering the second spring and summer of his occupation) he had sold poultry and eggs to the amount of \$1,500 over and above what his fowls had cost for their keep. This was in addition to what he had otherwise earned by his labor, which was considerably in excess of what it had cost him to live. All this was the result of a little industry and economy. Moreover, his moderate capital of \$100 had increased to five or six times its original amount.

Our friend is in now in possession of sufficient capital to improve and cultivate his land, and to enter advantageously upon a diversified, or any other system of farming. There is room in the state for hundreds of others to do the same thing.

Garden Profits.

It is well known that many snug fortunes have been made by market gardening in the vicinity of our large cities. True, there is much hard work involved in this business—much more than in wheat growing, chicken raising, or in fact any other branch of farming; but when followed with judgment and energy it never fails to realize a large profit. We have no facts at hand of California experience—our Californians are quite too negligent in the detailed records of the profits of business—so we must go abroad for evidence; and we have it at hand, as given in a late number of the *Hearth and Home*, drawn from the experience of a Mr. Henderson, a gardener at South Bergen, New Jersey, who makes the following showing as his average for 10 years, from ground kept at the highest standard of production:—

Outlay on an Acre.

Labor, man and horse.....	\$335
Manure (75 tons).....	100
Rent of land, \$30 per acre.....	40
Wear and tear of tools.....	10
Cost of marketing.....	100
Total.....	\$605

Receipts from same Acre.

12,000 early cabbages 5c. each.....	\$600
14,000 head of lettuce 1c. each.....	140
30,000 head celery 2c. each.....	600
Total.....	\$1,340
Deduct outlay.....	605
Net profit.....	\$735

If such a profit can be derived from land that is bound up by frost half the year, what ought to be done where one crop can succeed another almost or quite the year round, as can be done in many localities in California?

The difference in the price obtainable for the products here and there is more than an offset for the excess in the cost of labor and interest or rent here—to say nothing about the advantages of climate. The facts cited are well worth consideration, and will serve as a basis upon which to make estimates for similar or other productions here.

It is held by good judges that in the vicinity of New York a fortune can be made in a few years on land which costs \$2,000 per acre! It does not appear from the data at hand that market gardening is overdone anywhere in California, nor indeed in any other part of the Union, nor will it be until the present cost of most vegetables and fruits are much reduced.

BEET SUGAR FACTORY FOR SAN JOSE.—

An informal meeting of citizens of San Jose was held at the office of P. O. Minor, on Saturday, Dec. 10th, for the purpose of taking preliminary steps for the organization of a joint stock company for the manufacture of sugar from beets. A committee of five was appointed to visit the Alvarado Beet Sugar Manufactory, and acquaint themselves as far as possible with the process of sugar making, the cost, profits, etc., and to report at a subsequent meeting. The following gentlemen were appointed said Committee: Tyler Beach, W. C. Wilson, W. S. McMurtry, C. H. R. Page, J. J. Owen and A. L. Boggs. An adjourned meeting to hear the report of the Committee is to be held on the 19th inst.

LEMONS FROM ALAMEDA.—A very interesting and suggestive display of native lemons has been made, during the past week, at the store of Star & Little, in this city. The lemons—250 in number—were picked from a tree in Alameda county, belonging to Mr. Hale. They are of uniform size and fine appearance, much superior to any that have been received from Los Angeles, and the fruit bears a closer resemblance to the Sicily lemon than any other lemon raised in California. The tree, says the *Bulletin*, has a pleasant bit of history. It seems that Dr. Hale's father preserved the seeds of a lemon he eat, while crossing the Isthmus, some fifteen years ago, and shortly after his arrival here planted them. The tree sprung from one of those seeds.

DEMAND FOR FARMING LAND.—The Castroville *Argus* says that there never was a time when the demand for land was so great in the Salinas valley as at present. Hardly a day passes without parties applying to business men for information as to where land can be found to rent, and the prospects of that section was never better.

The above remarks may apply equally well to nearly or quite every agricultural county in the State.

San Francisco Market Rates.

Wholesale Prices.		THURSDAY EVENING DEC. 22, 1870.	
Flour, Extra, 48 lbs.	6 10	42 50	
Do. Superfine.....	5 10	42 50	
Corn Meal, 48 lbs.	2 25	2 50	
Wheat, 48 lbs.	1 30	2 20	
Oats, 48 lbs.	1 30	1 55	
Barley, 48 lbs.	1 15	1 35	
Beans, 48 lbs.	1 15	2 10	
Peas, 48 lbs.	1 25	1 75	
Hay, 48 lbs.	10 00	41 50	
Live Oak Wood, 48 lbs.	10 00	42 10	
Sheep, 48 lbs.	2 00	2 50	
Hogs, on foot, 48 lbs.	6 00	6 00	
Hogs, dressed, 48 lbs.	7 1/2	8 1/2	
GROCERIES, ETC.			
Sugar, crushed, 48 lbs.	14 1/2	15 00	
Do. Hawaiian, 48 lbs.	9 00	12 00	
Coffee, Costa Rica, 48 lbs.	20 00	21 1/2	
Do. Rio, 48 lbs.	20 00	20 1/2	
Tea, Japan, 48 lbs.	65 00	1 00	
Do. Oolong, 48 lbs.	60 00	1 10	
Hawaiian Rice, 48 lbs.	9 00	10 00	
China Rice, 48 lbs.	9 00	10 00	
Coal Oil, 48 lbs.	40 00	70 00	
Candles, 48 lbs.	14 00	18 00	
Overland Butter, 48 lbs.	30 00	37 1/2	
Ranch Butter, 48 lbs.	40 00	61 00	
Indian Butter, 48 lbs.	25 00	35 00	
Cheese, California, 48 lbs.	12 00	17 00	
Eggs, 48 lbs.	40 00	50 00	
Lard, 48 lbs.	11 1/2	14 00	
Ham and Bacon, 48 lbs.	31 00	37 00	
Shoulders, 48 lbs.	9 00	10 00	
Retail Prices.			
Butter, California, fresh, 48 lbs.	50 00	65 00	
Do. pickled, 48 lbs.	40 00	50 00	
Do. Oregon, 48 lbs.	20 00	25 00	
Cheese, 48 lbs.	25 00	30 00	
Honey, 48 lbs.	25 00	30 00	
Eggs, 48 lbs.	40 00	50 00	
Lard, 48 lbs.	18 00	25 00	
Ham and Bacon, 48 lbs.	30 00	35 00	
Canberries, 48 lbs.	75 00	1 00	
Potatoes, 48 lbs.	2 00	3 00	
Potatoes, sweet, 48 lbs.	2 00	3 00	
Do. French, 48 lbs.	2 00	3 00	
Onions, 48 lbs.	2 00	3 00	
Apples, No. 1, 48 lbs.	4 00	5 00	
Pears, Table, 48 lbs.	10 00	12 00	
Plums, dried, 48 lbs.	10 00	12 00	
Peaches, dried, 48 lbs.	10 00	12 00	
Oranges, 48 lbs.	50 00	75 00	
Lemons, 48 lbs.	50 00	75 00	
Uchacha, 48 lbs.	10 00	15 00	
Turkeys, 48 lbs.	10 00	15 00	
Soap, Pale and G. O.	10 00	15 00	
Soap, Castile, 48 lbs.	15 00	20 00	

SEED WHEAT FROM OREGON.—The last Oregon Steamer brought down ten tons of choice white wheat, which is being shipped to Chicago by railroad. This wheat is intended for seed.

Household Reading.

The Medical Properties of Vinegar.

The principal ingredient of vinegar, and that which gives it its strength, is acetic acid, of which strong vinegar contains about five per cent. In a pure state this acid is colorless, inflammable, volatile, exceedingly pungent, intensely sour and acid to the taste, and evaporates if exposed to the air. In experiments upon rabbits, it has been found that one ounce of acetic acid will kill a large healthy rabbit in seven minutes, and, on examining the intestines, they were found softened and highly inflamed. When applied to delicate, sensitive tissues in man, it is very irritating and almost a caustic. Galen was of the opinion that vinegar seriously injured the nervous system and impoverished the blood.

According to Margarin it occasions thickening of the walls of the stomach. Portal relates a case in the *London Medical Gazette*, of a young woman who was very stout and was advised to drink a small quantity of vinegar daily to reduce her size. It worked to a charm for this purpose, but in a month brought on cough, difficult breathing, fever, wasting away, and death by consumption.

German quacks are said to profess to cure obesity by means of daily doses of vinegar, and, if they sometimes fulfilled their promises, it was usually at the expense of their patient's lives. Suenderlin says that those who work in vinegar factories soon acquire a cachectic look and become consumptive. Orfila relates the case of a patient who swallowed a teaspoonful of acetic acid. He shrieked with pain, his mouth was whitened, there was a burning pain in the throat, chest and abdomen, profuse sweating, diarrhoea and vomiting occurred, and the pulse became small and quick. All these symptoms are those of poisoning.

All modern writers agree in this: that vinegar is to be avoided where the digestion is weak, or where there is a tendency to flatulence or diarrhoea. Chlorotic females are forbidden to use it, even though they long for it, and nursing mothers are advised to refrain from its use, as it often occasions fatal diarrhoea in infants by acidifying the milk, which otherwise would nourish. As an article of diet it is of doubtful utility, especially when other and better organic acids may be used in place of it, when acids are needful.

APPLES AND THE BLOOD.—The eating of fruit, and especially apples, has a tendency to purify the blood. If a person who is troubled with scrofulous humors eats freely of good, ripe fruit, after long abstinence from the same, he will be likely to be troubled with a "breaking out,"—the fruit will drive the humor from the system, causing it to pass off through the skin by means of pustules. People sometimes fear to eat fruit very freely from the fact that it causes such a breaking out. Such a result should not be considered unfavorable, but the reverse, and should be encouraged. A fruit diet, and free perspiration from moderate exercise, will do much to improve the health.

USE GOOD VINEGAR.—Dr. J. V. C. Smith says that the large amount of sulphuric acid employed in the manufacture of the spurious vinegar, now so much in use, has much to do with the early decay of teeth so generally prevalent at the present time.

GLOVES.—An English glovemaking has brought out a new glove with a pocket on the inside of the palm, to suit the habit indulged in by the fair sex of carrying money in that position. Flesh-colored gloves are the latest fashion. The advantage is that at a little distance no one notices that you have got them on.

HOUSEHOLD ECONOMY.—For cleaning furniture, removing blotches, and hiding scratches on furniture, nothing is better than coal oil mixed with a very small quantity of linseed oil. When your sewing machine is gummed up the best thing to loosen the dirt is clear coal oil. That will clean your machine thoroughly without either soap or water. When thus thoroughly cleansed oil the moving parts, as usual, with good machine oil, and your machine will be as good as new.

EXAMINE YOUR TEAPOTS.—A caution has lately been thrown out to the effect that cracked dishes, after being long used for holding gravies or fat of any kind, become unacid and unwholesome. And later comes another, with good medical authority to back it, against using tin vessels, more especially teapots, which have become rusted or blackened inside. The acid contained in the tea combines with the iron of the exposed portion of the vessel and forms a chemical compound not unlike ink. It corrodes and darkens the teeth, and cannot be inoffensive to the stomach. I have seen the discoloration, both of natural and artificial teeth, prove so obstinate from this cause as to require several scourings with soap and ashes to remove it.

The *Ohio Farmer* says that when housekeepers hear any of the family remarking "This tea tastes like ink," it is time to examine, possibly to throw away, the teapot. The most palatable and wholesome tea is made by steeping in a bright tin or porcelain cup, then pouring into a freshly-scalded earthen teapot. Thus treated it will never acquire the astringent quality so deleterious to the teeth and to health.

SOMETHING ABOUT FURS.—Sable, mink, astrachan, ermine, squirrel, grebe, black monkey and seal are perhaps the leading furs in the market. All fur goods are lower than last season. Mink has the general preference at the East. Astrachan and black monkey are worn in mourning; squirrel and grebe are chosen for children, as well as ermine. The latter is no longer so very expensive, but that most young ladies can now have a set. Seal skin grows steadily in popularity, and the jacket and sacques made of it are very elegant. Black silk sacques, lined and wadded, and bordered with fur, promise to be very popular, and are decidedly stylish. There is no very decided change in the shape of furs; the small pointed cape is retained, although boas or tippets have the preference. Such is the report of the latitude of New York.

CHINESE WAY OF COOKING TURTLES.—The Chinese are said to have a cruel method of cooking turtles, which is described as follows:—The turtle is placed in a vessel of water on the fire with a lid over it having an apparatus so arranged that the turtle can get his head out and within reach of highly spiced wine. As the temperature of the water increases so does his thirst, and he gradually goes on drinking the seasoned fluid till the heat kills him, by which time his whole system is impregnated with the vino-aromatic seasoning, and a flavor, described as delicious, imparted to the flesh.

CHEESE.—The Massachusetts *Ploughman* thinks the price of cheese must rise. It says the product of this country will fall short of the average on account of the drouth, and the product of England is probably at least a third below the average for the same reason, and that involves a deficiency of something like 60,000,000 of pounds there, while the vast armies of non-producers, and great consumers on the continent will eat up all that can be made there. We see no reason, therefore, why our shipments should not command advanced prices.

FRICTION MATCHES were introduced into Boston in 1836. In 1842 the principal manufacturer in that city was making about 15,000 a day, and was thought to be doing a very large business. That same person is now turning out about 15,000,000 a day, requiring about 30 cords of wood, upwards of two barrels of sulphur and 250 pounds of paper in which to put them up for market.

BEWARE OF BUSYBODIES.—A man who in any way meddles in other people's affairs is sure to make mischief. He generally meddles to serve himself, and consequently puts different constructions on the same things when said to different people, so that the most innocent words get distorted into applications which those who used them never intended they should bear.

TIGHT LACING.—A learned doctor has given his opinion that tight-lacing is a public benefit, inasmuch as it kills off all the foolish girls, and leaves the wise ones to grow into women.

HERONOTUS puts a sentiment into the mouth of a Persian soldier which must find an echo in many breasts, namely, that nothing is so annoying as to feel one's self full of wisdom and to find no one who will listen.

Household Receipts.

AN EXCELLENT LINIMENT may be made as follows: Take aqua ammonia, spirits of turpentine and sweet oil—equal parts. Shake the mixture thoroughly together; keep in a well corked bottle and in a cool place. Shake well before using. This will be found a most excellent liniment for use on both man or animals. It is good for pain in the back, for stiff neck, and for all strains, sprains or bruises. The best way to apply it is to sit by a fire and rub it in thoroughly with flannel. It is well to rub off finally with dry, warm flannel. This preparation is cheap, convenient, effective, and may readily be prepared by any person.

TOOTH POWDER.—Half an ounce powdered charcoal; one ounce powdered Peruvian bark; half an ounce prepared chalk; 20 drops of oil of lavender or neroli. These ingredients should be mixed in a mortar. This tooth powder possesses three essential virtues; it sweetens the breath, cleanses and purifies the teeth and preserves the enamel.

SORE MOUTH.—For sore mouth, either in human beings or animals, no application is equal to tannin, which should always be kept in the house for that purpose. A little of the powder sprinkled on the inflamed or sore spots, will cure almost immediately.

SUPERIOR TABLE MUSTARD.—Take best flour of mustard; fresh parsley, chervil, celery, tarragon, each $\frac{1}{2}$ oz. 6 salt anchovies;—garlic, if liked;—all well chopped and ground together; and grape juice and sugar to taste, with sufficient water to form the mass into a thin paste. When put into pots, a red-hot poker should be thrust into each, after filling, and a little should afterwards be poured upon the surface.

ANOTHER.—Take black mustard seed, quickly dried until friable, and then finely powdered, 1 lb.; salt 2 oz.; tarragon vinegar to mix. Other mustards may be prepared by employing differently flavored vinegars, or walnut or mushroom vinegar, or the liquors of sweet pickles.

STILL ANOTHER.—Take salt $1\frac{1}{2}$ lbs; scraped horse radish 1 lb.; garlic to suit; three or four cloves; boiling vinegar 2 gallons; macerate in a covered vessel for 24 hours, then strain and add ground mustard to liking.

PICKLED TOMATO.—Slice thin a peck of full-grown green tomatoes; pour over them vinegar enough to cover them, and add for each quart of vinegar an ounce each of the following spices (whole): Pepper, cloves, allspice, two ounces white mustard seed, and two onions chopped fine. Boil all together one minute, and set away to cool. In a week it will be ready for use.

Mechanical Hints.

CHINESE GOLD LACKER.—A German experimenter has lately discovered the method of producing the celebrated Chinese gold lacker, his imitations being entirely successful. His method of preparing this substance is to melt two parts of copal and one of shellac, so as to form a perfectly fluid mixture, and then add two parts of hot hoiled oil. The vessel is then to be removed from the fire and ten parts of oil of turpentine gradually added. To improve the color an addition is made of a solution in turpentine of gum gutta, for yellow, and dragon's blood for red. These are to be mixed in sufficient quantity to give the desired shade. The Chinese apparently use tin foil to form a ground, upon which the lacker varnish is laid.

CEMENT FOR SETTING STONES.—The following is a Turkish recipe for a cement to fasten diamonds and other precious stones to metallic surfaces, and which is said to be capable of strongly uniting surfaces of polished steel, even when exposed to moisture. It is as follows:—Dissolve five or six bits of gum mastic, each the size of a large pea, in as much spirits of wine as will suffice to render it liquid. In another vessel dissolve in brandy as muchisinglass, previously softened in water, as will make a 2oz. phial of strong glue, adding two small bits of gum ammoniac, which must be rubbed until dissolved. Then mix the whole with heat. Keep in a phial closely stoppered. When it is to be used set the phial in boiling water.

MARBLE of all kinds, alabaster and bard stone or glass may be readily repolished by rubbing it with linen cloth, dressed with oxide of tin—sold under the name of putty powder.

VARNISHED paint requires nothing but clean warm water, and to be wiped dry.

Life Thoughts.

The affections are but an exercise of the will of the soul.

A fool generally loses his estate before he finds his folly.

Action is life and health, repose is death and corruption.

It is nobler to be sincere than to wear the esutcheon of knighthood or to boast the blood of a line of kings.

PRINCIPLES believed will add fibre to the soul, but sentimentalism clogs the soul with dead matter.

As there are none so weak that we may venture to injure them with impunity; so there are none so low that they may not at some time be able to pay an obligation.

WHATEVER else you borrow, never borrow trouble. It never does any good, and when you return it you get no thanks.

EACH of us hears within himself a world unknown to his fellow-beings, and each may relate to himself a history resembling that of every one, yet like that of no one.

PATIENCE is always crowned with success. It may not be splendid success, but patience never takes anything in hand that it does not succeed with in some form or other.

Human Wet Blankets.

For one, writes Fanny Fern, the longer I live, the more I value health and cheerfulness. For pity's sake, let mothers, before they speak the final affirmative to a daughter's lover, see that he has both these priceless gifts. I remember a human wet blanket I used to stare at, with round eyes of wonder, when a child. A groan—sepulchral—marked his entrance, a groan his sitting down. A groan preceded the inquiry: "Well, isn't it a dreadful dull time in the church?" "No," answered Brother Hopeful; "there were two accessions last Sunday." "Well"—with another groan—"ten to one they will both huckle!" Now what call had this man to be the father of twelve children?—yet that was just his number. One would think, with such hearse-like views of life, he wouldn't take that liberal view of the census. Oh, give me the man who comes into his house with a free, joyous swing of his arm, snatches up the baby and eats it on his head, and kisses his wife as he hunts up the rest of "the bairns." I can tell a woman in any crowd who has this sort of a husband—God bless him! wherever he is. No son or daughter of his will be likely to roam in search of a pleasanter place than "our house."

Without an Enemy.

Heaven help the man who imagines that he can dodge enemies by trying to please everybody. If such an individual ever succeeded we should be glad of it—not that one should be going through the world trying to find beams to knock and thump his poor head against, disputing every man's opinion, fighting, and elbowing, and crowding all who differ with him. That, again, is another extreme. Other people have a right to their opinions; so have you. Don't fall in the error of supposing that they will respect you more for turning your coat every day to match the color of theirs. Wear your own colors in spite of either wind or weather, storms or sunshine. It costs the vacillating and irresolute ten times more to wind, and shuffle, and twist, than it does honest, manly independence to stand its ground.

KIND words are the brightest flowers of earth's existence; they make a very paradise of the humblest home that the world can show. Use them, and especially around the fireside circle. They are jewels beyond price, and more precious to heal the wounded heart, and make the weighed down spirit glad, than all the other blessings the world can give.

NOTHING on earth can smile but human beings. Gems may flash reflected light, but what is a diamond flash compared with an eye flash and mouth flash? A face that cannot smile is like a bud that cannot blossom, and dries up on the stalk. Laughter is day, and sobriety is night, and a smile is the twilight that hovers gently between both, and more bewitching than either.

LET US HELP ONE ANOTHER.—This little sentence should be written on every heart, stamped on every memory. It should be the golden rule practiced, not only in every household, but all through the world. By helping one another we not only remove thorns from the pathway, and anxiety from the mind, but we feel a sense of pleasure in our hearts, knowing we are doing a duty to a fellow creature.

Scientific Press.

W. B. EWER.....SENIOR EDITOR.

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CASH IN ADVANCE.—One year, \$4; six months, \$2.50; single copies, 10 cents; Monthly Series, \$4.50 per annum; Quarterly Series (stiff paper binding) \$5. [Our Quarterly series, and papers sent to Foreign countries an additional sum must be added for advance postage.]

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MINING AND LEGAL ADVERTISEMENTS will be inserted at special rates less than one-half the cost of daily publication.

San Francisco:

Saturday Morning, Dec. 24, 1870.

Gold and Legal Tender Rates.

San Francisco, Thursday, Dec. 22, 1870.—Legal Tenders buying @90 3/4; selling @91. Gold in New York to-day 110 3/4.

The Date Paid to

By our subscribers is pasted on their wrappers, the last one or two figures represents the year. All are requested to send in the cash for a renewal of their subscriptions before their time expires. Don't wait to be benefited.

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Subscribers whose term for the PRESS expires with this volume will greatly oblige by remitting at once, before their names are taken from our printed list.

THE CLOSE OF OUR VOLUME occurs with this number. The next regular issue, No. 1 of Vol. XXII, will appear on January 7th, 1871.

There are 53 Saturdays in 1870, which occurrence happens once in seven years.

COLORADO SMELTING WORKS.—On Tuesday morning we paid the "Western Smelting Works" a visit, and found them in full blast and in comparatively successful operation. The ore, which is first reduced to about the size usually fed into stamp batteries, is roasted in a continuous kiln, and the concentrated sulphurets are prepared as a flux by being calcined in a furnace combining in part the principles of the Stetefeldt and reverberatory furnaces. The roasted ore and sulphurets are then charged into an upright or stack smelting furnace, together with pine wood charcoal, which seems to answer all purposes equally as well as the best hard wood or coal. The ores being treated were from the Running and Fisk lodes, always regarded as belonging to the most refractory class of ores in the country; but they seem to yield freely to this treatment, the slag flowing from the furnace in a free and continuous stream. The matt is drawn off at intervals of from four to six hours. The works were started on Monday, and were reducing ores at the rate from 8 to 10 tons in 24 hours. About 2 1/2 or 3 tons of matt had already been produced, which appeared to be of good quality. The above works are situated on North Clear Creek, just above Black Hawk, and are under the management of Messrs. Congdon & West. *Herald.*

Stewart's Quartz Mining Bill.

It is one of the most difficult matters imaginable to frame a law of this kind which shall satisfy the majority and secure the miner those rights of which he ought to enjoy undisputed possession. Our present law is acknowledged to be partial and insufficient, subject to being used for the injury of our mining interests; yet it is exceedingly hard to find a proper method of improving it. To criticize is easy enough; to suggest something better is extremely difficult. Mr. Stewart, of Nevada, introduced a new bill into the Senate, on the 9th inst., which will undoubtedly give rise to much discussion and criticism. Its main features are these: It grants patents for locations of a length of 200 feet, measured horizontally along the vein, and of a width of 600 feet, i. e. 300 feet on each side of the middle of the vein. All veins coming to the surface within this area, belong to the claimant, who can follow them to any depth, no matter where they may go, with the provision that his claim does not extend *lengthwise* beyond vertical planes carried down from the line of the ends of his location. Not more than 3,000 feet along the vein shall be included within one location in common by one association of persons. In addition, it gives the right to hold a surface location (not less than 40 acres nor more than 160 acres for each claim 200 feet long) for pasture, wood and water, machinery for mills, etc., and also reasonable sites for shafts, tunnels, hoisting works, mills, furnaces and the like.

If one could only know beforehand what sort of a deposit was struck by the prospector, we could have a law for different kinds of veins, which would give proper protection. As this is impossible, however, and the miner cannot wait to have his location examined and proved before having it secured to him, we must be content with an extremely general law. Square locations will have to be introduced in many cases, either for beds or for veins which have been worked to such an extent that much capital and room will be required. But a square location must be very large, and it is not probable that they could be introduced now. We are inclined to think that Mr. Stewart's bill is one of the best possible under our present circumstances; but we shall recur to the matter again, when we have space, in order to discuss the various kinds of veins and deposits—a thing which is necessary in order to be able to form a correct idea of what the requirements are for a law on the subject.

COAL.—The Humboldt *Register* has been shown a specimen of stone coal discovered near Argenta Station on the C. P. The specimen is of a bituminous character, resembling in a great measure the coal of Luzerne County, Pa., in the Wyoming coal district. The S. F. *Bulletin* states that the Bellingham Bay coal mines, situated in Washington Territory and in Puget Sound, have been sold to an English company. It is possible, it adds, although there is no authority yet for any definite statement to that effect, that the men who have hitherto controlled these mines may become interested in the new coal fields near Ogden. The statement with regard to the sale is denied.

THE MARYSVILLE WOOLEN FACTORY, situated on the corner of B and 2nd streets, Marysville, Yuba County, manufactures all kinds of blankets, cassimeres, doeskins, flannels, and every description of woollen goods, of an annual aggregate value of \$120,000. The machinery of this establishment is very complete, and is run by steam power. M. Diver is the Engineer, David E. Knight is Superintendent, and Hochstadter & Marcuse are the General Agents.

SONOMA R. R.—The last spike on the railroad between Santa Rosa and Petersburg was driven on the 11th.

Confidential.

In closing our year of fifty-two issues, we open our hearts and our mouths slightly, to confide a little of our plans to our readers. Our present volume is now complete, and in order to bring the commencement of the new volume within the new year, our subscribers will receive the next paper on the 7th of January, 1871. We must, therefore, take this opportunity of saying a few words. Our present number, we may remark, contains a larger amount of reading matter than usual, besides the index, which is of itself equal to several pages, at least to the compiler and compositor. We follow the usual course of journals in not issuing our paper next week (our subscribers having already received the full number of 52 issues), but we do more than is usual by making compensation by a larger amount of reading matter.

The PRESS has had a year of unsurpassed prosperity, notwithstanding that it has been the "dullest season ever experienced on the coast." Our circulation has been largely increased, even beyond our most sanguine expectations. More space has been devoted to our readers, subjects treated have been enlarged in number, and it has been our object to deserve our claim of being devoted to the interests of the coast. We reduced the price of subscription at the beginning of the year, yet have been able to publish a double sheet monthly, which was afterwards altered to two editions. We have been encouraged at every step, and substantially encouraged, too. With the next year we shall endeavor to do even better. Our present paper will be devoted more particularly to the interests of miners, mechanics, and inventors, the space devoted to advertisements will be more limited, in order that we may give more room for reading matter. This we are enabled to do by the publication of the PACIFIC RURAL PRESS, which, as its name indicates, will make farming its specialty. As, however, we believe that the miners should have some acquaintance with agriculture, we shall give in the SCIENTIFIC PRESS such information on the subject as will be applicable to the case.

All the other departments represented in the paper will receive equal and increased attention. We claim to be the leading journal of our class on the Pacific Slope, and we think we can fully substantiate our claim beyond doubt. We invite the co-operation of our readers in aiding us in our several departments, and promise to do our utmost to deserve their good-will and support. And with kind wishes to all, and the hope of mutual prosperity, we close our proprietorial confidential chat.

Industrial Education.

We are only displeased when our coast is the subject of indiscriminate flattery; but when we find a real and deserved compliment, we smile and quote. The Philadelphia *Jour. of Industry and Am. Engineer* gives San Francisco some genuine praise in the following paragraph:

From the San Francisco SCIENTIFIC PRESS we learn that in that city a branch of the Mechanic Arts College of the University of California, has been established for the instruction of those engaged in mechanical or other industrial pursuits. A series of lectures are to be given by the different Professors of the University, on such subjects as geology, chemistry, industrial mechanics, &c. A general invitation is extended to the citizens to attend, *free of charge*. * * * In this matter, we may take a lesson from San Francisco. If such results can be there attained, what ought not an Artisan's College if established on a proper basis, be able to accomplish here, amidst a population six-fold greater, and where the necessity for industrial education is equalled only by the means possessed for establishing a school or schools of the kind, which shall be unrivalled in completeness and efficiency.

On Hand.

We have already prepared a number of articles which will appear in the first issue next year. Among these may be mentioned articles on the transportation of ores to San Francisco and the erection of smelting works; on the mineral veins of the country with reference to Congressional action; the Quartz Mills of the Pacific Coast; the amounts of ores shipped to this city during the past year; the formation of gold nuggets, land matters, etc. Besides these, a series of articles on machine drilling for miners and on the determination of minerals by methods possible for the common miners, new smelting furnaces, etc., are being prepared by competent authorities. These are only a part of what we have already in hand or under way. We give this notice, because the amount of material which we now have, has been collecting faster than we have been able to publish it. The publication of the RURAL PRESS as a separate paper will enable us to devote more space to such subjects as the above and to kindred matters. A majority of these will be profusely illustrated.

Academy of Sciences.

Mastodon—Volcanoes—Channels.

The regular meeting was held last Monday, Dr. Blake presiding. Bones of a mastodon found about 12 to 15 feet below the surface, near Owen's river in Inyo county, were presented by Dr. Blake. A tooth, ribs, femur and other bones were given, and the doctor said he hoped to get a considerable portion of the animal. A beetle, with fungus growing on the head, and other specimens were contributed to the cabinet.

Dr. Le Plongeon read a continuation of his paper on earthquakes, taking into consideration more particularly the sub-division of volcanoes. These he contended were like boils on the skin,—local, circumscribed accidents. He attributed the heat of the earth to electro-magnetism and to chemical changes induced by electro-magnetism.

Prof. Davidson stated that in studying the formation of bars and channels at the entrances of the rivers and bays opening directly into the sea on the Pacific Coast, a law was developed showing that the channels all tended to the northward, directly against the northwest winds and northwest swell which rolls in steadily all summer. This had been found to be the case from the lower coast up to Vancouver. The cause of this he attributed to an eddy current running along the shore in a northerly direction at a rate varying up to 2 or 2 1/2 knots per hour. This rolls the sand on the bottom in a northerly direction, and thus the channels take this direction instead of a southerly one, as we should expect.

SMELTING AT SALT LAKE.—Messrs. W. Jennings & Co. have lately been experimenting in the smelting business, and for that purpose have erected, in the Fifteenth Ward, temporary smelting works, and, so far, their efforts have been crowned with gratifying success. Their first attempt was made with a quantity of ore from the "Hidden Treasure" mine, in East Cañon, owned by Messrs. Jennings & Lee, and the result was that some excellent pigs of clear lead and silver were cast. Those castings can be seen at the works, near Mr. Jennings' tannery. They have not been assayed but they indicate a large percentage of silver. Temporary works for experimenting in the manufacture of iron, from the native ore, are about to be erected also, by the same firm, by which the theory of making iron in Utah will be thoroughly tested and, as the members of the firm engaged in making the experiments are thoroughly up in the business, having had a long experience in the "old country," there is every reason to believe that their efforts will be as successful as they have been with other metals.—*Deseret News.*

THE MARL BEDS of Alabama extend over a belt of country nearly 100 miles in length.

Patents and Inventions.

Full List of U. S. Patents Issued to Pacific Coast Inventors.

(FROM OFFICIAL REPORTS TO DEWEY & CO., U. S. AND FOREIGN PATENT AGENTS, AND PUBLISHERS OF THE SCIENTIFIC PRESS.)

FOR THE WEEK ENDING DECEMBER 6TH.

COMBINED LOCK AND LATCH.—Francis M. Ranous, Yreka City, Cal.
RAILWAY AXLE-BOX.—James Wardrobe, Charles D. B. Fisk, John F. Curtis, and George Fetley, Carlin, Nevada.
MEDICAL COMPOUND.—George C. Furber, Yreka, Cal.

NOTE.—Copies of U. S. and Foreign Patents furnished by Dewey & Co., in the shortest time possible by telegraph or otherwise at the lowest rates. All patent business for Pacific coast inventors transacted with greater security and in much less time than by any other agency.

THE BLATCHLY ROCK-DRILL, now in operation at the Miner's Foundry, is the invention of Dr. A. Blatchly, of this city, who has been engaged in improving his device for the last four years. Having been occupied in the various branches of mining for 20 years, the inventor is familiar with all the requirements of such a machine, and he is confident that his drill will work more rapidly and cheaply than is possible with hand drilling. The machine is 30 inches long, 7 wide and 10 high, weighs 100 lbs. without the drill (which is put in after the machine is in position), and can be placed and operated by one man. There is no machine attached directly to it, and no engineer is required especially for it, while its operation is so simple that any one of ordinary ingenuity can learn to run it in a few days. It consists of less than twenty pieces, the principal ones being the driving-wheel and the harrel carrying the drill. This drill revolves once to twelve strokes, and its forward feed is regulated by the rapidity with which it cuts. For ordinary work, 300 blows are given per minute, cutting about three inches in granite, we are told. The speed can be increased to 600 blows. Any power can be used, either at the surface or down the mine. A patent for a method of transmitting power from the surface, so that any number of machines can be operated below at a small expense, has just been allowed the Doctor through the SCIENTIFIC PRESS Patent Agency.

A GOOD MOVE.—Mr. Sargent has introduced a bill into the house transferring the examination of swamp land claims from the office of the United States Surveyor-General of California to the local offices. The bill provides that it shall be required of the State Agent, who may claim such land in behalf of the State of California, to file an affidavit at the land office of the district in which the land is located, descriptive of the premises claimed, and availing from personal observation that, in his judgment, said premises are actually swamp or overflowed. Of course, adverse claimants will then appear, if there be any, and the trial will proceed before the Register. This will be of great benefit to settlers, who are now compelled to travel from the extreme portions of the State to attend upon a trial before the United States Surveyor in San Francisco.

MEDAL OF COLORADO COPPER.—The Central City Register, of the 7th, says: We were yesterday evening shown a large and beautiful copper medal struck at the Philadelphia Mint from Colorado copper. On its face was a view in relief of the Monier works in the Philadelphia mill in Nevada. Around the outer edge of the obverse side was the inscription, "The Monier Metallurgical Co. of Colorado," and within a milled circle, a quarter of an inch from the outer edge, is this inscription, "Struck from the first Copper Produced in Colorado, 1866." We presume these medals were struck and are retained by the stock holders as the only returns that enterprise ever made, with the anticipation that they will be the last.

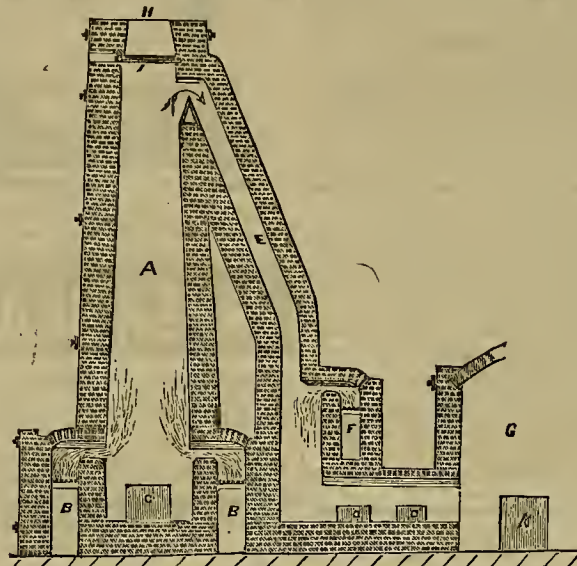
ON THE INCREASE.—Messrs. Bandman, Nielson, & Co. inform us that the sale of Giant Powder, through their agency, now exceeds 20,000 pounds per month.

Modification of the Stetefeldt Furnace.

The Stetefeldt furnace has already been illustrated in our paper. But a modification of the method of firing has been introduced which, in many respects a simplification, and we therefore give another illustration.

The modification makes no change in the principle of the furnace. The first built was constructed for firing with wood. Then some changes were made and fire-places for charcoal and also gas-generators were introduced. As many, however, prefer the simpler arrangement for firing, and do not care to have the trouble of tending the gas-generators (which really demand only a small amount of attention), the present arrangement has been adopted. The cost of building has been materially reduced, and our readers can see how the construction has been simplified by comparing the present illustration with that given in the Press of December 11, 1869.

In the cut here given, A is the main shaft, BB are the lateral fireplaces, C is the door at the bottom of the shaft for discharging the roasted ore, DD are the doors



STETEFELDT FURNACE ARRANGED FOR BURNING WOOD.

for removing the ore from the bottom of escape-flue or auxiliary shaft, E is the escape-flue, F the escape-flue fire-place, G the dust-chamber, H the position of the feeding machinery, I the damper, and K the dust-chamber discharge door.

We hear but one opinion concerning this furnace, and that is a most favorable one. For roasting large amounts of ore we have no furnace which can compare with it. For oxidizing roasting, experiments have shown that the device works admirably, as it does for chloridizing, roasting. A furnace with a capacity of from fifteen to thirty tons of ore in twenty-four hours consumes from two to four cords of wood, or the equivalent in charcoal. Eight men only (two to feed, three to fire, and three to draw and cool the roasted ore) are required at the largest furnace in twenty-four hours. The ore has been chloridized up to 95 per cent., and with ordinary care, silver ore should never be chloridized below 90 per cent. The results obtained at the mills at Reno and Austin have demonstrated that there is, compared with reverberatory furnace, a saving in roasting the ore of fully \$12 per ton, a higher per centage of silver, and finer hullion.

In treating gold ores only a comparatively few experiments have been made, but these gave equally good results. Several lots of gold ore from the Gould & Curry mine at Virginia City were worked at the Reno mill, the gold and silver product of which averaged 85 per cent. Five tons of gold sulphurets from Meadow Lake, Nevada county, Cal., were worked at Reno and yielded 93 per cent of the gold and 92 per cent of the silver. The proportion of silver in the ore was very small.

Five furnaces are now in use in Nevada and a number of others have been undertaken. The first was erected at Reno, in October, 1869. It uses wood for fuel. The second was built at Austin, for the Manhattan Company, this spring. It has a capacity of thirty tons in twenty-four hours and uses charcoal. The third was built at Mineral Hill, Elko county, and uses charcoal. The fourth was built at the Monte Cristo mill, White Pine county, for working their "rebellious ores" (which it does successfully), and the fifth has just been completed at Belmont, Nye county, for working the ores from the Trausylvania mine.

The Stetefeldt Furnace Company have an agent in this city, Mr. B. J. Burns, who is to be found at Room No. 1, Duncan's Building, California street.

THE GALAXY.—This pleasant serial, always good, promises us even greater attractions than heretofore next year. Its corps of able contributors is to be enlarged, and we find on the list the names of some of our best writers. Of those most familiar to our western readers, we

Pacific Coast Directory.

H. G. Langley has just issued the second volume of this work, which is undeniably one of the most valuable publications of our coast. The first volume appeared in 1868, and so much care had evidently been taken in its preparation that it has since been a standard book of reference. We are glad to see this second volume which is still more comprehensive and valuable. It is intended to make this a triennial publication.

The mere statement of what is embraced in this volume would take up too much of our space. The work comprises 1,044 octavo pages, including 252 pages of advertisements. It abounds in material absolutely necessary for any one who desires any decent knowledge of the coast. We give the following extract from the preface to show something of the work done in getting up such a book.

The time and expenso of collecting the material for a work of the character of the Coast Directory, and the amount of careful, patient, and persistent labor necessary to prepare it for the press, can be scarcely realized by the uninitiated. In addition to a number of special canvassing agents, who visited every prominent locality in the territory embraced in the plan of the work, over nineteen thousand communications and blanks of various descriptions have been forwarded to the different Federal, State, County, and Municipal officers, and a numerous list of special correspondents engaged in developing the resources of the Pacific Coast. From these different sources a larger amount of material has been secured when its completeness is considered, than has been heretofore collected on the Pacific Coast.

CEMENTS.—We call the attention of families and miners, to the advertisement of the Giant Cement Co. They offer for sale two very useful and excellent articles, Giant Cement, and Miners Rubber Cement. The former is much used and approved of, for mending wood, porcelain, meerscham pipes, furniture, leather belting, or any article likely to be broken in a household. The Miners Rubber Cement supplies a want long felt by miners, and will save them much expense in repairing their rubber boots and clothing. It effectually cements patches on, and stops holes in rubber boots and hose, splices rubber belting, mends rubber clothing, etc. The cement is always ready for use, is easily applied, and is warranted perfectly waterproof. We recommend both cements as superior articles.

THE OMAHA COAL M. Co. will drill for coal 1,200 feet, if the citizens will contribute \$6,000 towards the expenses.

FORWARD! THE SCIENTIFIC PRESS. FOR 1871.

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 FOR 1871.
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 Home Industries of the Pacific States.
PRINTED ON NEW TYPE,

AND ITS
READING COLUMNS INCREASED,
 AND
Otherwise Improved in Value.

The success of our improvements in 1870, and the reduction of our subscription rates to \$4 per annum, resulting in a large increase of subscriptions, has induced us to make the above announcement. To afford

EXTRA INDUCEMENTS
 To subscribers who will send in their names and cash for 1871, direct to the office previous to the commencement of the year we will, during this month of December only accept \$3.50 as full subscription for one year.

CLUBS AT \$3 PER ANNUM
 For each name, will be received when ten or more persons co-operate in sending us their cash in advance. Don't hesitate. Forward your own individual subscription. No one knows the real value of the Press until they read it. Use your copy of the paper to induce others to subscribe, (if you like it, yours-11), and in subsequent remittance for a club, we will allow you the difference first paid above club rates.

DEWEY & CO., Publishers.
 Dec. 5th, 1870.

THE CALIFORNIA ILLUSTRATED HOLIDAY JOURNAL is the title of a sheet just issued for the Christmas and New Year's Holidays, by Messrs. Wentworth and Boruck. It is made up of choice reading matter and illustrations appropriate to the season, and well worth reading and preserving. The gem of the issue is a poem entitled "Uncle Ben," written by Samuel Booth, an employé at the Mission Woolen Mills.

POULTRY RANCH FOR SALE.—Any one desirous of entering upon the poultry business, will find a good opportunity presented in our advertising columns to-day. The party now occupying is about leaving the city for a distant county, and offers his stand and stock for sale. The location, is within the city limits. The party leaving has had large experience in the business which would be freely imparted to the purchaser.

NEW POST OFFICES have been established at Gwin Mine, Calaveras county, (R. M. Redmond, P. M.); Rincon, San Bernardino county, (F. M. Slaughter, P. M.); Saucelito, Marin county, (John Schnell, P. M.); False Cape, Humboldt county, (Alonso Sweet, P. M.)

California Agricultural Notes.

TOMATOES AND GREEN CORN.—Tomatoes and even green corn were growing in the open air in Santa Clara County two weeks since, although it was well along in December. Some difference between our climate and that of the Eastern States, where snow lies on a level several feet in depth.

FARMERS in Scott Valley have advanced the price of wheat from 80 cents per bushel to \$1, and some even to \$1 25.

All the extra boats engaged in carrying grain on the Upper Sacramento and other rivers have been laid up for the season.

A THREE legged pig is one of the latest productions of Napa County.

WILD GESE are said to be found in extraordinary numbers about the marsh lands near the Bay between this city and San Jose.

Eastern Agricultural Notes.

THE GROWTH of winter wheat in some localities in Indiana has been so vigorous that farmers have turned their stock into the fields, to keep the wheat down sufficient to avoid injury from the coming cold weather.

THE MINNESOTA farmers were plowing their lands on the first day of December. The New Jersey farmers have been able to use the plow in every month of the present year.

FRUIT IN ARIZONA.—Apples are selling at Prescott, Arizona, at 75 cents per pound. There are quite a number of fruit trees in and about Prescott, which will come into bearing next year.

LARGE FRUIT EXHIBITIONS.—At a recent display of fruits in New York, W. S. Carpenter showed 250 varieties of apples, said to be the greatest number ever shown in the United States by any amateur. Ellwanger and Barry showed 180 varieties of pears.

WINE IN INDIANA.—The proprietor of a vineyard near Terre-Haute, Ind., has made 10,200 gallons of wine this season, and sent four tons of grapes to the markets of New York and Philadelphia.

DRAINAGE IN SCOTLAND.—Some idea of the importance attached to drainage in Scotland may be inferred from the fact that on one farm there which does not exceed 500 acres there were over 400 miles of drains several years ago, and the work was not then regarded as complete.

DETERIORATION IN GUANO.—There is said to be a remarkable falling off in the quality of recently imported Peruvian guano. It contains much rock or sand. The supply on the Chincha Islands is probably running rather short. The British farmer is terribly imposed upon in the article of commercial manures.

A SPRINGFIELD, Ill., man paid \$600 for a Berkshire boar and two sows, recently imported.

A FARMER in Mantonsville, Minn., has harvested 45 acres of timothy seed, yielding seven bushels to the acre, which he has sold at \$4.50 per bushel.

THE NEW YORK MILK SUPPLY.—Into the city of New York there flow five great streams of milk each day. One over the Harlem road, another over the Erie, another over the New Haven, another by the Hudson, and yet another by the Long Island, amounting to \$25,000 worth daily, besides that which comes in by numerous small rivulets.

THE CRANBERRY CROP the past season is said to have been unusually large. A single county (Ocean) in New Jersey, has turned out 65,000 bushels, for which buyers were paying about \$3.25 per bushel.

SHEEP IN THE SNOW.—The Brown brothers, ranching near Smartsville, have pastured 1600 sheep the past summer on Fall creek. About the first of November, fearful of being caught in a snow storm, they drove their flock down to the Six Mile House above this city. This morning they started them down for Smartsville. The snow at the Six Mile House was 18 inches deep and they had to break a narrow track, and placing the sheep in single file managed to get all but about twenty out, and they passed through town this afternoon; the drove in single file while coming down the ridge above the city was over a mile in length. The flock appeared in good condition, the result of good pasturage in the mountains.—Nevada Gazette.

PHOTOGRAPHY.—For Cabinet Photographs, or Enamelled Cards, of the very best quality, you must go to the NEW YORK GALLERY, Nos. 25 and 27 Third street, San Francisco. Every picture warranted to give satisfaction. 0v13-6m B. F. HOWLAND.

BLOCK TIN AND SOLDER WIRE, broom wire, piano covering wire, etc., manufactured by Joshua Gray, 437 Brannan street. 24v19-3m

THOMAS O'NEIL Ornamental Glass Cutter, No. 10 Stevenson street, up stairs. Stained, Ground and Ornamental Cut Glass to order on reasonable terms. 14v20

San Francisco Metal Market.

PRICES FOR INVOICES

Jobbing prices rule from ten to fifteen per cent. higher than the following quotations.

THURSDAY, Dec. 22, 1870.

BOX.—Duty: Pig, \$9 per ton; Railroad, 60c per 100 lbs.; Bar, 1 1/2¢ per lb; Sheet, polished, 3c per lb; common, 1 1/2¢ per lb; Plate, 1 1/2¢ per lb; Pipe, 1 1/2¢ per lb; Galvanized, 2 1/2¢ per lb.	
Sheet and Eng. Iron, per ton...	@ \$37 50
White Pig, per ton...	@ \$35 00
Refined Bar, had assortment, per lb...	— 03 —
Refined Bar, good assortment, per lb...	— 04 —
Boiler, No. 1 to 4...	— 04 1/2 —
Plate, No. 5 to 9...	— 04 1/2 —
Sheet, No. 10 to 13...	— 04 1/2 —
Sheet, No. 14 to 20...	— 05 —
Sheet, No. 21 to 27...	— 05 1/2 —
COPPER.—Duty: Sheathing, 3 1/2¢ per lb; Pig and Bar, 2 1/2¢ per lb.	
Sheathing, per lb...	— 26 —
Sheathing, Yellow...	— 20 —
Sheathing, Old Yellow...	— 10 —
Composition Nails...	— 21 —
Composition Belts...	— 22 —
TR. PLATES.—Duty: 25¢ cent ad valorem.	
Plates, Charcoal, 1X, per box...	12 00 —
Plates, 1 C Charcoal...	10 00 —
Roofing Plates...	10 00 —
Banca Tin, Slabs, per lb...	— 42 —
STEEL.—English Cast Steel, per lb...	— 15 —
IRON.—English Cast Steel, per lb...	— 15 —
Sheet, per lb...	— 6 —
Pipe...	— 10 —
Bar...	— 8 —
ZINC.—Sheets, per lb...	— 10 1/2 —
BORAX...	— 35 —

SUCCESS IN BUSINESS.—Success in the business world usually depend upon being thoroughly prepared for its duties. Young men! if you would succeed in your business career, secure a good practical business education. This question being settled, the next is where to go. Why, go to the best, of course. Go to HEALD'S BUSINESS COLLEGE, located in the new College Building, 34, Post Street, San Francisco. This is the only school upon the Pacific coast where young men can depend upon being thoroughly fitted for Bankers, Merchants, Clerks, and Book Keepers. This school is connected with the "International Business College Association" or Bryant & Stratton chain. Its scholarships are good for tuition in any of the forty colleges, located in all the leading commercial cities of the United States and Canada. There are many interesting features about the school which can not be discussed here. Call at the College and examine its workings. If unable send for circulars and HEALD'S COLLEGE JOURNAL, which will be sent free upon application. Address, E. P. HEALD, President, Business College, San Francisco, Cal. 23v22-3m3n

MARAVILLA COCOA.—For Breakfast.—The Globe says: "Various importers and manufacturers have attempted to attain a reputation for their prepared Cocoas, but we doubt whether any thorough success has been achieved until Messrs. Taylor Brothers discovered the extraordinary qualities of 'Maravilla' Cocoa. Adapting their perfect system of preparation to this finest of all species of the Theobroma they have produced an article which supercedes every other Cocoa in the market. Entire solubility, a delicate aroma, and a rare concentration of the purest elements of nutrition, distinguish the 'Maravilla' Cocoa above all others. For constipations and invalids we could not recommend a more agreeable or valuable beverage." Sold in packets only by all Grocers, of whom also may be had Taylor Brothers Original Homoeopathic Cocoa and Soluble Chocolate. Steam Mills—Brick Lane, London. 5v20-1y

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THE FIRST EDITION OF ONE HUNDRED AND FIFTY THOUSAND COPIES OF VICK'S ILLUSTRATED CATALOGUE OF SEEDS AND FLORAL GUIDE, is published and ready to send out—100 pages, with an Engraving of almost every desirable Flower and Vegetable. It is elegantly printed on fine tinted paper, illustrated with Three Hundred fine Wood Engravings and Two beautiful

COLOR PLATES.
The most beautiful and the most instructive Floral Guide published. A GERMAN EDITION published in all other respects similar to the English. Sent free, to all purchasers of 1870, as rapidly as possible, without application. Sent to all who order them for Ten Cents, which is not half the cost. Address

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Rochester, N. Y.

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Willamette Farmer, Salem, Oregon.

The only Agricultural Paper published in Oregon.

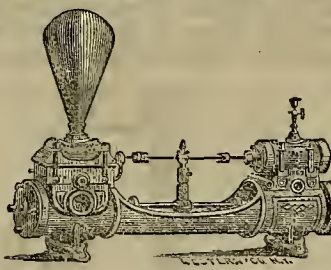
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26v20-1y16p

NOTICE.

THE undersigned having completed arrangements through one of the first "Promoters" in Europe, for placing CALIFORNIA MINING SECURITIES ON THE LONDON MARKET, is now able to offer superior facilities for disposing of reliable mines of gold, silver or other minerals, as above stated. All properties given in my charge will be placed direct, without loss of time, upon the London Market, through a perfectly reliable party, long resident and entirely familiar with the business. Every advantage offered to parties owning shares in American mines worked by English capital, to dispose of the same. Advances made and ample security given when required.

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7v20-ng

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ESTABLISHMENT.



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PATENTEE'S

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rights are invited to consult us, either personally

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References on application. E. E. ROBERTS & CO.,

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14v213m16p

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18v21-3m

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NEW GAS "MACHINE"

Mining and Company Advt's.

Every Advertisement in this journal is published throughout its entire Mining, Agricultural, Monthly and Quarterly Editions.

Kincaid Flat Mining Company, Tuolumne County, California.

Notice.—There are delinquent upon the following described stock on account of assessment levied on the 20th day of Oct. 1870, the several amounts set opposite the names of the respective shareholders, as follows:—

Names.	No. Certificates	No. Shares.	Amount.
S. Card	10	10	25 00
S. Card	39	5	12 50
Wm. A. Quarles	15	10	25 00
Wm. A. Quarles	16	10	25 00
Ira P. Rankin	33	10	25 00
Ira P. Rankin	31	10	25 00
Ira P. Rankin	65	5	12 50
Ira P. Rankin	59	5	12 50
Wm. H. Sharp	35	10	25 00
Wm. H. Sharp	36	10	25 00

And in accordance with law, and an order of the Board of Trustees, made on the 17th day of Oct. 1870, so many shares of each parcel of said stock as may be necessary will be sold at public auction at the address of J. G. Merrill & Co., 204 and 206 California Street, S. F., on the 3rd day of December 1870 at the hour of 12 o'clock M., of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

D. H. CROWE, Secretary.
Office 220 Clay street, San Francisco.

KINCAID F. MINING COMPANY.—POSTPONEMENT.—The above sale is hereby postponed until December 17, 1870, at the same hour and place. By order of the Board of Trustees.
D. H. CROWE, Secretary.

Mahogany G. & S. M. Company.—Location of Works, Silver City, Owyhee County, Idaho Territory.

Notice.—There are delinquent upon the following described stock, on account of assessment No. 1, levied on the 2nd day of Nov. 1870, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. of Certif.	No. Shares.	Amount.
George Hearst	24	1 0	200
M. Herman	20	200	400
J. S. Van Slyke	26	40	80
C. S. Miller	27	760	1520
A. L. Frank	23	50	100
A. L. Frank	28	3350	6700

And in accordance with law and an order of the Board of Trustees, made on the 2nd day of Nov. 1870, so many shares of each parcel of said stock as may be necessary, will be sold at public auction at the office of the company, No. 2, Express Building, San Francisco, California, on Tuesday the 27th day of December 1870, at the hour of 1 o'clock P. M. of said day, to pay said delinquent assessment together with costs of advertising and expenses of sale.

Dec. 10-3w C. M. RICHARDSON, Secy.

Nevada Land and Mining Company.—Location of Works, Johnson & Latham Antelope and Clifton District, Elko County, State of Nevada.

Notice.—There are delinquent upon the following described stock, on account of assessment levied on the sixteenth day of November, 1870, the several amounts set opposite the names of the respective shareholders as follows:

Names.	No. Certificate	No. Shares	Amount
Henry R. Miller	(unissued)	2000	900

And in accordance with law, and an order of the Board of Trustees, made on the sixteenth day of November, 1870, so many shares of each parcel of said stock as may be necessary, will be sold at public auction at the office of the company, Room 5 No. 303 Montgomery street, San Francisco, Cal. on Saturday the 7th day of January 1871, at the hour of 1 o'clock P. M. of said day, to pay said delinquent assessment thereon together with costs of advertising and expenses of sale.

WM. H. WATSON, Secretary,
Office, Room 5 No. 302 Montgomery St., San Francisco.

Providence Gold and Silver Mining Company.—Nevada County, California.

Notice is hereby given that at a meeting of the Board of Trustees of said Company, held on the 12th day of November 1870, an assessment of one dollar per share was levied upon the capital stock of said Company, payable immediately in United States gold and silver coin, to the Secretary.

Any stock upon which said assessment shall remain unpaid on the 1st day of December 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before will be sold on Thursday the 6th day of Jan. 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

J. M. BUFFINGTON, Secretary.
Office, No. 37 New Merchants Exchange, San Francisco, California.
nov19,

Washington Mining Company.—Location of Works and Mine, Mariposa county, State of California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 12th day of December 1870, an assessment of \$3 per share was levied upon the capital stock of said Company, payable immediately in United States gold coin, to the Secretary at the office of the Company, No. 206 Front street, San Francisco.

Any stock upon which assessment shall remain unpaid on the 16th day of January 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday the 6th day of February, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

T. B. WINGARD, Secretary.
Office, 20 6. Front street, San Francisco, California.

I. X. L. Gold & Silver Mining Company.

Location of Mine Silver Mountain Mining District Alpine County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the eighteenth day of Oct. 1870, an assessment of \$1.00 per share was levied, upon the capital stock of said Company, payable immediately in United States gold and silver coin, to the Secretary at his office Pioneer Hall, 508 Montgomery Street, San Francisco Cal.

Any stock upon which said assessment shall remain unpaid on the seventh day of January, 1871, shall be deemed delinquent, and will be duly advertised for sale at auction, and unless payment shall be made before, will be sold on Tuesday, the thirty-first day of January, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale.

By order of the Board of Trustees.
J. CROWNSHIELD, Secretary.
Office, Pioneer Hall (upstairs) 508 Montgomery street, San Francisco, California.

Business Cards.

JOHN GORMAN,
NOTARY PUBLIC.

COMMISSIONER FOR
Nevada, New York, Etc.

No. 612 MERCHANT STREET. 5v20-3m

JOHN ROACH, Optician,
Has removed from 522 Montgomery street to

510 Washington street,
East of Montgomery.

Surveying Instruments made, repaired and adjusted
2v17-3m

REMOVAL.

DR. BEERS, Dentist,

Has removed from Tucker's Building to
No. 109 Montgomery street, three doors
north, opposite the Occidental. 2v20-3m

Farmers and Mechanics
BANK OF SAVINGS,

No. 223 Sansome Street.

Interest paid on Deposits. Money loaned on Real Estate.
H. DUTTON, President.
GEO. M. CONDEE Cashier. 1v16-3m

Trades and Manufactures.

WM. BARTLING. HENRY KIMBALL.

BARTLING & KIMBALL,
BOOK BINDERS,

Paper Rulers and Blank Book Manufacturers.

505 Clay street, (southwest cor. Sansome),
1v12-3m SAN FRANCISCO.

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HOBBS, GILMORE & CO.,

Manufacturers of Boxes,

Market Street, bet. Beale and Main.

For sale—Mahogany, Spanish Cedar, and other Woods.

J. M. STOCKMAN,

Manufacturer of

PATTERNS AND MODELS,

(Over W. T. Oarratt's Brass Foundry,

S. E. Corner of Mission and Fremont sts.,
6v14c SAN FRANCISCO

THE GIANT

POWDER COMPANY.

BANDMANN, NIELSEN & CO.,

General Agents.

No. 210 Front Street, San Francisco. 2v19

THOMPSON BROTHERS,

EUREKA FOUNDRY,

and 131 Beale street, between Mission and Howard
San Francisco.

LIGHT AND HEAVY CASTINGS,

of every description, manufactured 2v16r

SAN FRANCISCO

CORDAGE COMPANY.

Manila Rope of all sizes. Also, Bale Rope and Whale
Line constantly on hand. Mining Ropes of any size
and length manufactured to order.

TUBES & CO., Agents,
611 and 613 Front street.

26

L. SCHUMANN,

PIONEER

Meerscham Pipe Manufacturer,

No. 341 KEARNY STREET.

Between Bush and Pine streets, San Francisco.

The first and only Manufactory on the Pacific Coast.
MEERSCHAUM MOUNTAIN WITH SILVER. Meerscham
Pipes Baked and Repaired. Amber Mouth-pieces Fitted.

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\$65
WHOLE WORLD
beings judges—order
the LAST, and be
are BEST! Why?
Because the WEEK

work cost \$500
per sample
and with more
VARIETY. Buy the
LATEST always. Call
and see S. R. Hoar, 329
Kearny St. S. F., Ast.

Seals and Steel Stamps and Dies, 608 Sacramento street,
San Francisco. Orders by express promptly attended to.

J. F. PAGES,

SEAL ENGRAVER,

AND LETTER CUTTER.

Brass and Steel Stamps and Dies, 608 Sacramento street,
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beings judges—order
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per sample
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The California Powder Works

No. 314 CALIFORNIA STREET,

SAN FRANCISCO.

Manufacturers and have constantly on hand

SPORTING,

MINING,

And BLASTING

POWDER,

OF SUPERIOR QUALITY, FRESH FROM THE
MILLS. It being constantly received and transported into
the interior, is delivered to the consumer within a
few days of the time of its manufacture, and is in every
way superior to any other Powder in Market.
We have been awarded successively

Three Gold Medals

By the MECHANICS' INSTITUTE and the STATE AGRI-
CULTURAL SOCIETY for the superiority of our
products over all others.
We also call attention to our

HERCULES POWDER,

Which combines all the force of other strong explosives
now in use, and the lifting force of the most BLASTING
POWDER, thus making it vastly superior to any other
compound now in use.
A circular containing a full description of this Powder
can be obtained on application to our Office.
16v20-3m JOHN F. LOHSE, Secretary.

16v20-3m

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OF—

Illuminating, Lubricating,

—AND—

PAINT OILS,

CONSISTING OF

KEROSENE, LARD, SPERM, ELEPHANT, POLAR,
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LINSEED, CASTOR AND CHINA NUT.

—ALSO—

Spirits of Turpentine and Alcohol.

Lamps and Lamp Stock!

An elegant and complete assortment.

SOLE IMPORTERS OF

Devoe's Illuminating Oil,

PATENT CANS.

5v17-1f 414 Front street, San Francisco.

5v17-1f

Notice.

To the Readers of the

SCIENTIFIC PRESS

Special attention is called to the

FURNITURE WAREHOUSES

OF

George O. Whitney & Co.,

No. 31 317, 319 and 321

FINE STREET, SAN FRANCISCO.

The largest and most complete stock on the Pacific

Coast. At Wholesale and Retail. 8v213m

8v213m

BILLIARDS.

MESSRS. PHELAN & COLLENDER,

The well-known Billiard Table Manufacturers of New

York, have established at 541 Market street, this city an

extensive branch of their business, where they propose to

keep constantly on hand the largest and most complete

assortment of Billiard Tables, Cloth, Cues, etc.,

on this coast. The Tables are of the latest styles and

size recently adopted in the Eastern States, are man-

ufactured in the best possible manner, and furnished

with Phelan's latest improved Cushions. All goods sold

will be of the best quality, and the prices fully as low

as any other house in the business. The public are in-

vited to visit our warehouses and inspect our stock.

15v2 3m GEORGE F. PHELAN.

Fruit and Ornamental

TREES.

We offer this Season, 1870 and 1871.

A very large and superior stock of trees, etc., of best se-

lected varieties of everything usually produced in well

kept nurseries. Our trees are grown on good alluvial

soil, and are unsurpassed for thrifty growth of root and

stock, and are suitable as to name on labels. Orders re-

ceived by Mail or Express, will be strictly attended to,

and PACKING done so as to INSURE A SAFE TRANSIT

to any distance.

Dealers and Agents allowed favorable terms.

Priced Catalogues furnished on application.

JOHN ROCK Nurseryman,
San Jose, California.

17v21-3m

Travellers' Guide.

Central Pacific Railroad.

Time Schedule, December 5, 1870.

EASTWARD. Express. Passenger. Mixed.*

Daily. Excepted.

San Francisco Leave 8:00 A. M. 4:00 P. M. 5:30 P. M.

Oakland " 8:40 A. M. 4:40 P. M. 6:10 P. M.

Sacramento " 9:15 A. M. 5:15 P. M. 6:45 P. M.

Stockton " 9:45 A. M. 5:45 P. M. 7:15 P. M.

San Jose " 10:15 A. M. 6:15 P. M. 7:45 P. M.

San Francisco " 10:45 A. M. 6:45 P. M. 8:15 P. M.

San Jose " 11:15 A. M. 7:15 P. M. 8:45 P. M.

San Francisco " 11:45 A. M. 7:45 P. M. 9:15 P. M.

San Jose " 12:15 P. M. 8:15 P. M. 9:45 P. M.

San Francisco " 12:45 P. M. 8:45 P. M. 10:15 P. M.

San Jose " 1:15 P. M. 9:15 P. M. 10:45 P. M.

San Francisco " 1:45 P. M. 9:45 P. M. 11:15 P. M.

San Jose " 2:15 P. M. 10:15 P. M. 11:45 P. M.

San Francisco " 2:45 P. M. 10:45 P. M. 12:15 P. M.

San Jose " 3:15 P. M. 11:15 P. M. 12:45 P. M.

San Francisco " 3:45 P. M. 11:45 P. M. 1:15 P. M.

San Jose " 4:15 P. M. 12:15 P. M. 1:45 P. M.

San Francisco " 4:45 P. M. 12:45 P. M. 2:15 P. M.

San Jose " 5:15 P. M.

would unsettle the titles to more than three million acres of land, and take away the vested rights of thousands of men. More than a thousand swamp land locations have been made in the single district lying mostly in the country of Yolo. Some of these locations have been subdivided and sold in five, ten, and twenty acre tracts, and the effects of this bill would come home to some thousands of men, women and children in this district alone.

There are one hundred and eight reclamation districts in the State, and in some counties, more swamp land locations than in Yolo. The purchase money paid to the State—one dollar per acre—is applied to the work of reclamation. The \$3,000,000 so applied, would be transferred by this bill to the coffers of the General Government. More than this, the minimum price of public lands is one and one-fourth dollars per acre, but much of the swamp land lies within the limits of railroad grants, and would therefore become double minimum lands, held by the Government at two dollars and a half per acre. The odd sections falling to the railroad companies might be sold at a higher or lower rate. Instead of \$3,000,000 applied to reclamation, and retained in the State, Julian would have \$3,750,000, paid over to the General Government, a drain upon our resources that in these hard times would be felt. Lands, easily reclaimable, were long since purchased, levied and occupied. Recently a few large tracts in the bed of the tules have been located by companies, who hope by the expenditure of large sums of money to render them susceptible of cultivation. It is thought by many that they will not succeed.

It is my purpose to claim no special wisdom or disinterestedness on the part of our late Surveyor-General. The complication of State land titles which had been accumulating for years, culminated during his incumbency and compelled his attention. During almost his entire second term, the office was besieged by men clamorous to know what the State was going to do in protection of their rights. It became his duty to solve that problem. Granted leave of absence by the Legislature, he went to Washington in 1866, and drafted a bill which with some modifications became the law under which nine-tenths of all the land yet transferred to the State, have been listed. It meets nearly all, perhaps all the requirements and equities of the case, and under its operation the conflict of titles is fast disappearing. The principal difficulty experienced by General Houghton in passing this bill, arose from the failure on the part of Julian to interpolate a provision repugnant to the sense of justice of the entire delegation from the Pacific Coast. He now comes forward with a bill repugnant to the moral sense of all who understand its bearing upon the rights and interests of this State and people.

A. B. BOWERS.
Sacramento, December 20th, 1870.

ASBESTOS.—A mine of this mineral is situated 1 1/4 miles from Fur Top, Eureka, Sierra County, on the east side of Chapparral Hill, and is said to be very extensive. It is owned by V. C. McMurray and E. B. Covey, of Camptonville.

GRAND YOSEMITE ENTERPRISE.—The Mariposa Gazette says that there is a grand scheme afloat for promoting travel to the Yosemite. The plan is to organize a joint stock company to make contracts with transportation companies throughout the U. S., and to issue through tickets to the Valley from all parts of the Union.

SCIENTIFIC PRESS.—This paper comes to us this week with a full double sheet extra. It contains a full map of California, a map of the San Joaquin valley, with a brief description and statement of the productions of each county, besides the usual mining, agricultural and scientific intelligence. It is a paper that should be in the hands of every farmer, miner and manufacturer on his coast.—*Nov. Transcript.*

FROM A READER.—Duncan's Mill, Sonoma Co., Oct. 10, 1870.—Messrs Dewey & Co: Don't stop my paper. Your journal is very valuable. No better investment for \$4.
Respt, B. C. B.

New Advertisements.

Chicken Ranch for Sale.

A Chicken Ranch within the city, Four Roomed House and Outbuildings and stock of Poultry, can be obtained for the sum of \$600. Ground rent low; extent about two acres; affording an excellent opportunity for commencing a profitable business. For particulars apply on the premises on Potrero Avenue between 15th & 16th st., or by letter addressed "A" at the office of this paper.

NEVADA METALLURGICAL WORKS,
19 and 21 First St., in Golden State Foundry.
KNOTT & LUCKHART.
Ores Crushed, Sampled and Assayed.

Having added Pans, Assay office and Chlorination Apparatus to our establishment, we are now prepared to make working tests by any process, assay ores and products. Returns guaranteed. Answers to all metallurgical questions given.
26v21-3m

(TO BE PUBLISHED SHORTLY.)

'A Synopsis of British Gas Lighting.'

900 pages, large 4-to, profusely illustrated.

This is the only compend of

GAS LIGHTING

ever projected, and will be the standard work of reference among

Companies,
Manufacturers,
Engineers,
Patentees, and
Scientific Men
Generally.

Price \$15.00, Payable on Delivery.

It will be sold only by subscription, which should be addressed to the Compiler,

JAMES R. SMEDBERG,
Consulting Engineer S. F. Gas Co.,
SAN FRANCISCO, CAL.

GIANT CEMENT.

A most extraordinary and universally needed article for mending Furniture, Crockery, Glassware, Marble, Meerschaum Pipes, Ornaments, etc.; also splicing Leather Belting and patching Boots and Shoes. This Cement possesses extraordinary merit, and is in every way a first-class article. Every can is its own testimonial. Also, BREXEN'S RUBBER CEMENT, for mending Rubber Boots, Shoes, Belting, Coats, and Hose without stitching! Easily applied, never failing, and perfectly waterproof. Both Cements are put up in TIN CANS ONLY, with full directions. Take no other. GIANT CEMENT and MINERS' RUBBER CEMENT are kept by Druggists and Dealers throughout the country. Country Dealers can be supplied by ordering from any house here or in Sacramento with whom they deal, or by sending direct to us. Send for Agents' Circulars and Price List to Giant Cement Manufacturing Co., 419 Washington street, San Francisco.

MINERS' RUBBER CEMENT.

Providence Gold and Silver Mining Company.—Location of Works, Nevada County, California.
NOTICE.—There are delinquent upon the following described Stock, on account of assessment levied on the twelfth day of November, 1870, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
John S Carter,.....	100	20	\$20 00
John S Carter,.....	101	20	20 00
John S Carter,.....	115	10	10 00
Phoebe Carter,.....	167	5	5 00
Thatcher Emery,.....	89	3	3 00
Thatcher Emery,.....	90	3	3 00
Thatcher Emery,.....	219	5	5 00
A Polom,.....	9	50	50 00
A Polom,.....	13	5	5 00
J Mulachy,.....	155	8	8 00
A Walrath,.....	88	4	4 00
A Walrath,.....	144	20	20 00
A Walrath,.....	215	5	5 00
A Walrath,.....	270	45	45 00
N C Walton Jr,.....	273	100	100 00
N C Walton Jr,.....	274	100	100 00
N C Walton Jr,.....	275	80	80 00

And in accordance with law, and an order of the Board of Trustees, made on the 12th day of November 1870, so many shares of each parcel of said Stock as may be necessary, will be sold at the office of the Company, by the Secretary, 37 New Merchants Exchange, San Francisco, on the 5th day of January 1871, at the hour of 12 o'clock M., of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.
J. M. DUFFINGTON, Secretary,
Office 37 New Merchants Exchange, (third floor) San Francisco, California. dec26

IMPORTANT BOOK!

JUST ISSUED.—Roasting of Gold and Silver Ores, and the Extraction of their Respective Metals without Quicksilver. By G. Kustel, Mining Engineer and Metallurgist; Author of "Nevada and California Processes of Silver and Gold Extraction," and "Concentration of all Kinds of Ore." Illustrated by numerous engravings. Published and sold by Dewey & Co., proprietors SCIENTIFIC PRESS, San Francisco.

This Book contains 120 pages. Price, \$2.50, gold, or \$3 currency, postage paid.

PORTLAND, OREGON, Nov. 24th, 1870.—Dewey & Co.,—Gentlemen,—It is Thanksgiving to day, and I think it is my duty to write you a letter of thankfulness, for the friendship and business-like manner in which you have attended to my business. Your inventions illustrated by valuable models, which I place in your hands, together requiring years of hard study, have been protected by valuable patents through your agency.
Dewey & Co., are the only Patent Agents that I shall ever employ to obtain Letters Patent for me so long as I live, and I thank you sincerely for your honorable duties to me. I shall soon place four more cases in your hands for prosecution. Again thanking you, I remain,
Yours &c., THOMAS HILL.

SOZONOT.—All dentifrices had their drawbacks, until the salubrious Bark of the Soap Tree was brought from the Chilian valleys, to perfect the fragrant SOZONOT, the most wholesome, reliable and delightful article for the Teeth that a brush was ever dipped into.

CHOICE POULTRY.

Light Brahmas and White Leghorns, A few trios for sale. Also 3 very choice young

HOUDON COCKS.
EGGS
for hatching from the following Birds:
Light Brahmas,
Dark Brahmas,
Houdon Bearded,
Buff Cochins,
Bl'k African Bantams,
White Leghorns,
Aylesbury Ducks.

NICHOLS & WILLARD,
Importers and Breeders of Choice Poultry.
25v21-3m-laminis Brooklyn, Alameda Co.

LICK HOUSE.

MASQUERADE BALL TICKETS,

Wednesday.....Dec. 28th.
NOW READY FOR DELIVERY.
24-3t JOHN M. LAWLOR & CO.

THE MASONIC MIRROR

Is the only Masonic Publication on the Pacific Coast. The Second Volume is published weekly, in the popular and beautiful form of a

QUARTO-MEDIUM SIXTEEN PAGE PAPER

AND IS A FIRST CLASS
Literary and Family Newspaper,
AS WELL AS THE
Organ of the Masonic Fraternity on the Pacific Coast.

ENDORSEMENT OF THE GRAND LODGE.

The following resolution was unanimously adopted by the M. W. Grand Lodge, F. & A. M., of the State of California, at its Annual Communication, October, 1870. Whereas, In the opinion of this Grand Lodge, a well conducted Masonic Journal is of great benefit to the craft, in disseminating Masonic information among the fraternity, as well as furnishing a medium for general Masonic intelligence. Therefore,
Resolved, That this Grand Lodge, recognizing in the Masonic Mirror, edited by Brothers Amasa W. Bishop and Edwin A. Sherman, and published by the Masonic Publishing Company of San Francisco, a Masonic Journal of the character above set forth, do hereby recommend the said Masonic Mirror to the craft generally, as worthy of their most favorable consideration and support.

ENDORSEMENT OF THE GRAND CONSISTORY.

At the communication of the M. P. P. Grand Consistory, Ancient and Accepted Scottish Rite of Freemasonry in and for the State of California, held October, 1870 at San Francisco, the following resolution was unanimously adopted: Resolved, That the Masonic Mirror, published in this city be the official organ of this Grand Consistory.

TO ADVERTISERS.

The Mirror presents the best Advertising medium on the Pacific Coast, as it circulates in every town and hamlet, and among a class of citizens that it will be of advantage to advertisers to reach.

Rates of Advertising.
One Square of ten lines, or less, 1 time.....\$ 1.00
One Square per Month..... 2.00
Quarter Column, "..... 5.00
Half Column, "..... 10.00
One Column, "..... 20.00
Office, 608 Market St., San Francisco 19v21-tf

THE CHEAPEST Agricultural and Horticultural Journal In the United States.

The Journal of the Farm,
16 Large Octavo Pages,
HANDSOMELY ILLUSTRATED,
Price one Dollar a Year.
CLUBS OF 20 - - - - - FIFTY CENTS.

ADVERTISERS
Are informed that its circulation is larger than that of any other paper of its class published in the state of Pennsylvania.

JOURNAL OF THE FARM.
20 S. Delaware Avenue, Philadelphia, or
230 S Water Street, Chicago.

To Amateur Printers:

We have for sale in the Press office, one of Lowe's cheap hand Presses, which we will sell for \$25, one half cash down, and the balance to be paid in good order. A handy article for a country office, which has no small job press.

TO MINERS, MILLMEN AND METALLURGISTS.
Kustel's new work on the Concentration of all kinds of Ores, and the Chlorination Process, for Gold-bearing Sulphurets, Arseniurets, and Gold and Silver Ores generally, is the best and most complete work issued. It contains 120 diagrams, illustrating machinery, etc., which alone are of the greatest value. Price, \$7.50, postage paid. Published by Dewey & Co., publishers of the Scientific Press, San Francisco.

FROM G. F. J. COLBURN, of Dental Surgery, Newark, N. J.—The popular dentifrice known as SOZONOT, besides being a very pleasant addition to the toilet, contains ingredients, that if used according to the directions, will prove of the greatest utility to the health of the mouth and teeth.

"SPALDING'S GLUE," with Brush, ready for use.

THE PRESS is just such a journal as the people of this valley should patronize—it ought to go to every fireside. It is devoted to the agricultural and mining interests, mechanic arts and general industrial progress. The subscription price is \$4, which, considering that the PRESS is one of the largest and ablest journals of its class in the Union, we consider very reasonable.—Every business man of Bozeman, will be satisfied, give Mr. Murray his name, and we hope much of our country friends as he interviews will be equally liberal. PICK & FLOW, MONTANA.

SCIENTIFIC PRESS—three numbers—terms \$4 per annum—San Francisco. Constant improvements are being made in this publication. Illustrated mechanics receive liberal attention. Of late, an edition exclusively devoted to agricultural matters is issued simultaneously with that devoted to mining and scientific affairs generally. The growth of the paper and multiplicity of subjects embraced in the table of contents give evidence of an increased patronage and corresponding industry to maintain its high character.—*Colorado Herald.*

1st Sample No. Ready

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Farmers, Horticulturists, Soil Cultivators, Stockmen, News dealers, Carriers, Home Readers and all Ruralists will be furnished sample copies free on receipt of postage.
Annual subscription \$4. Clubs of ten or more, \$3 each and a free copy to the getter up of the club. Extra inducements to agents for the new paper. First regular issue Jan. 7th 1870.

DEWEY & CO.
Publishers, Patent Agents and Engineers,
414 Clay Street, S. F.

The State Fair Gold Medal

A D. 1870, was awarded to

"CALIFORNIAN"

SEWING MACHINE,

SAWDON & GRAY,

MANUFACTURERS,

Corner Mill and Neal Streets,

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Patent applied for.

It is the simplest, most durable, easiest understood and strongest built, and 30 per cent, cheaper than any of the prominent ones now in the market.

Examine before purchasing elsewhere, or send for Circular.

AGENTS WANTED.

14v21-3m.

AGENTS WANTED FOR

Zell's New Encyclopedia.

This work, the Best, the Latest, and the Cheapest ever published. It is not only a

COMPLETE ENCYCLOPEDIA,
Freshly written, and up with the times, but is also a thorough and complete

Lexicon, a Gazetteer of the World, a Biographical, Political, Legal and Medical Dictionary,

And the only book ever published containing all these subjects, with 2,000 Engravings. This really wonderful work is to render readily accessible reliable information on every conceivable subject. No human being could be found to whom it would not prove invaluable. It minutely describes every disease, fish is heir to; explains every legal term or phrase; gives the geography of the entire world; acquaints you with all noted men and women living or dead; describes every country, city and town; defines every word in use in the English language; pictures the birth-place and gives portraits of many distinguished personages; teaches the correct pronunciation of proper names; is a biographical dictionary of all nations; a biblical dictionary; describes every animal known to exist; acquaints you with authors, sculptors, travellers, warriors, painters, divines, historians, naturalists, etc., of ancient and modern times; speaks of all the battles and heroes of the late war; and explores the whole vast vegetable kingdom.

AGENTS WANTED.—Apply to F. DEWEY & CO., 542 California Street, San Francisco, General Agents for the Pacific States and Territories. 19v21

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DESIGNING AND ENGRAVING on wood and for electrotype cuts of every description, done by superior artists at the office of the SCIENTIFIC PRESS. Fine Cuts made for Book and Newspaper illustrations, and for Fancy Labels for printing in various colors; Monograms, Seals, etc., etc. Prompt execution and reasonable prices.

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BRICKLAYER AND CONTRACTOR.
Particular attention paid to all kinds of Fire Work, such as Boilers, Furnaces, Ovens, Grates, Ranges, &c. Orders left with C. W. WHITE, 47 Clay Street, JOS. THORNHILL, 1612 Mason St., near Green, will be promptly attended to. 24v21-3m

Machinists and Foundries.

FULTON
Foundry and Iron Works.
HINCKLEY & CO.,
MANUFACTURERS OF
STEAM ENGINES,
Quartz, Flour and Saw Mills,
Hayes' Improved Steam Pump, Brodie's Improved Crusher, Mining Pumps, Amalgamators, and all kinds of Machinery.
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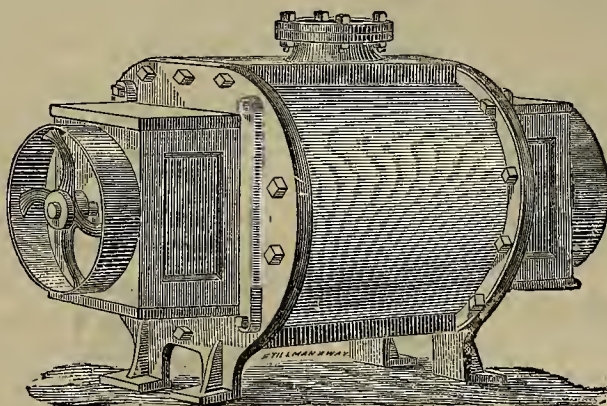
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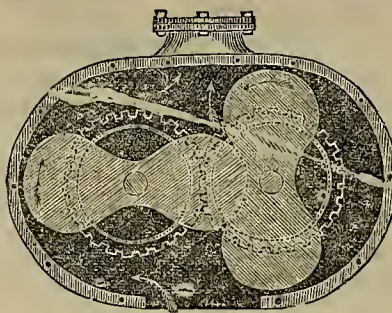


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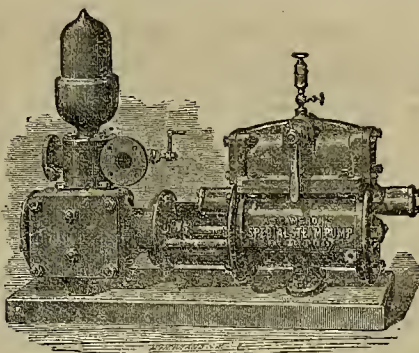
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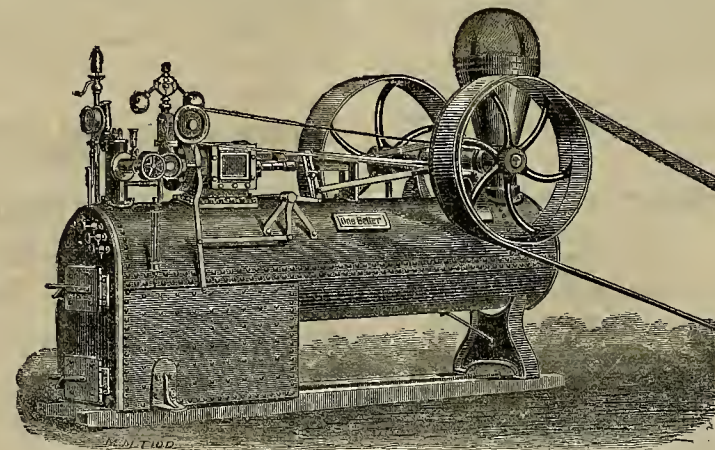
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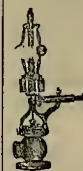
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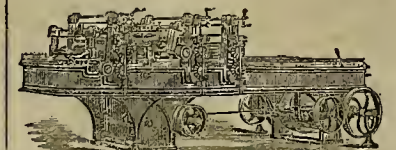


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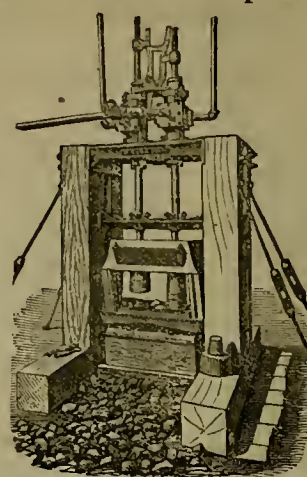
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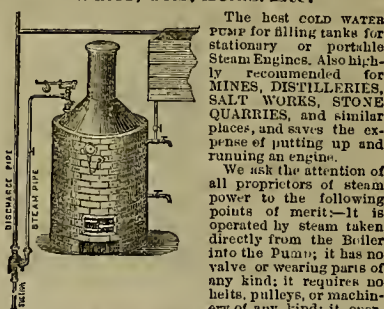
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The general practice of the Patent Office regarding the examination or issue of Letters Patent for inventions has not been materially changed for many years, yet there have been amendments added to the laws of 1861, 1863, and 1866, and which it is necessary for all parties managing an application to be conversant with. Old inventors invariably advise the employment of none but agents of responsibility and experience. As agents with such qualifications, we solicit honest patronage.

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In urgent cases for an immediate patent, persons can deposit the amount of the last fees with us, in San Francisco, and have our Washington agent procure the issue of the papers as soon as granted, saving at least several weeks time which would otherwise be required for the inventor to receive notice and then forward the money. Money advanced for this purpose will be returned, should the application be rejected. By adopting this course, we are enabled, with our other advantages, to secure the receipt of patent papers to inventors on this Coast several months sooner than can generally be done, through agents in the East, without the applicant going to the risk and expense of sending on the last fee before it is known whether the patent will be granted.

Dangers of Delay.

Situated so remote from the seat of Government, delays are even more dangerous to the inventors of the Pacific coast than to applicants in the Eastern States. Valuable patents may be lost by the extra time consumed in transmitting specifications from Eastern agencies back to this coast for the signature of the inventor, or by reason of return for amendment when addressed directly by the inventor to the Government.

Expense of Applying for Patent.

The Government fee, on filing an application for a patent in the United States, is fifteen dollars; and if the patent is allowed, twenty dollars additional is required. If rejected, the first fee of fifteen dollars is all that is demanded.

To the foregoing official fees must be added fees for preparing the various documents and expense of drawings. Our charge for preparing the documents for a case, presenting it to the Government, and attending to all business connected with it, is \$25 and upward. For cases demanding extra work and attention, only a reasonable fee in accordance with the services required, to do full justice to the case, will be charged.

Following is the list of Government fees, payable in currency:

On every caveat.....	\$10
On every application for a patent, for seventeen years.....	15
On every application for a design, for 3 yrs and 6 mos.....	10
On every application for a design, for fourteen years.....	30
On issuing each original patent.....	50
On filing a disclaimer.....	10
On every application for a re-issue.....	30
On every additional patent granted on a re-issue.....	30
On every application for an extension.....	50
On the grant of every extension.....	50
On appeal to the Examiners-in-Chief.....	10
On appeal to the Commissioner from Examiners-in-Chief.....	20
On every appeal to the Judges of Circuit Court, U. S. C.....	25

Inventors on the Pacific Coast, located at great distance from the Patent Office, of all others,

should be careful to avoid inexperienced, dishonest, or otherwise unreliable and irresponsible agents. Inventors having models in our possession must send written orders when they desire any particular friend to see them.

Advancing Cases.

If any case placed in our hands meets with rejection, we do not wait to write and inform the inventor of this fact, (as is the case with most agents,) but our representative at Washington proceeds at once to examine the stated objections, and if it be not a just and unavoidable decision, the claims of the inventor will be persistently argued before the Examiner, and if possible the decision reversed.

By Telegraph.

In cases of immediate importance we can have their progress reported by telegraph, so that applicants know immediately the result of the examination and decision of the Patent Office. We also make examinations by telegraph regarding the patentability of inventions; examine patent assignments on record at Washington; obtain copies of patents or claims, and also derive other information desired instantly from the Patent Office.

DEWEY & CO.,

Publishers and Patent Agents, Scientific Press Office, San Francisco.

The Best Treatise Published.**Concentration of Ores**

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FOR GOLD-BEARING SULPHURETS, ARSENIURETS, AND GOLD AND SILVER ORES GENERALLY.

By GUIDO KUSTEL,

MINING ENGINEER AND METALLURGIST.

Author of "Nevada and California Process of Silver and Gold Extraction."

With 120 Lithographic Diagrams.

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Heads of Table of Contents.

- I. INTRODUCTION.—The Dressing; The Separation; Cleansing and sizing Contrivances; Rotary Sizers, etc.
- II. REDUCTION.—Reduction of Ores; Description of Batteries; Details of a Battery; Speed, Curve and Order of Lifts; The Discharge of Batteries; The Feeding of Batteries; Reduction by Rolling Mills; Grinding; Pans with Plane Mullers; Pans with Conical Mullers; Pans with Tractory-Conical Mullers; Pans with Perpendicular Mullers.
- III. CONCENTRATION.—Concentration of Reduced Ore; A Concentration of Ore Grains, (Jigging Stuff; Movable Jiggers; Stationary Jiggers; Continual Jiggers; Rotary Machines; Concentration of Ore Sands; Assorting of Sands; Feeding of Concentrator; Stationary Concentrators; Percussion Tables; Oscillating and Shaking Tables; Steady Moving Concentrators.
- IV. SPECIAL CONCENTRATION.—Concentration of Gold Ores; Concentration of silver Ores; Concentration of Lead and other Ores.
- V. CHLORINATION.—Extraction of Gold from Sulphurets by chlorination; Assay ditto; Loss of Gold in Roasting; Roasting Furnaces and Operation; Roasting with Salt; Dumping of Roasted ores; Sifting; Production of Chlorine Gas; Lixivation; Precipitating Vat; Precipitation; cost of Process; Remarks; Other methods of Dissolving and Precipitating this Gold from Sulphurets, etc.

This work is unequalled by any other published, embracing the subjects treated. Its authority is highly esteemed and regarded by its readers. Containing as it does, much essential information to the Miner, Metallurgist, and other professional workers in ores and minerals, which cannot be found elsewhere in print. It also abounds throughout with facts and instructions rendered valuable by being clearly rendered together and in simple order.

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DEWEY & CO.

Publishers, Patent Agents, and Engravers, 414 Clay Street, S. F.

PORTLAND, OREGON, NOV. 24th, 1870.—Dewey & Co., Gentlemen,—It is Thanksgiving to day, and I think it my duty to write you a letter of thankfulness, for the trustworthy and business-like manner in which you have attended to my business. Four inventions illustrated by valuable models, which I place in your hands, together requiring years of hard study, have been protected by valuable patents through your agency.

Dewey & Co., are the only Patent Agents that I shall ever employ to obtain Letters Patent for me so long as I live, and I thank you sincerely for your honorable duties to me. I shall soon place four more cases in your hands for prosecution. Again thanking you, I remain, Yours &c., THOMAS HILL.

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Mining and Other Companies.

Every Advertisement in this journal is published throughout its entire Mining, Agricultural, Monthly and Quarterly Editions.

Alleghany Consolidated Gold Mining Company, Sierra County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 27th day of December 1870, an assessment of fifty cents per share was levied upon the capital stock of said Company, payable immediately in United States gold and silver coin, to the Secretary.

Any stock upon which said assessment shall remain unpaid on the 27th day of January 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday the 15th day of February 1871, to pay the delinquent assessment, together with costs of advertising and expense of sale. By order of the Board of Trustees, J. M. BUFFINGTON, Sec'y, Jan 7 Office, 37 New Merchants Exchange.

I. X. L. Gold & Silver Mining Company. Location of Mine Silver Mountain Mining District Alps County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the eighteenth day of Oct. 1870, an assessment of \$1.00 per share was levied, upon the capital stock of said Company, payable immediately in United States Gold and Silver coin, to the Secretary at his office Pioneer Hall, 808 Montgomery Street, San Francisco Cal.

Any stock upon which said assessment shall remain unpaid on the seventh day of January, 1871, shall be deemed delinquent, and will be duly advertised for sale at auction, and unless payment shall be made before, will be sold on Tuesday, the thirty-first day of January, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of the sale.

By order of the Board of Trustees, J. CROWNSHIELD, Secretary, Office, Pioneer Hall (upstairs) 808 Montgomery street, San Francisco, California.

Providence Gold and Silver Mining Company.—Location of Works, Nevada County, California.

NOTICE.—There are delinquent upon the following described Stock, on account of assessment levied on the twelfth day of November, 1870, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificates.	No. Shares.	Amount.
John S Carter.....	100	20	\$20 00
John S Carter.....	20	10	20 00
John S Carter.....	115	10	10 00
Phoebe E Carter.....	167	5	5 00
Thatcher Emery.....	89	3	3 00
Thatcher Emery.....	90	3	3 00
Thatcher Emery.....	219	5	5 00
A Folom.....	9	50	50 00
A Folom.....	13	6	6 00
J Mulachy.....	155	8	8 00
A Walrath.....	88	4	4 00
A Walrath.....	144	20	20 00
A Walrath.....	215	5	5 00
A Walrath.....	270	45	45 00
N C Walton Jr.....	273	100	100 00
N C Walton Jr.....	274	120	120 00
N C Walton Jr.....	275	90	90 00

And in accordance with law, and an order of the Board of Trustees, made on the 12th day of November 1870, so many shares of each parcel of said Stock as may be necessary, will be sold at the office of the Company, by the Secretary, 37 New Merchants Exchange, San Francisco, on the 15th day of January, 1871, at the hour of 12 o'clock P. M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale. J. M. BUFFINGTON, Secretary, Office 37 New Merchants Exchange, (third floor) San Francisco, California. dec25

Nevada Land and Mining Company.—Location of Works, Johnson & Latham Antelope and Clifton District, Elko County, State of Nevada.

NOTICE.—There are delinquent, upon the following described Stock, on account of Assessment levied on the sixteenth day of November, 1870, the several amounts set opposite the names of the respective Shareholders as follows:

Names	No. Certificates	No. Shares	Amount
Henry R. Miller.....(unissued)	2000		80 00

And in accordance with law, and an order of the Board of Trustees, made on the sixteenth day of November, 1870, so many shares of each parcel of said Stock as may be necessary, will be sold at public auction, at the office of the Company Room 5 No. 302 Montgomery street, San Francisco, Cal, on Saturday the 7th day of January 1871, at the hour of 1 o'clock P. M. of said day, to pay said delinquent Assessment thereon together with costs of advertising and expenses of a sale. WM. H. WATSON, Secretary, Office, Room 5 No. 302 Montgomery St., San Francisco.

St. Patrick Gold Mining Company.—Location of works, Ophir District, Placer County, Cal.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 27th day of December, 1870, an assessment of one dollar (\$1) per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary, at the office of the Company No. 402 Montgomery street, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on the first day of February 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 20th day of February, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees,

T. F. CRONISE, Secretary, Jan 7 Office, No. 402 Montgomery st., San Francisco.

Washington Mining Company.—Location of Works and Mine, Mariposa county, State of California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 12th day of December 1870, an assessment of \$1 per share was levied upon the capital stock of said Company, payable immediately in United States gold coin, to the Secretary at the office of the Company, No. 266 Front street, San Francisco.

Any stock upon which assessment shall remain unpaid on the 15th day of January 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday the 6th day of February, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees

T. B. WINGARD, Secretary, Office, 266, Front street, San Francisco, California.

SALT LAKE CITY Oct. 11, 1870.—Messrs. Dewey & Co.—I wouldn't care or the missing number of the SCIENTIFIC PRESS particularly if I did not keep them on file. I think a great deal of it and consider it worth keeping. I never invested four dollars to better advantage in my life. Respectly Yrs. A. O. B.

TAKE THE NEW HOME PAPER!



[From our Sample Issue, Dec. 17, 1870.]

THE PACIFIC RURAL PRESS.

In presenting to our readers the preliminary or sample number of the **PACIFIC RURAL PRESS**, we do not claim that it is what it should be, by any means; but the efforts of the publishers in conducting and building up the **SCIENTIFIC PRESS**, is efficient guarantee that no efforts will be spared to elevate their new paper, as fast as circumstances will permit, to such a standard of excellence and usefulness as will make it worthy and fit to represent the great and growing agricultural interest of the Pacific Coast. All we ask is the prompt and hearty co-operation of our friends in extending to it such a support as will warrant the necessary outlay to make the paper what it should be. Being already provided with an able corps of writers and workers in every department, a well equipped office, and a reputation for integrity and energy, which has been accorded by a generous public and which has proved of the highest pecuniary value, we venture upon our new enterprise with the fullest assurance of success.

The object of the paper will be to please, interest and instruct all who peruse its columns. It will contain nothing which can offend the most fastidious—nothing which will either directly or indirectly inculcate improper ideas or principles in the minds of either old or young. Our only aim will be to benefit and interest.

No pains or reasonable expense will be spared to make the paper what its patrons desire to have it, and what its proprietors mean to make it. Earnest labor, thought and study will be exercised to this end.

Its miscellany will be neither trashy or trifling; and while it will be designed to elevate and instruct, it will at the same time be made to interest and please.

The farmer will find the **AGRICULTURAL DEPARTMENT** well filled with really useful information, designed especially for use and practice on the Pacific Coast.

The Housewife will find something in every issue to assist her in economizing her means, or in adding to the comforts of her home and the luxuries of her table.

The Home Circle will always find much of interest and instruction for both old and young. Useful lessons will be given in the amenities of life, and in the simple laws of health. The children will not be forgotten; as we propose to establish a department for their especial benefit. We shall give an original New Year's story for the children in the first regular issue of the **RURAL**.

Our illustrations and embellishments will be of a high order—having utility and the elevation of taste and thought in constant view. Nothing in this line will be presented to pander to a vitiated taste. Improvements in this direction will be our constant aim. The beautiful California illustration which we present to-day, is one of a series of similar ones which we have already on hand and which will be given from time to time; to be followed by others of equal or greater interest and beauty of execution.

The publishers aim to make the **PACIFIC RURAL PRESS**, just the paper which Californians and other residents on this Coast should select as the one above all others which they would desire to SEND TO THEIR FRIENDS IN THE EAST, as a representative of California interests and as a remembrance to the "old folks at home," that they are not forgotten in this far off land of gold, and busy industry.

A CARD.

Having seen the prospectus of the **PACIFIC RURAL PRESS**, and believing there is great need in our comparatively new agricultural districts of such a journal as therein proposed, the undersigned do not hesitate to state that from the standing reputation and success of its publishers, (Messrs. Dewey & Co., proprietors of the **SCIENTIFIC PRESS**), we believe the new journal will be worthy of universal trial by our agricultural and rural population, and that its publication will be fruitful of much usefulness to its subscribers and in forwarding the development of our natural wealth and prolific resources.

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—THE—

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Home Circle,

in the Pacific States. And more than this, we shall freight its columns with fresh thoughts, and new ideas, which hastened across the continent by rail, shall awaken and quicken the zeal of the more staid and gradual moving culturists of the eastern and European States, to their

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We shall not only make a good paper for all husbandmen and homestead owners, (who now, more than ever require a knowledge of new discoveries in science and mechanical improvements,) but shall also render the journal a desideratum for those who contemplate becoming freeholders, and a large class of

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**An improved Cultivation of the Soil;
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Better Varieties of Fruits;
The Culture of New Products;
Creation of New Home Industries;
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As the conditions and circumstances of soil and climate and seasons on this coast are so peculiar that many of the approved methods of eastern agriculture are not at all applicable on our side of the Continent,—special attention will be given to considering the need, extent and character of the modifications necessary. This will alone render the paper of great practical value to our home readers and more essential to them than all the distant publications obtainable, without such auxiliary and modifying instructions.

The following are among the specialties upon which the **PACIFIC RURAL PRESS** will treat:

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Of writing will be our endeavor. Necessarily dealing largely in researches for facts we believe it desirable to present them in an inviting shape and in so comprehensive language that our special journalism shall advance in popularity and common relish.

No editorials or selections of unchaste or doubtful influence; or lottery, quack or other disreputable advertisements, will be admitted into its columns.

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DEWEY & Co.,

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Send for sample copies.

[Being also publishers of the **SCIENTIFIC PRESS**, we would say here that no change will be made in that paper except to improve it in its present character. Each journal will be published entirely distinct from the other.—D. & Co.]

Commence Now

And patronize your home agricultural paper before all others. We are determined to make a good paper, and one that will not only be profitable to farmers alone, but to their entire households—in fact, a favorite at every Pacific States' hearthstone. We need your encouragement more than ever at the start. Subscribe at once, and get up clubs as rapidly as possible if you believe in benefitting your neighbors.



Send in your subscriptions at once to Dewey & Co., Publishers, No. 414, Clay street, San Francisco.
January 4, 1870.





